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CORRIGENDUM NO. 04

This **Corrigendum No. 4 dated 21.09.2026** to E-tender No. **CDI2513P27** ***Hiring Service for Design, Engineering, Manufacture, Supply, Testing & Commissioning of 33KV/11KV Grid Power Receiving Sub-Station at OIL Moran in LSTK-EPC basis*** is issued to amend the following:

(i) Amendment of the following Clauses in BEC & in the Technical Evaluation Sheet (Proforma-XXII) of the subject tender:

Sl. No.	Tender Clause no.	Existing Tender Clause with Clause No.	Proposed Amended/Newly Added Clause with Clause No.
1.0	3.1.1	The Bidder must be the OEM (Original Equipment manufacturer) of both 33kV (or above) and 11kV (or above) voltage level of Air Insulated Switchgear/Gas Insulated Switchgear. In this regard, the bidder must submit an OEM Declaration/Certificate on its letterhead, duly signed by an authorized signatory, confirming the same.	The Bidder must be the OEM (Original Equipment manufacturer) of both 33kV (or above) and 11kV (or above) voltage level of Air Insulated Switchgear (AIS) panel/ switchboard with Vacuum Circuit Breaker. The offered AIS switchboards shall comprise of Circuit Breaker and Vacuum Interrupter of bidder's own make. In this regard, the bidder must submit an 'OEM Declaration/Certificate' on its letterhead, duly signed by an authorized signatory, confirming the same. In case the vacuum interrupter is not manufactured by the switchgear OEM, then the switchgear OEM shall submit a certificate from the vacuum interrupter manufacturer confirming that the vacuum interrupter supplied for incorporation in the offered switchgear (33kV and 11 kV) is manufactured in accordance with the design, specifications and technical requirements of the switchgear OEM.
2.0	3.1.2	Bidder must have experience of successfully completing at least one work of Supply, Installation, Testing and Commissioning of 33KV and 11 KV switchgear / switchboard in customized prefabricated modular outdoor container facility (E- House) in previous last 07 (Seven) years reckoned from the original bid closing	Bidder must have experience of successfully completing at least one work of Supply, Installation, Testing and Commissioning of 33KV switchgear panel / switchboard in customized prefabricated modular outdoor container facility (E House) in previous last 07 (Seven) years reckoned from the original bid closing date in Central/State Government/ PSUs /Nationalized Banks/Public Limited

		date in Central/State Government/ PSUs/Nationalized Banks/Public Limited Company.	Company.
3.0	3.1.3	The bidder shall submit Type Test Certificates issued by National Accreditation board for Testing and calibration Laboratories (NABL)/BIS/CPRI/ILAC accredited laboratories/STL members/central govt. approved laboratories or any other reputed national or international laboratories in the name of the Original Equipment Manufacturer (OEM) only. For the offered make, model and rating of the 33 kV Switchgear and 11 kV Switchgear, the following Type Test Certificates not older than **15 (fifteen) years** reckoned from the original bid closing date must be submitted along with the bid: i) Temperature Rise Test ii) Dielectric Test iii) Internal Arc Classification Test for Cable Chamber and Busbar Chamber iv) Short-Time Withstand Current and Peak Withstand Current Tests	The bidder shall submit Type Test Certificates issued by National Accreditation board for Testing and Calibration Laboratories (NABL)/BIS /CPRI/ILAC accredited laboratories/STL members/centre al govt. approved laboratories or any other reputed national or international laboratories in the name of the Original Equipment Manufacturer (OEM) or in the name of parent company. For the offered make, model of the 33 kV AIS Switchgear the following Type Test Certificates not older than 15 (fifteen) years reckoned from the original bid closing date must be submitted along with the bid: i) Temperature Rise Test ii) Dielectric Test iii) Internal Arc Classification Test for Cable Chamber and Busbar Chamber. iv) Short-Time Withstand Current and Peak Withstand Current Tests
4.0	Notes to Clause 3.1.2, E(a) of BEC/PQC	If the prospective bidder is executing a contract/order which is still running and a part of contract/order which has been executed within the specified period prior to due date of bid submission is as per Clause 3.1.2 above, such experience may also be taken into consideration provided that the bidder has to submit a satisfactory work / supply and service execution certificate issued by end user confirming requirement as per Clause 3.1.2 above.	If the bidder is executing a contract/order which is still running and a part of contract/order which has been executed within the period of 07 (seven) years reckoned from the original bid closing date which fulfils Clause 3.1.2 above, such experience may also be taken into consideration provided that the bidder submit a satisfactory work / supply and service execution certificate issued by end user confirming to the requirement as per Clause 3.1.2 above.

5.0	Notes to Clause 3.1.2, E(b) of BEC/PQC	In case the start date of the requisite experience is beyond the prescribed 07 (seven) years reckoned from the original bid closing date, but completion is within the prescribed 07 (seven) years reckoned from the original bid closing date.	In case the start date of the requisite experience is earlier than the prescribed 07 (seven) year period reckoned from the original bid closing date, but the required service as per Clause No 3.1.2 was completed within 07 (seven) years period reckoned from the original bid closing date then such experience will also be taken into consideration provided that the bidder submits a satisfactory work / supply and service execution certificate issued by end user confirming to the requirement as per Clause 3.1.2 above.
6.0	Notes to Clause 3.1.2, E(c) of BEC/PQC	If the prospective bidder has executed a contract in which work (as mentioned under Clause No. 3.1.2) is a component of the contract.	If the bidder has executed a contract in which part of the Work (as mentioned under Clause No. 3.1.2) is a component of the contract, executed within the 07 (seven) year period reckoned from the original bid closing date then such requisite experience may also be taken into consideration provided that the bidder submits a satisfactory work / supply and service execution certificate issued by end user confirming to the requirement as per Clause 3.1.2 above.
7.0		Note: In case the documents submitted as per Para A above, are not sufficient to establish the required information of clause 3.1.2 against Para E (a), (b) & (c) above, the bidder shall also have to submit the breakup of the works executed under such contract(s) clearly indicating the value / quantity / period of the work carried out as per clause 3.1.2 which should be certified by the end user or a certificate issued by a practicing Chartered/ Cost Accountant Firm (with Membership Number & Firm Registration Number).	Note: In case the documents submitted as per Para A above, are not sufficient to establish the required information of clause 3.1.2 against Para E (a), (b) & (c) above, the bidder shall also have to submit the breakup of the works executed under such contract(s) clearly indicating the requisite experience of the work carried out as per clause 3.1.2 which should be certified by the end user or a certificate issued by a practicing Chartered/ Cost Accountant Firm (with Membership Number & Firm Registration Number.

(ii) Modified BEC is enclosed as **ANNEXURE-I.**

(iii) Additionally, amendment of the following clauses in the Forwarding letter and Scope of Work (SOW) along with some Annexures related to SOW of the tender are shown as **ANNEXURE-II.**

(iv) Bid Closing / Opening dates extended as per following:

a) Bid Closing Date & Time: Extended up to **08.10.2026 [1100 Hrs (IST)]**

b) Bid Opening Date & Time: Extended up to **08.10.2026 [1400 Hrs (IST)]**

(v) All other terms and conditions of the Bid Document remain unchanged. Details can be viewed at www.oil-india.com.

Sd/-
MANAGER-CONTRACTS (S)

BID EVALUATION CRITERIA (BEC)/ PRE QUALIFICATION CRITERIA (PQC)

1.0 VITAL CRITERIA FOR BID ACCEPTANCE:

The bid shall conform to the specifications and terms and conditions given in the Bidding Documents. Bids will be rejected in case material and services offered do not conform to the required parameters stipulated in the technical specifications. Notwithstanding the general conformity of the bid to the stipulated specifications, the following requirements will have to be particularly met by the Bidders without which the same will be considered as non-responsive and will not be considered for evaluation. All the documents related to BEC shall be submitted along with the Technical Bid.

Note: Bidders are advised not to take any exception/deviation to the Bid Documents. Exceptions/Deviations, if any, should be brought out during the Pre-Bid Conference as scheduled against this Tender. After processing such suggestions, Company may communicate the changes, if any, through an addendum to the tender document. Still, if any exceptions/deviations are maintained in the bid, such conditional/nonconforming bids shall not be considered, but shall be rejected.

2.0 ELIGIBILITY CRITERIA:

The bidder must be incorporated/constituted in India and must maintain more than or equal to 20% local content (LC) for the offered services to be eligible to bid against this tender.

Regarding calculation of local content and submission of documents during bidding & execution of contracts, provision of **Public Procurement (Preference to Make in India) Order, 2017 of Department for Promotion of Industry and Internal Trade (DPIIT), Govt. of India as revised vide Order No. P45021/2/2017-PP (BE-II) dated 16th September 2020 (and as amended time to time) with modifications as notified vide MoP&NG Order No. FP-20013/2/2017-FP-PNG-Part (4) (E-41432) dated 26th April 2022** (including subsequent amendments thereof, if any), shall be applicable.

If such local content is not maintained during execution of contract, OIL reserves the right to invoke the Performance Securities submitted by the bidding and supporting companies (wherever applicable), in addition to resorting to other options as may be deemed appropriate.

Whether or not the bidders want to avail PP-LC benefit against this tender, it is mandatory for them to meet the following at the bidding stage:

(a) The bidder must provide the specific **percentage (%) of local content** in their bid, without which the bid shall be liable for rejection being non-compliant**.**

(b) The Bidder shall submit an undertaking from the authorised signatory of bidder having the Power of Attorney along with the bid specifying the LC

Percentage and such undertaking shall become a part of the contract, if awarded. [Format enclosed as **PROFORMA-XVII**]

(c) The aforesaid undertaking of the bidder shall also be supported by a certificate from the statutory auditor or cost auditor of the company (in case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of other than companies) giving the percentage of local content.

(d) Bidder to submit a copy of their Certificate of Incorporation/constitution in India.

3.0 TECHNICAL EVALUATION CRITERIA:

3.1 EXPERIENCE CRITERIA:

3.1.1 The Bidder must be the OEM (Original Equipment manufacturer) of both 33kV (or above) and 11kV (or above) voltage level of Air Insulated Switchgear (AIS) panel/ switchboard with Vacuum Circuit Breaker. The offered AIS switchboards shall comprise of Circuit Breaker and Vacuum Interrupter of bidder's own make. In this regard, the bidder must submit an 'OEM Declaration/Certificate' on its letterhead, duly signed by an authorized signatory, confirming the same.

In case the vacuum interrupter is not manufactured by the switchgear OEM, then the switchgear OEM shall submit a certificate from the vacuum interrupter manufacturer confirming that the vacuum interrupter supplied for incorporation in the offered switchgear (33kV and 11 kV) is manufactured in accordance with the design, specifications and technical requirements of the switchgear OEM

3.1.2 Bidder must have experience of successfully completing at least one work of Supply, Installation, Testing and Commissioning of 33KV switchgear panel / switchboard in customized prefabricated modular outdoor container facility (E House) in previous last 07 (Seven) years reckoned from the original bid closing date in Central/State Government/ PSUs /Nationalized Banks /Public Limited Company.

3.1.3 The bidder shall submit Type Test Certificates issued by National Accreditation board for Testing and Calibration Laboratories (NABL)/BIS /CPRI/ILAC accredited laboratories/STL members /central govt. approved laboratories or any other reputed national or international laboratories in the name of the Original Equipment Manufacturer (OEM) or in the name of parent company.

For the offered make, model of the 33 kV AIS Switchgear the following Type Test Certificates not older than 15 (fifteen) years reckoned from the original bid closing date must be submitted along with the bid:

i) Temperature Rise Test.
ii) Dielectric Test.
iii) Internal Arc Classification Test for Cable Chamber and Busbar Chamber.
iv) Short-Time Withstand Current and Peak Withstand Current Tests

3.1.4 Availability of Support for relay: The numerical relays offered for 33 KV and 11 KV switchboard shall be of single make. The relays offered shall be supported by the relay Original Equipment Manufacturer (OEM) for a period of minimum 10 years from the date of Original Bid Closing date of this tender. The bidder shall submit a declaration as per 'Form- Declaration Relay Support' along with the technical bid.

Notes to Clause 3.1.2 above:

A. For proof of requisite experience (refer Clause No. 3.1.2 above), the following documents/photocopy (self-attested/attested) must be submitted along with the bid:

i) Contract document/LOI/LOA/WO showing details scope of work and technical specifications,,

AND

ii) Job Completion Certificate(JCC)issued by the end user/client in their official letter head duly sealed and signed showing:

a) Gross value of job done/ quantity done
b) Nature of jobs done and Work Order No./Contract No.
c) Contract period and date of completion.

OR

SES (Service Entry Sheet)/Certificate of Payment (COP) issued by the company indicating the following:

a) Work Order No./Contract No.
b) Gross value of jobs done/ quantity done.
c) Period of service
d) Nature of service

B. Only Letter of Intent (LOI)/Letter of Award (LOA) and/or Work Order(s), Job Completion certificates are not acceptable as evidence of experience.

C. In case the requisite experience is against **OIL's contract**, the bidder shall only be required to categorically specify **OIL's Contract Number** and **date**.

D. Mere award of contract(s) shall not be counted towards experience. Successful completion of the awarded contract(s), as stipulated respectively under Clause No. 3.1.2 shall only be treated as acceptable experience.

E. Following work experience will also be taken into consideration:

a) If the bidder is executing a contract/order which is still running and a part of contract/order which has been executed within the period of 07 (seven) years reckoned from the original bid closing date which fulfils Clause 3.1.2 above, such

experience may also be taken into consideration provided that the bidder submit a satisfactory work / supply and service execution certificate issued by end user confirming to the requirement as per Clause 3.1.2 above.

b) In case the start date of the requisite experience is earlier than the prescribed 07 (seven) year period reckoned from the original bid closing date, but the required service as per Clause No 3.1.2 was completed within 07 (seven) years period reckoned from the original bid closing date then such experience will also be taken into consideration provided that the bidder submits a satisfactory work / supply and service execution certificate issued by end user confirming to the requirement as per Clause 3.1.2 above.

c) If the bidder has executed a contract in which part of the Work (as mentioned under Clause No. 3.1.2) is a component of the contract, executed within the 07 (seven) year period reckoned from the original bid closing date then such requisite experience may also be taken into consideration provided that the bidder submits a satisfactory work / supply and service execution certificate issued by end user confirming to the requirement as per Clause 3.1.2 above.

Note: In case the documents submitted as per Para A above, are not sufficient to establish the required information of clause 3.1.2 against Para E (a), (b) & (c) above, the bidder shall also have to submit the breakup of the works executed under such contract(s) clearly indicating the requisite experience of the work carried out as per clause 3.1.2 which should be certified by the end user or a certificate issued by a practicing Chartered/ Cost Accountant Firm (with Membership Number & Firm Registration Number.

F. Experience of executing work (as mentioned under Clause No. 3.1.2) through 'sub-contracting' shall not be considered for evaluation.

G. Work executed(as mentioned under Clause No. 3.1.2) by a bidder for its own organization/subsidiary cannot be considered as experience for the purpose of meeting BEC.

H. Bid will be rejected if not accompanied with adequate documentary proof in support of Work experience as mentioned in Para 3.1.2.

I. Oil India Limited (OIL) reserves the right to contact the Client(s) referred by the Bidder for authentication of the documents submitted by the Bidder. OIL may contact the clients/operators under intimation/copy to the respective Bidder. It will be the responsibility of the Bidder to take up the matter with his Client(s) and arrange for the confirmation as desired by OIL.]

J. Bidders submitting their bid based on the experience of their Technical Collaborator/Joint Venture/Parent/Subsidiary/Co-subsidiary/Sister Subsidiary/MOU with another party shall not be considered. Bids from Consortium, Joint Venture shall also not be considered.

K. Only one bid from any individual bidder or entity shall be accepted against the tender. If a bidder or firm is found to have participated in more than one bid - either in their own name or through an associated entity, by way of a tie-up/ agreement/Memorandum of Understanding (MoU) - then all such bids shall be summarily rejected.

4.0 MOBILIZATION PERIOD:

The bidders must confirm their compliance in their "technical" bid to complete the mobilization within **15 (Fifteen) days from the date of issuance of Mobilization Notice** Offers without confirmation of stipulated mobilization time or with mobilization time more than **15 (Fifteen) days** shall be summarily rejected. The bidder shall confirm compliance of this in their technical bid.

5.0 FINANCIAL CRITERIA:

5.1 Annual Financial Turnover of the bidder in any of preceding 03 (three) financial/accounting years, reckoned from the original bid closing date should be at least **Rs. 11,90,99,000.00** only.

5.2 **Net worth** of bidder must be positive for preceding financial/accounting year.

Note:

- Annual Financial Turnover of the bidder from operations shall mean: "Aggregate value of the realisation of amount made from the sale, supply or distribution of goods or on account of services rendered, or both, by the company (bidder) during a financial year" as per the Companies Act, 2013 Section 2 (91).

- Net worth shall mean: "Share capital + Reserves created out of profits and securities Premium – Aggregate value of accumulated losses (excluding revaluation reserves) – deferred expenditure – Miscellaneous Expenditure to the extent not written off and carried forward Loss - Reserves created out of write back of depreciation and amalgamation"

- The Net worth to be considered against the clause above, should be read in conjunction with the definition of Net worth as mentioned in Section 2 (57) of The Companies Act, 2013.

Notes to BEC Clause 5.0 above:

A. For proof of Annual Turnover from operation and Net worth any one of the following document must be submitted along with the bid:

(i) A certificate issued by a practicing Chartered/Cost Accountant (with Membership Number and Firm Registration Number), certifying the Annual turnover & Net worth as per format prescribed in **Proforma-VII**.

OR

(ii) Financial Statements (Balance Sheet & Profit & Loss account **along with all the schedules/notes forming part of the Balance sheet & Profit and Loss Account**) audited by the auditors appointed under the statute like Companies Act etc. wherever applicable. In cases where the bidding/ supporting company (as applicable) are not required to prepare Audited Financial Statements as per the Law of the Land of the country of the bidding/supporting company as applicable, the bidder shall provide documentary evidence for the same along with a certificate from a practicing Chartered Accountant or equivalent to this effect. The bidder must also submit the financial statement as per the accounting standards of the country of the bidding/supporting company as the case may be, duly certified by the practicing-chartered accountant or equivalent.

***Note**: Mention of UDIN (Unique Document Identification Number) is mandatory for all Certificates issued w.e.f. February 1, 2019 by Chartered Accountant in Practice.

B. Considering the time required for preparation of Financial Statements, if the last date of preceding financial/accounting year falls within the preceding six months /within the due date for furnishing of audit report as per Section 139(1) of IT Act, 1961 (read along with latest circulars/notifications issued by CBDT from time to time) reckoned from the original bid closing date and the Financial Statements of the preceding financial/accounting year are not available with the bidder, then the financial turnover of the previous three financial/accounting years excluding the preceding financial/accounting year will be considered. In such cases, the Net worth of the previous financial/accounting year excluding the preceding financial /accounting year will be considered. However, the bidder has to submit an undertaking in support of the same along with their technical bid as per **PROFORMA-VI**.

C. In case the bidder is a Central Govt. organization/PSU/State Govt. organization /Semi-State Govt. Organization or any other Central/State Govt. Undertaking, where the auditor is appointed only after the approval of Comptroller and Auditor General of India and the Central Government, their certificates may be accepted even though FRN is not available. However, bidder to provide documentary evidence for the same.

D. In case the bidder is a Government Department, they are exempted from submission of documents mentioned under **Para-A. & Para-B.** above.

E. Bid will be rejected if not accompanied with adequate documentary proof in support of Annual turnover and Net worth as mentioned in Para 5.1 & 5.2.

6.0 COMMERCIAL EVALUATION CRITERIA

6.1 The bids are to be submitted in **Single stage under Two Bid System** i.e., Un-priced Techno-Commercial Bid and Price Bid together. The Un-priced techno-commercial bid (or technical bid) must comprise of all the technical documents substantiating the previous experience, financial & technical credentials of the

bidder and any other document as asked for in the bid document. **There should not be any indication of price in the technical bid; otherwise, the bid shall be rejected straightway**

6.2 The price quoted by the successful bidder must be firm during the performance of the contract and not subject to variation on any account except as mentioned in the bid document. Any bid submitted with an adjustable price quotation other than the above will be treated as non- responsive and rejected.

6.3 **EMD/Bid Security:** Bid Security in Original shall be furnished as a part of the Techno Commercial Un-priced Bid and shall reach the office of **CGM-CONTRACTS, OIL at Duliajan** on or before **12.45 Hrs (IST)** on the Bid Closing Date (BCD). A scanned copy of the bid security shall however be uploaded in OIL's E-Procurement along with the Technical Bid. The amount of Bid Security shall be **₹ 47,64,000.00.** Bid without proper & valid Bid Security will be rejected. PPP [Public Procurement policy] for Micro and Small Enterprises is not applicable for this tender (**being works contract tender**). Hence, Purchase Preferences allowed as per Government Guidelines in Vogue and exemption from submission of bid security against MSE Units is not applicable for this tender

For detailed may please refer to **Clause No. 9.0 of INSTRUCTIONS TO BIDDERS (ITB).**

6.4 Bid Documents/User Id & Password for OIL's E-Tender portal are not transferable.

6.5 Any bid received in the form of Physical document/Telex/Cable/Fax/E-mail will not be accepted.

6.6 Bids shall be typed or written in indelible ink. The Bids and all uploaded documents must be digitally signed using "Class 3" digital certificate [ecommerce application (Certificate with personal verification and Organization name)] as per Indian IT Act obtained from the licensed Certifying Authorities operating under the Root Certifying Authority of India (RCAI), Controller of Certifying Authorities (CCA) of India[except copies of the documents required in physical form] should invariably be submitted in the 'Technical Attachment Tab' through OIL's e-bidding portal, before the scheduled date and time for the tender closing. All the documents uploaded shall be digitally signed by the authorized signatory of the bidder.

6.7 Bids shall contain no interlineations, erasures or overwriting except as necessary to correct errors made by bidder, in which case such corrections shall be initiated by the persons(s) signing (digitally) the bid. However, white fluid should not be used for making corrections. Any bid not meeting this requirement shall be rejected.

6.8 Any bid containing false statement will be rejected and action will be taken by Company as per Bid Document.

6.9 Bidders must quote clearly and strictly in accordance with the price schedule

outlined in **Price Bidding Format** attached under "**Notes and Attachments**" tab in the main bidding engine of OIL's E-Tender portal; otherwise the bid will be rejected. All other techno-commercial documents other than price details to be submitted with Unpriced Techno-Commercial Bid as per tender requirement under "**Technical Attachment**" Tab Page only.

6.10 Bidder must accept and comply with the following provisions as given in the Tender Document in toto, failing which offer will be rejected:

(i) Firm price
(ii) Bid Security/EMD
(iii) Period of validity of Bid
(iv) Price Schedule
(v) Performance Bank Guarantee / Security deposit
(vi) Delivery/Completion Schedule
(vii) Scope of work
(viii) Guarantee of material/work
(ix) Liquidated Damages clause
(x) Tax liabilities
(xi) Arbitration/Resolution of Dispute Clause
(xii) Force Majeure
(xiii) Applicable Laws
(xiv) Specifications
(xv) Integrity Pact
(xvi) Mobilization

6.11 There should not be any indication of price in the Un-priced Techno-Commercial Bid. A bid will be straightway rejected if this is given in the Un-priced Techno-Commercial Bid.

6.12 Bid received with validity of offer less than **120 (One Hundred Twenty) days** from the date of Technical Bid opening will be rejected. Bidder must submit a declaration regarding bid validity as per the format prescribed in **PROFORMA-I.**

6.13 The Integrity Pact is applicable against this tender. OIL shall be entering into an Integrity Pact with the bidders as per format enclosed vide **Proforma-XIX** of the tender document. This Integrity Pact proforma has been duly signed by OIL's competent signatory. The proforma must be returned by the bidder (along with the Un-priced Techno-Commercial Bid) duly signed (digitally) by the same signatory who signed the bid, i.e., who is duly authorized to sign the bid. Uploading the Integrity Pact with digital signature will be construed that all pages of the Integrity Pact have been signed by the bidder's authorized signatory who sign the Bid.

6.14 Bidders should not be under liquidation/bankruptcy/undergoing any insolvency resolution process as on Bid Closing date. Bidders shall submit undertaking towards compliance of above as per the prescribed formats **(Appendix-1)** along with the bid. If any bidder declines to submit the above undertakings, their bids shall be liable for rejection.

6.15 The bidder shall submit an undertaking/declaration as per **Appendix-2**. confirming that they have read and understood OIL's Banning Policy and that, neither they nor any of their allied concerns or partners or associates or directors, or proprietors involved in any capacity, are currently on OIL's Holiday/Banning List. Further, the bidder shall confirm that neither they nor any of their aforementioned entities have, during the last three years, been involved in any transgression with any company conforming to the Transparency International (TI) approach or with any Public Sector Enterprise of India that could justify exclusion from the tender process. The bidder shall also disclose details of all such allied entities, if any, as required under the Banning Policy.

6.16 Only one bid against a party offering individually as well as under Proprietorship/Partnership firms shall be accepted. In case any bidder is found to submit more than one bid including separate bids under proprietorship as well as under any Partnership firm then all the bids submitted by the bidder in his own name or in the name of firm where he/she is a partner/sole proprietor will be rejected.

7.0 PRICE EVALUATION CRITERIA

7.1 Price bid shall be opened in respect of only the techno-commercially acceptable bidders whose bids have been found to be substantially responsive. A substantially responsive bid is one that meets the terms and conditions of the Tender and/or the acceptance of which bid will not result in indeterminate liability on OIL.

7.2 The quantities shown against each item in the "Price Bid Format" shall be considered for the purpose of Bid Evaluation. It is, however, to be clearly understood that the assumptions made in respect of the quantities for various operations are only for the purpose of evaluation of the bid and the Contractor will be paid on the basis of the actual number of days/parameter, as the case may be.

7.3 If there is any discrepancy between the unit price and the total price, the unit price will prevail and the total price shall be corrected. Similarly, if there is any discrepancy between words and figure, the amounts in words shall prevail and will be adopted for evaluation.

7.4 The bidders are advised not to offer any discount/rebate separately and to offer their prices after considering discount/rebate, if any.

7.5 If a bidder quotes Total Charges/Consideration as NIL, the bid shall be treated as unresponsive and will not be considered.

7.6 Bidders are required to quote for all the items in the BOQ/Price Bid/ Financial Document. However, if no charge is involved for any of the work/item, 'NIL' should be mentioned against such part of work. If any item in the Price Bid Format is left blank, then it will be construed that for that item bidder has quoted rate as "0".

7.7 Conditional and unsolicited discounts will not be considered in the evaluation.

However, if such a bidder happens to be the lowest recommended bidder, an unsolicited discount without any condition will be considered for computing the contract price.

7.8 The inter-se-ranking of all the techno-commercially qualified bidders will be determined on overall lowest cost basis (L-1 offer) i.e. considering the Total quoted price inclusive of all liabilities and GST (CGST & SGST/UTGST or IGST).

7.9 Based on the evaluation of techno-commercially qualified bidders, the job will be awarded to the L-1 bidder.

7.10 In case of identical overall lowest offered rate by more than 01 (one) bidder, the selection will be made by draw of lot between the parties offering the same overall lowest price.

7.11 OIL will prefer to deal with registered bidder under GST. Therefore, bidders are requested to get themselves registered under GST, if not registered yet. However, in case any unregistered bidder is submitting their bid, their prices will be loaded with applicable GST while evaluation of bid. Where OIL is entitled for input credit of GST, the same will be considered for evaluation of bid as per evaluation methodology of tender document.

7.12 When a bidder mentions taxes as extra without specifying the rates & amount, the offer will be loaded with maximum value towards taxes received against the tender for comparison purposes. If the bidder emerges as lowest bidder after such loading, in the event of order on that bidder, taxes mentioned by OIL on the Purchase Order/Contracts will be binding on the bidder.

7.13 Input Tax Credit on GST (Goods & Service Tax) for this service is NOT available to OIL & the bids will be evaluated based on total price including GST.

7.14 For evaluation purposes, quoted unit rates against each Line Item of the price bidding format shall be considered only up to two (2) decimal places without rounding off for evaluation.

8.0 PURCHASE PREFERENCE CLAUSE

8.1 PURCHASE PREFERENCE TO MSE BIDDERS (NOT APPLIACBLE FOR THIS TENDER): Purchase Preference to Micro and Small Enterprises is applicable for this tender. Documentation required to be submitted by MSEs: Categorization and various criteria applicable to MSE bidders shall be guided by the Gazette Notification No. CG-DL-E-26062020-220191 dated 26.06.2020 (and as amended time to time) issued by MINISTRY OF MICRO, SMALL AND MEDIUM ENTERPRISES. The bidder claiming the MSE status (MSE-General, MSE-SC/ST, MSE-Woman) against this tender has to submit Udyam Registration Number with Udyam Registration Certificate along with the technical bid for availing the benefits applicable to MSEs. Note: In case bidding MSE is owned by Schedule Caste or Schedule Tribe or Woman entrepreneur, valid documentary evidence

issued by the agency who has registered the bidder as MSE owned by SC/ST/Woman entrepreneur should also be enclosed.

8.2 PURCHASE PREFERENCE POLICY (LINKED WITH LOCAL CONTENT) (PP-LC): Purchase preference under Public Procurement (Preference to Make in India) Order, 2017 of Department for Promotion of Industry and Internal Trade (DPIIT), Govt. of India as revised vide Order No. P-45021/2/2017-PP (BE-II) dated 16th September 2020 (and as amended time to time) with modifications as notified vide MoPNG Order No. FP-20013/2/2017-FP-PNG-Part (4) (E-41432) dated 26th April 2022, shall be applicable in this tender. Bidders to check the provisions of the Order for their eligibility to bid and seek benefits for Purchase preference, accordingly.

8.3 Contract shall be awarded for the entire scope of work under this tender subject to concurrent application of Public Procurement Policy for MSE Order 2012 and PP(MII) Order 2017 as per Order No. F.1/4/2021-PPD dated 18.05.2023 issued by Public Procurement Division, Department of Expenditure, Ministry of Finance, Govt. of India and any subsequent amendment thereto.

Note: Services under this tender is not splitable.

9.0 GENERAL:

9.1 In case bidder takes exception to any clause of bidding document not covered under BEC/PQC, then the Company has the discretion to load or reject the offer on account of such exception if the bidder does not withdraw / modify the deviation when/as advised by company. The loading so done by the company will be final and binding on the bidders. No deviation will however be accepted in the clauses covered under BEC-BRC.

9.2 To ascertain the substantial responsiveness of the bid, the Company reserves the right to ask the bidder for clarification in respect of clauses covered under BEC also and such clarifications fulfilling the BEC clauses in toto must be received on or before the deadline given by the company, failing which the offer will be liable for rejection. Since pre-bid meeting is provisioned in this tender, Company is not obligated to seek any post-bid clarification. However, clarifications if decided to be sought at the option of Company, the same shall be limited to the original submissions only and no independent fresh submission shall be called for/permitted. However, mere submission of such clarification shall not make the offer responsive, unless company is satisfied with the substantial responsiveness of the offer.

9.3 If any of the clauses in the BEC-BRC contradict with other clauses of bidding document elsewhere, the clauses in the BEC-BRC shall prevail.

9.4 Bidder(s) must note that requisite information(s) / financial values etc. as required in the BEC-BRC & Tender must be clearly understandable from the supporting documents submitted by the Bidder(s); otherwise Bids shall be rejected.

9.5 OIL will not be responsible for delay, loss or non-receipt of applications for participating in the bid sent by mail and will not entertain any correspondence in this regard.

9.6 The originals of such documents [furnished by bidder(s)] shall have to be produced by bidder(s) to OIL as and when asked for.

10.0 DOCUMENT AUTHENTICITY UNDERTAKING:

Bidders should note that Company (OIL) may verify authenticity of all the documents /certificates/information submitted by the bidder(s) against the tender. In case at any stage of tendering process or Contract execution etc., if it is established that bidder has submitted forged documents/certificates/information towards fulfilment of any of the tender/contract conditions, Company shall immediately reject the bid of such bidder(s) or cancel/terminate the contract besides taking action as per OIL's Banning Policy dated 6th January 2017 revised on 17.03.2023, available in the OIL's website. Accordingly, service provider/vendor to submit the Undertaking of authenticity of information/documents submitted as per **PROFORMA-XI**.

11.0 LAND BORDER SHARING:

Bidders should submit an Undertaking that, their bid is compliant to Order No. F.No. 6/18/2019-PPD dated 23.07.2020 issued by Ministry of Finance, Department of Expenditure, Public Procurement Division, Govt. of India (including subsequent amendments thereto, if any), regarding restrictions on procurement from a bidder of a country which shares land border with India.

In this regard, bidders must submit duly sealed & signed undertaking as per format provided vide **Exhibit-I, Exhibit-II** and **Exhibit-III** along with the technical bid.

12.0 Bidders have to submit a declaration as per the format prescribed in **PROFORMA-XX** regarding compliance of Safety Measures along with the technical bid.

13.0 CHECKLIST FOR BEC-BRC: Enclosed as BEC/PQC CHECKLIST**(Proforma-XXII) and Commercial Checklist (Proforma-XXI).** To be submitted along with the technical bid.

Note: Bidder shall submit the prescribed checklists for BEC, Technical Criteria etc. If any bidder declines to submit the duly filled checklists, their bids shall not be considered for evaluation.

14.0 COMPLIANCE OF THE COMPETITION ACT, 2002: The bidder shall strictly comply with the provisions of the Competition Act, 2002, more particularly, Section-3 of the Act. Any violation the provisions of the Act shall attract penal action under the Act.

15.0 VERIFICATION AND CERTIFICATION OF DOCUMENTS BY INDEPENDENT THIRD-PARTY INSPECTION AGENCIES (TPIA):

15.1 Oil India Limited (OIL) has engaged the following 17 (Seventeen) Independent Inspection Agencies for a period of 04 (Four) years up to 06.06.2028 to verify the authenticity of documents required against BEC to be submitted by the bidders against the tender:

Sl. No.	**Name of Independent Inspection Agency**	**Contact E-mail ID**
i.	M/s. Alfred H Knight India Private Limited.	a. rkjain@ahkgroup.com b. pradeep.mathur@ahkgroup.com c. info@ahkgroup.com
ii.	M/s. TUV India Private Limited	a. noida@tuv-nord.com b. mumbai@tuv-nord.com c. salim@tuv-nord.com
iii.	M/s Conformity India International Private Limited	a. mktg@ciindia.in
iv.	M/s Ravi Energic Private Limited	a. baroda@ravienergic.com b. tpia@ravienergic.com
v.	M/s SGS India Private Limited	a. dhaval.vora@sgs.com b. sgs.india@sgs.com
vi.	M/s Assure Quality Management Certification Services Private Limited	a. aqmcs@aqmcs.com
vii.	M/s. ISSPL Limited	a. industrial_services@irclass.org b. oilandgas@irclass.org
viii.	M/s. TÜV Rheinland (India) Pvt. Ltd.	a. Shailesh.deotale@ind.tuv.com b. Kaushal.gohil@ind.tuv.com c. info@ind.tuv.com d. ravi.kumar@ind.tuv.com
ix.	M/s Gulf Lloyds (India) Ltd.	a. contact@gulfllloyds.com b. inspection@gulfllloyds.com
x.	M/s Baltic Testing India Pvt. Ltd.	a. office@balticcontrolindia.com
xi.	M/s Sanmarg Engineering Validation & Assessment	a. Amitra@sanmargeva.com

xii.	M/s Meenar Global Consultants LLP	a. sales@mgellp.in
xiii.	M/s Rites Limited	a. nrinspn@rites.com b. info@rites.com c. sbu.ninsp@rites.com
xiv.	M/s Bureau Veritas (India) Private Limited	a. bvindia.corporate@bureauveritas.com
xv.	M/s TUV SUD South Asia Private Limited	a. Hemant.chavan@tuvsud.com b. Jayashree.rane@tuvsud.com
xvi.	M/s Adornment Engineers India Private Limited	a. jks@adornmentengineers.com
xvii.	M/s TCRC Inspections Pvt. Ltd.	a. admin@tereinspections.com b. ashismallick@teregroup.com c. tenders@teregroup.com

15.2 Bidders are required to have their following documents verified and certified by any one of the empanelled Independent Third-Party Inspection Agencies listed below:

(i) Technical Criteria: Relevant documents required against BEC Clause Nos. 3.0.
(ii) Financial Criteria: Line of Credit, if incorporated in the Tender
(iii) General Requirement: Bidder's Certificate of Incorporation.
(iv) Additional Documents: As per tender requirement.

The Inspection Certificate, duly issued by the selected agency, must be submitted along with the Technical Bid. All costs related to verification and certification by the Thirty-Party Inspection Agencies shall be borne solely by the respective bidders. Payments in this regard shall be made directly by the bidders to the Inspection Agencies. OIL shall not be held responsible for any payment-related dispute between the bidders and the inspection agencies.

15.3 **The verified and certified documents (As mentioned in Para 10.2 above) must be submitted along with the Technical Bid**s. Any bid submitted with un-verified supporting documents shall not be considered. However, in case a bidder submits its bid along with all relevant supporting documents as per BEC without getting all/some of them verified by the designated Independent Inspection agency, such bid can be provisionally considered, provided it is accompanied by an Undertaking by the Bidder on their official letterhead towards submission of the duly verified and certified copies and Inspection Certificate within 07 (Seven) days from the actual date of bid opening. **No reminders or clarifications will be issued by the Company in this regard, and failure to submit the verified/ certified documents within the stipulated time shall result in outright rejection of the bid, at the sole risk and responsibility of the bidder.**

15.4 The methodology of verification/ certification of documents followed by the agencies is broadly as under, but not limited to:

(a) It is the sole responsibility of the bidders intending to participate in the tender to thoroughly understand the requirements of the tender, particularly the documents required under BEC. The bidders must present all relevant documents to any of the empanelled third-party certifying agencies for verification/certification. The TPI Agencies shall verify the authenticity of the documents only. They will not verify whether the documents produced by the bidder are sufficient for meeting the requirements of the tender or not. Neither OIL nor the Inspection Agencies shall be responsible for the selection or appropriateness of the documents submitted for verification. It is entirely the bidder's responsibility to ensure that the appropriate documents are verified/certified in support of BEC compliance.

(b) The concerned Independent Third-Party Inspection Agencies shall depute their qualified/competent inspector to the Bidder's premises to check the original documents and certify the copies which the bidder shall submit along with their bids.

(c) On issuance of the Inspection Certificate to the bidder, TPI agency should share a copy of the same to concerned Purchase Officer through email directly (Email ID: **jintu.borah@oilindia.in; contracts-services@oilindia.in)**. OIL will reserve the right to ask the inspection agencies to verify the documents with source, if required, at no extra cost to OIL. Verification/Certification of documents by OIL's empanelled third-party inspection agencies shall not automatically make the bidder techno-commercially acceptable or eligible for award of contract.

Notes:

(i) If any documents, LOI/LOA/Orders/Contracts, etc., submitted towards BEC are issued by Oil India Limited, such documents need not be verified by TPI agency.

(ii) Bidder's self-declared undertakings, Audited Balance Sheet & Profit-loss statement and/or CA certificate having UDIN are not required to be verified by the TPI agency.

(iii) Undertaking from TPI Agency as per format (**PROFORMA-M**) enclosed should be submitted along with the Bid.

(iv) In case of clarifications sought by OIL against BEC, supporting documents (historical in nature) to those submitted in the original bid will also have to be verified from the same TPI agency which has originally verified their bid documents. OIL shall categorically mention the documents that are to be submitted with TPI verification in the clarification sought. In case the bidder fails to submit the TPI verified documents, as sought by OIL, as part of their clarification, their offer will be liable for rejection.

***********End of PQC/BEC************

ANNEXURE-II

Sl No	Tender Reference	Existing Tender Specification	Amended Tender Specification	Annexure Details (if any)
1	Forwarding Letter 2.0 pg 1 of 243	'Hiring of services for carrying out renovation & interior decoration works in the Rig Electrical Building of Electrical Engineering Department, Duliajan, Assam.'	Hiring Service for Design, Engineering, Manufacture, Supply, Testing & Commissioning of 33KV/11KV Grid Power Receiving Sub-Station at OIL Moran in LSTK-EPC basis.	
2	Forwarding Letter 2.0 (xvi) pg. 2 0f 11	Rig Electrical Building of Electrical Engineering Department, FHQ, Oil India Limited, Duliajan, Dibrugarh, Assam	Moran Power Station, Electrical Engineering Department, Moran, Western Fields, Oil India Limited, Moran, Charaideo, Assam	
3	SOW, Specification-A0 (Lead Specification) Clause **-4(C(5))** , pg 3 of 271	The earth fault current in OIL's 11 kV network shall be limited to 192 A through the installation of a Neutral Grounding Resistor (NGR) connected to the star point of the power transformers. The contractor shall design the interlocking scheme such that, under all normal operating conditions, only one of the NGR connected to the power sources including Power Transformers, shall remain in circuit thereby limiting the earth's fault current to 192 A.	The earth fault current in OIL's 11 kV network shall be limited to 192 A through the installation of a Neutral Grounding Resistor (NGR) connected to the star point of the power transformers. The contractor shall design the interlocking scheme such that, under all normal operating conditions, only one of the NGR connected to the power sources including Power Transformers, shall remain in circuit thereby limiting the earth's fault current to 192 A. The specification of the existing NGR is as follows: a) Service: Outdoor, b) Rated Voltage: $11/\sqrt{3}$ kV, c) Rated current : 192.5 A for 10 sec, d) Rated Resistance: 33ohm, e) Specific resistance of material: 73 micro-ohm cm, Temp.co-efficient of resistance: 0.00094/° , f) Temperature rise over	

			ambient temperature of 40 ° C= 750 ° C rise, g) NGR standard: IEEE STD. 32	
4	SOW, Specification-A1 (33 KV SWITCHBOARD) Clause **-8.0 (b)** , pg 13 of 271	Metals: Iron and Steel are generally painted or galvanized as appropriate. Indoor parts may alternatively have chromium or copper-nickel plates or other approved protective finish. Small iron and steel parts (other than rustless steel) of all instruments and electrical equipment,the cores of electromagnets and the metal parts of relays and mechanisms shall be treated in an appropriate manner to prevent rusting.	Metals: Iron and Steel are generally to be painted or galvanized as appropriate. Indoor parts may alternatively have chromium or copper-nickel plates or other approved protective finish. Small iron and steel parts (other than rustless steel) of all instruments and electrical equipment, the cores of electromagnets and the metal parts of relays and mechanisms shall be treated in an appropriate manner to prevent rusting. Panels made up of material which are corrosion resistant may not have surface treatment like power coating. However all other components/part which are not made up of such material shall have surface treatment as per OEM's standard.	
5	SOW, Specification-A1 (**33 KV SWITCHBOARD)** Clause **-8.0 (e)** , pg 13 of 271	The switchgear shall be of CRCA steel / corrosion proof aluminium-zinc construction with sheet not less than 3 mm thickness for load bearing section and not less than 2mm thickness for non-load bearing and shall totally dust and vermin proof. However, if vendor has standardized the thickness of enclosure other than above mentioned and it meets the performance requirements and the design has been established through type test, the same shall be accepted. The panels shall be rigid without using any external bracings. The switchboard panels should comply with	The switchgear shall be of CRCA steel / corrosion proof aluminium-zinc construction with sheet not less than 2 mm thickness for load bearing section and not less than 2mm thickness for non-load bearing and shall totally dust and vermin proof. However, if vendor has standardized the thickness of enclosure other than above mentioned and it meets the performance requirements and the design has been established through type test, the same shall be accepted. The panels shall be rigid without using any external bracings. The switchboard	

		relevant IS / IEC and revision thereof and shall be designed for easy operation maintenance and further extension.	panels should comply with relevant IS / IEC and revision thereof and shall be designed for easy operation maintenance and further extension. Type test certificate of the offered model shall be submitted.	
6	SOW, Specification A01 (33KV Switchboard) Clause **-8.0 (p)** , pg 15 of 271	The relay compartments shall have degree of protection not less than IP:52 in accordance with IS:2147. All louvers if provided shall have very fine brass or GI mesh screen, IP-42 degree of protection as per IS: 3427 to all live parts shall (whether isolated or removed from panel) even when the breaker compartment door is open. Tight fitting garments / gaskets are to be provided at all openings in relay compartment.	The relay compartments shall have degree of protection not less than IP:4X in accordance with IS:2147. All louvers if provided shall have very fine brass or GI mesh screen, IP-42 degree of protection as per IS: 3427 to all live parts shall (whether isolated or removed from panel) even when the breaker compartment door is open. Tight fitting garments / gaskets are to be provided at all openings in relay compartment.	
7	SOW, Specification A01 (33KV Switchboard) Clause **-8.0 (q)** , pg 15 of 271	The switchboard shall have the facility of extension on the both sides of Adapter panels and dummy panels required to meet the Busbar.	The switchboard shall have the facility of extension on one side. Adequate space shall be considered for 33 kV AIS panel to accommodate one (01) additional panel with extension adaptor if required on one side of the panel as per future requirement.	
8	SOW, Specification A01 (33KV Switchboard) Clause **-9.0 (g)** , pg 16 of 271	The Bus Bar should be colour coded. Busbar shall have heat shrink coatings.	The Bus Bar should be colour coded or marked with colour coded stickers. Busbar shall have heat shrink sleeves of adequate voltage level.	
9	SOW, Specification A01 (33KV Switchboard) Clause **-10.0 (a)** , pg 16 of 271	The vacuum circuit breaker shall be draw out type suitable for installation in the switchgear cubicles (indoor). The breaker shall comply with IEC 62271-100 /	The vacuum circuit breaker shall be draw out type suitable for installation in the switchgear cubicles (indoor). The breaker shall comply with IEC 62271-	

		IS13118 (1991) for circuit breaker and IEC 62271-200 for the switch gear and latest amendment thereof. Construction of breaker shall be such that the points, which require frequent maintenance, shall be easily accessible.	100 / IS13118 (1991) for circuit breaker and IEC 62271-200 for the switch gear and latest amendment thereof. Construction of breaker shall be such that the points, which require frequent maintenance, shall be easily accessible. VCB of floor rolling or cassette type shall be used only. In case of Cassette type of VCB, separate trolley shall be supplied along with the panel. Space for storing the trolley inside E-house shall also be considered.	
10	SOW, Specification A01 (33KV Switchboard) Clause **-10.0 (e)** , pg 16 of 271	Circuit breaker shall be suitable for rapid reclosing cycle i.e. O-0.3 sec.-CO-30 sec.-CO.	Circuit breaker shall be suitable for rapid reclosing cycle i.e. O-0.3 sec.-CO-3 min.-CO.	
11	SOW, Specification A01 (33KV Switchboard) Clause **-10.0 (j)** , pg 17 of 271	The circuit breaker shall be provided with motor for spring charging operation. Spring charging motor shall be suitable for 250V, 50 Hz, single phase AC and 110 V DC/24 VDC supply as per OEM. Suitable rating starter/fuse shall be provided for Motor protection. Provision shall be available for charging the springs manually as well, and to close CB mechanically.	The circuit breaker shall be provided with motor for spring charging operation. Spring charging motor shall be suitable for 250V, 50 Hz, single phase AC or 110 V DC/24 VDC supply as per OEM. Suitable rating starter/fuse shall be provided for Motor protection. Provision shall be available for charging the springs manually as well, and to close CB mechanically.	
12	SOW, Specification A01 (33KV Switchboard) Clause **-11.0 (c)** , pg 18 of 271	Bidder shall design the cable chamber for cable entry from rear bottom side of the switchgear for both Incomer and outgoing feeders, suitable for 3 Core XLPE, 33 KV grade, Aluminium, 300 mm2.The cable termination height shall be at least 750 mm in the cable compartment.	Bidder shall design the cable chamber for cable entry from rear bottom side of the switchgear for both Incomer and outgoing feeders, suitable for 3 Core XLPE, 33 KV grade, Aluminium, 300 mm2.The cable termination height shall be at least 750 mm in the cable compartment or as per Type Test of the panel. All chambers shall be designed to accommodate minimum one (01) nos. of 300 sq.mm cable.	

ANNEXURE-II

<table>
<tr>
<td>13</td>
<td>SOW, Specification A01 (33KV Switchboard) Clause -13.0 (a) , pg 18 of 271</td>
<td>3 phase resin cast, draw out type, bus bar connected, potential transformer of 5-limb construction, ratio 33000/110 volts, class 0.5 accuracy at 50 VA output per phase, complete with HT HRC fuse and Triple Pole & Neutral MCB, rated 1 Amp, with monitoring contacts on PT LV circuit to be used in both incomers. Primary and secondary neutrals of the PT must be brought out and earthed. If required, the busbar connected P.T. may be housed in a separate cubicle. PT mounted on top of the panel will not be acceptable.</td>
<td>3 phase resin cast, draw out type/Isolation, Potential Transformer (PT) of 5-limb construction, ratio 33000/110 volts, class 0.5 accuracy at 50 VA output per phase, complete with HT HRC fuse and Triple Pole & Neutral MCB, rated 1 Amp, with monitoring contacts on PT LV circuit to be used in both incomers (Line PT). Primary and secondary neutrals of the PT must be brought out and earthed. If required, PT may be housed in a separate cubicle. PT mounted on top of the panel will not be acceptable. Line PTs shall have the provision to isolate/withdraw.</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>SOW, Specification A01 (33KV Switchboard) Clause -14.0, pg 19 of 271</td>
<td><u>Numerical relay:</u> Numerical relays shall provide the following minimum protections to 33 kV AIS panel:
<table>
<tr><td colspan="2">33 kV switchgear</td></tr>
<tr><td>Incomer Feeders</td><td>Minimum 50, 50N,51,51N,51V, 24, 59,27, 81, 87B</td></tr>
</table>
</td>
<td><u>Numerical relay:</u> Numerical relays shall provide the following minimum protections to 33 kV AIS panel:
<table>
<tr><td colspan="2">33 kV switchgear</td></tr>
<tr><td>Incomer Feeders</td><td>Minimum 50, 50N,51,51N,51V, 24, 59,27, 81</td></tr>
<tr><td>Outgoing Feeder</td><td>Minimum 50, 50N,51,51N,51V, 24, 87T, 59,27,</td></tr>
</table>
</td>
<td></td>
</tr>
</table>

		<table><tr><td>Outgoing Feeder (Transfor-mer)</td><td>Minimum 50, 50N,51,51N,51V, 24, 87T, 59,27, 87B, 81, BR, PRV, OTI ,WTI , NIFPS</td></tr><tr><td>Bus coupler</td><td>Minimum 50, 50N,51,51N,51V, 24, 59,27, 81, 87B,</td></tr></table> Please refer A14 for detailed specification of Relay.	<table><tr><td>(Transfor-mer)</td><td>81, PRV, OTI ,WTI , NIFPS</td></tr><tr><td>Bus coupler</td><td>Minimum 50, 50N,51,51N,51V, 24, 59,27, 81,</td></tr></table> Please refer A14 for detailed specification of Relay.	
15	SOW, Specification A01 (33KV Switchboard) Clause **-15.0 (f),** pg 20 of 271	Static digital tri-vector energy meter suitable for 3-phase 4-wire un-balanced load and CT, PT, ratio mentioned above, 0.5 accuracy class with load, survey and TOD/Tariff and MRI facility (with DLMS protocol compliant – CAT A) to be provided in both incomers. The detailed specification of the tri-vector meter shall be as per the latest technical specification for HT Tri-vector meters	Static digital tri-vector energy meter suitable for 3-phase 4-wire un-balanced load and CT, PT, ratio mentioned above, 0.5 accuracy class with load, survey and TOD/Tariff recording facility to be provided in both incomers. The detailed specification of the tri-vector meter shall be as per the latest technical specification for HT Tri- vector meters	
16	SOW, Specification A01 (33KV Switchboard) Clause **-16.0 (c),** pg 20 of 271	All the secondary wiring in the panel shall be 1100 volts grade single core, FRLS, multistrand flexible tinned copper wires have high quality PVC insulation and the same shall have conductor size of not less	All the secondary wiring in the panel shall be 1100 volts grade single core, FRLS, multistrand flexible tinned copper wires have high quality PVC insulation and the same shall have conductor size	

		than 2.5 mm2 of copper shall be as per OEM's standard. Colours of the secondary/auxiliary wiring should confirm to IS 375/1963 and latest amendment thereof if any. All wiring shall be neatly run and group of wiring shall be securely fixed by clips so that wiring can be checked without necessity of removing the clamps. Wiring between fixed and moving portion of the panel shall be run in flexible tubes and the same shall be so mounted to avoid any damage to them due to mechanical movements. Ferrules with number shall be provided on both end of the wiring.	not less than the following sizes. However, it shall be as per OEM's standard in compliance to minimum size as stated below. Colours of the secondary/auxiliary wiring should confirm to IS 375/1963 and latest amendment thereof if any. All wiring shall be neatly run and group of wiring shall be securely fixed by clips so that wiring can be checked without necessity of removing the clamps. Wiring between fixed and moving portion of the panel shall be run in flexible tubes and the same shall be so mounted to avoid any damage to them due to mechanical movements. Ferrules with number shall be provided on both end of the wiring. The minimum size of wiring: I) CT Wiring: 2.5 sq.mm FRLS R/Y/B/Black coloured wires II) PT wiring: 1.5 sq.mm FRLS R/Y/B/Black coloured wires III) DC Control: 1.5 sq.mm FRLS Grey coloured wires IV) AC Control: 1.5 sq.mm FRLS Black coloured wires V) Interpanel DC: 2.5 sq.mm FRLS Grey coloured wires VI) Interpanel AC:2.5 sq.mm FRLS Black coloured wires	

			VII) Earthing: 2.5 sq.mm / 4 sq.mm FRLS Green/Yellow coloured wires	
17	SOW, Specification-A02 (11 kV Specification)clause 3(m) pg.27 of 271	Busbar Material: Coper (rectangular Shape)	Busbar Material: Coper (rectangular or triangular Shape)	
18	SOW A02 (11 kV Specification)clause 8(b) pg.20 of 271	Metals: Iron and Steel are generally to be painted or galvanized as appropriate. Indoor parts may alternatively have chromium or copper-nickel plates or other approved protective finish. Small iron and steel parts (other than rustless steel) of all instruments and electrical equipment, the cores of electromagnets and the metal parts of relays and mechanisms shall be treated in an appropriate manner to prevent rusting.	Metals: Iron and Steel are generally to be painted or galvanized as appropriate. Indoor parts may alternatively have chromium or copper-nickel plates or other approved protective finish. Small iron and steel parts (other than rustless steel) of all instruments and electrical equipment, the cores of electromagnets and the metal parts of relays and mechanisms shall be treated in an appropriate manner to prevent rusting. Panels made up of material which are corrosion resistant may not be have surface treatment like power coating. However all other components/part which are not made up of such material shall have surface treatment as per OEM's standard.	
19	SOW A02 (11 kV Specification) clause 8(e) pg.30 of 271	The switchgear shall be of CRCA steel / corrosion proof aluminium-zinc construction with sheet not less than 3 mm thickness for load bearing section and not less than 2mm thickness for non-load bearing and shall totally dust and vermin proof. However, if vendor has standardized the thickness of enclosure other than above mentioned and it meets the performance	The switchgear shall be of CRCA steel / corrosion proof aluminium-zinc construction with sheet not less than 2 mm thickness for load bearing section and not less than 2 mm thickness for non-load bearing and shall totally dust and vermin proof. However, if vendor has standardized the thickness of enclosure other than above mentioned and it meets	

		requirements and the design has been established through type test, the same shall be accepted. The panels shall be rigid without using any external bracings. The switchboard panels should comply with relevant IS / IEC and revision thereof and shall be designed for easy operation maintenance and further extension	the performance requirements and the design has been established through type test, the same shall be accepted. The panels shall be rigid without using any external bracings. The switchboard panels should comply with relevant IS / IEC and revision thereof and shall be designed for easy operation maintenance and further extension. Type test certificate of the offered model shall be submitted.	
20	SOW A02 (11 kV Specification) clause 8(p) pg 31 of 271	The bus PT/relay compartments shall have degree of protection not less than IP:52 in accordance with IS:2147. However, remaining compartments can have a degree of protection of IP:42. All louvers if provided shall have very fine brass or GI mesh screen, IPH-2 degree of protection as per IS: 3427 to all live parts shall (whether isolated or removed from panel) even when the breaker compartment door is open. Tight fitting garments / gaskets are to be provided at all openings in relay compartment.	The bus PT/relay compartments shall have degree of protection not less than IP:4X in accordance with IS:2147. However, remaining compartments can have a degree of protection of IP:42. All louvers if provided shall have very fine brass or GI mesh screen, IP-42 degree of protection as per IS: 3427 to all live parts shall (whether isolated or removed from panel) be provided even when the breaker compartment door is open. Tight fitting garments / gaskets are to be provided at all openings in relay compartment. Type test certificate of the offered model shall be submitted.	
21	SOW A02 (11 kV Specification) clause 9(a) pg 32 of 271	The main buses and connections shall be sized for specified current ratings with maximum temperature as per the type tested and ratified design. The bus bars section should have ample capacity to carry the rated current of minimum 1250 Amps in panel current rating at an ambient temperature of 40 deg C, continuously without excessive heating and for adequately meeting the thermal and dynamic stresses in the case of short circuit in the system up to full STC rating	The main buses and connections shall be sized for specified current ratings with maximum temperature as per the type tested and ratified design. The bus bars section should have ample capacity to carry the rated current of minimum 1250 Amps in panel current rating at an ambient temperature of 40 deg C, continuously without excessive heating and for adequately meeting the thermal and dynamic stresses in the case of short	

		of 25kA for 3 sec.The Current density of 1.6Amps/sq. mm shall be considered for the bus bars.	circuit in the system up to full STC rating of 25kA for 3 sec.	
22	SOW A02 (11 kV Specification) clause 9(g) pg 32 of 271	The Bus Bar should be colour coded. Busbar shall have heat shrink coatings	The Bus Bar should be colour coded or marked with colour coded stickers. Busbar shall have heat shrink sleeves of adequate voltage level.	
23	SOW A02 (11 kV Specification) clause 10(a) pg 32 of 271	The vacuum circuit breaker shall be draw out type suitable for installation in the switchgear cubicles (Indoor). The breaker shall comply with IEC 62271-100 / IS-13118 (1991) for circuit breaker and IEC 62271-200 for the switch gear and latest amendment thereof. Construction of breaker shall be such that the points, which require frequent maintenance, shall be easily accessible	The vacuum circuit breaker shall be draw out type suitable for installation in the switchgear cubicles (Indoor). The breaker shall comply with IEC 62271-100 / IS- 13118 (1991) for circuit breaker and IEC 62271-200 for the switch gear and latest amendment thereof. Construction of breaker shall be such that the points, which require frequent maintenance, shall be easily accessible. VCB of floor rolling or cassette type shall be used only. In case of Cassette type of VCB, separate trolley shall be supplied along with the panel. Space for storing the trolley inside E-house shall also be considered.	
24	SOW A02 (11 kV Specification) clause 10(e) pg 33 of 271	Circuit breaker shall be suitable for rapid reclosing cycle i.e. O-0.3 sec.-CO-30 sec.-CO	Circuit breaker shall be suitable for rapid reclosing cycle i.e. O-0.3 sec.-CO-3 min.- CO	
25	SOW A02 (11 kV Specification) clause 11(b) pg 34 of 271	Provision shall be kept for double cable termination arrangement with two sets of nut and bolts. Copper terminator strip of adequate size shall be provided for	All cable chambers shall be designed to accommodate minimum two (02) runs of 3C X 240 sq.mm Al cable to cater to the future load growth. Provision shall be	

		termination of cables and shall have adequate height inside to accommodate the heat shrinkable type indoor cable termination.	kept for double cable termination arrangement with two sets of nut and bolts. Copper terminator strip of adequate size shall be provided for termination of cables and shall have adequate height inside to accommodate the heat shrinkable type indoor cable termination.	
26	SOW A02 (11 kV Specification)clause 11(a) pg 34 of 271	Bidder shall design the cable chamber for cable entry from rear bottom side of the switchgear for both Incomer and outgoing feeders, suitable for 3 Core XLPE, 11 KV grade, Aluminium, 240 mm^2.The cable termination height shall be at least 750 mm in the cable compartment	Bidder shall design the cable chamber for cable entry from rear bottom side of the switchgear for both Incomer and outgoing feeders, suitable for 3 Core XLPE, 11 KV grade, Aluminium, 240 mm2. The cable termination height shall be at least 750 mm in the cable compartment or as per Type Test of the panel.	
27	SOW A02 (11 kV Specification) clause 13(a) pg 34 of 271	1 No. 3 phase resin cast, draw out type, bus bar connected, potential transformer of 5-limb construction, ratio 11000/110 volts, class 0.5 accuracy at 50 VA output per phase, complete with HT HRC fuse and Triple Pole & Neutral MCB, rated 1 Amp, with monitoring contacts on PT LV circuit to be used. Primary and secondary neutrals of the PT must be brought out and earthed. If required, the busbar connected P.T. may be housed in a separate cubicle. PT mounted on top of the panel will not be acceptable.	Bus PT for each bus section and Line PT for incomers and interconnector feeders shall be considered. 3 phase resin cast, draw out type, bus bar connected, potential transformer of 5-limb construction, ratio 11000/110 volts, class 0.5 accuracy at 50 VA output per phase, complete with HT HRC fuse and Triple Pole & Neutral MCB, rated 1 Amp, with monitoring contacts on PT LV circuit to be used. Primary and secondary neutrals of the PT must be brought out and earthed. If required, the busbar connected P.T. may be housed in a separate cubicle. PT mounted on top of the panel will not be acceptable PTs (Bus & Line) shall be withdrawable type.	

28	SOW A02 (11 kV Specification) clause 15(f) pg 36 of 271	Static digital tri-vector energy meter suitable for 3-phase 4-wire un-balanced load and CT, PT, ratio mentioned above, 0.5 accuracy class with load, survey and TOD/Tariff and MRI facility to be provided in both incomers. Please refer A15 for detailed specifications of the tri-vector meter.	No Tri-vector meter is required in 11 kV switchgear panel	
29	SOW A02 (11 kV Specification) clause 16(c) pg 36 of 271	All the secondary wiring in the panel shall be 1100 volts grade single core, FRLS, multistrand flexible tinned copper wires have high quality PVC insulation and the same shall have conductor size of not less than 2.5 mm2 of copper. Colours of the secondary/auxiliary wiring should confirm to IS 375/1963 and latest amendment thereof if any. All wiring shall be neatly run and group of wiring shall be securely fixed by clips so that wiring can be checked without necessity of removing the clamps. Wiring between fixed and moving portion of the panel shall be run in flexible tubes and the same shall be so mounted to avoid any damage to them due to mechanical movements. Ferrules with number shall be provided on both end of the wiring.	All the secondary wiring in the panel shall be 1100 volts grade single core, FRLS, multistrand flexible tinned copper wires have high-quality PVC insulation and the same shall have conductor size not less than the sizes mentioned below. However, it shall be as per OEM's standard in compliance to minimum size as stated below. Colours of the secondary/auxiliary wiring should confirm to IS 375/1963 and latest amendment thereof if any. All wiring shall be neatly run and group of wiring shall be securely fixed by clips so that wiring can be checked without necessity of removing the clamps. Wiring between fixed and moving portion of the panel shall be run in flexible tubes and the same shall be so mounted to avoid any damage to them due to mechanical movements. Ferrules with number shall be provided on both end of the wiring. The minimum sizes of wiring : a) CT Wiring: 2.5 sq.mm FRLS R/Y/B/Black coloured wires	

			b) PT wiring: 1.5 sq.mm FRLS R/Y/B/Black coloured wires c) DC Control: 1.5 sq.mm FRLS Grey coloured wires d) AC Control: 1.5 sq.mm FRLS Black coloured wires e) Interpanel DC: 2.5 sq.mm FRLS Grey coloured wires f) Interpanel AC:2.5 sq.mm FRLS Black coloured wires g) Earthing: 2.5 sq.mm / 4 sq.mm, FRLS, Green/Yellow coloured wires	
30	SOW Specification No: A03(2X5 MVA Transformers) clause-2(a) pg.43 of 271	This Specification provides for design, engineering, manufacture, assembly, stage inspection, final inspection and testing before dispatch, packing and delivery at destination Sub-station by transport, transit insurance, unloading at site /stores of two(02) nos. of 5 MVA, 33/11 KV Power Transformer(s) for continuous parallel operation, complete with all fittings, accessories, associated equipment's, spares, 10% extra Transformer Oil, required for its satisfactory operation in the sub-stations of the purchaser.	This Specification provides for design, engineering, manufacture, assembly, stage inspection, final inspection and testing before dispatch, packing and delivery at destination Sub-station by transport, transit insurance, unloading at site /stores of two(02) nos. of 5 MVA, 33/11 KV Power Transformer(s) for continuous parallel operation, complete with all fittings, accessories, associated equipment's, spares, 10% extra Transformer Oil, required for its satisfactory operation in the sub-stations of the purchaser. Preferred make list for oil type transformer: Schneider, Raychem, VoltAmp, Bharat Bijulee, CG, Cahors, RTS etc	

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<table>
<tr>
<td>31</td>
<td>SOW Specification No: A03(2X5 MVA Transformers) clause-3(45) pg. 46 of 271</td>
<td>
<table>
<tr><td colspan="2">Permissible Temperature Rise over ambient temperature of 40 / 45℃</td></tr>
<tr><td>Of top oil measured by thermometer</td><td>40℃</td></tr>
<tr><td>Of winding measured by resistance</td><td>45˚C</td></tr>
</table>
</td>
<td>Ambient temperature to be considered as 40 degree for design. Accordingly, temperature rise of oil and winding to be considered as per tender.
<table>
<tr><td>Of top oil measured by thermometer</td><td>40℃</td></tr>
<tr><td>Of winding measured by resistance</td><td>45˚C</td></tr>
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<td></td>
</tr>
<tr>
<td>32</td>
<td>SOW Specification No:A06 (Grid Synchronization Control) Clause-1.0(A)(i) pg.102 of 271</td>
<td>Bidder shall study the existing synchronization scheme operating in Moran Power Station between Gas Engine Generator and Gas Turbine Generator (GTG)</td>
<td>Bidder shall study the existing synchronization scheme operating in Moran Power Station between Gas Engine Generator and Gas Turbine Generator (GTG).The existing scheme is attached as Annexure A06.1(A)</td>
<td>Annexure A06.1(A)</td>
</tr>
<tr>
<td>33</td>
<td>SOW Specification No:A06 (Grid Synchronization Control) Clause-1.0(A)(iii) pg.102 of 271</td>
<td>The design of the synchronization scheme shall meet the following objectives:

a) Minimize the modification in the existing infrastructure.

b) Synchronization operations shall be simple as the same will be carried out by JEs.

c) Strict Adherence to grid code

d) Flexibility of synchronization breakers

e) Ensuring safety of the equipment and personnel at all</td>
<td>The design of the synchronization scheme shall meet the following objectives:

a) Minimize the modification in the existing infrastructure as practicable.

b) Synchronization operations shall be simple as the same will be carried out by operation people by selecting Auto/ Manual as per design.

c) Strict Adherence to grid code as applicable.

d) Flexibility of synchronization breakers means design shall have</td>
<td></td>
</tr>
</table>

			features for the user to select the breaker or source to be synchronised. e) Ensuring safety of the equipment and personnel. The Grid Synchronisation Panel shall be designed on fail- safe philosophy such that failure/loss of any critical input shall result in blocking of the breaker closing permissive. Design shall have features to restrict accidental closing of breaker in unsynchronised conditions. Breaker closing shall be permitted only when the synchronisation conditions are satisfied including voltage magnitude, frequency/slip, phase-angle difference and phase-sequence verification, as applicable.	
34	SOW Specification No:A07(Substation Automation System (SAS)) Clause-1 pg. 107 0f 271	The Substation Automation System (SAS) shall comprise a fully integrated system for protection, control, monitoring, automation, disturbance recording, event recording, alarm management, and remote communication for a 33/11 kV substation. The scope includes detailed engineering, design, manufacture, supply, configuration, testing, commissioning, documentation, and training of the complete SAS. The system shall be designed to ensure high availability, scalability, interoperability, cybersecurity, and long- term maintainability.2. Standards and Compliance.	The Substation Automation System (SAS) shall comprise a fully integrated system for protection, control, monitoring, automation, disturbance recording, event recording, alarm management, and remote communication for a 33/11 kV substation. The scope includes detailed engineering, design, manufacture, supply, configuration, testing, documentation, and training of the complete SAS. The system shall be designed to ensure high availability, scalability, interoperability, and long-term maintainability. SAS (relay) can be offered as an integrated solution with Energy Management System (EMS) and Asset Monitoring System (AMS) or as an standalone system.	

35	SOW Specification No:A07(Substation Automation System (SAS)) Clause-2, pg. 107 0f 271	The SAS shall be designed, engineered and implemented in compliance with IEC 61850 (latest applicable edition), including station bus communication using MMS and GOOSE messaging. Protection and control IEDs shall comply with IEC 60255. Remote communication shall comply with IEC 60870-5-104. Cybersecurity requirements shall comply with IEC 62351. Electromagnetic compatibility shall comply with IEC 61000 series standards. Time synchronization shall comply with IEEE 1588 v2 and/or IRIG-B standards. Any deviation from the applicable standards shall be explicitly stated in the bid.	The SAS shall be designed, engineered and implemented in compliance with IEC 61850 (latest applicable edition), including station bus communication using MMS or GOOSE messaging. Protection and control IEDs shall comply with IEC 60255. The server of current project shall be OPC UA , IEC 104 compliant. OT integration with remote enterprise command centre to be carried out by OIL separately. Electromagnetic compatibility shall comply with IEC 61000 series standards. Time synchronization shall comply with IEEE 1588 v2 and/or IRIG-B standards. Any deviation from the applicable standards shall be explicitly stated in the bid.	
36	SOW Specification No:A07(Substation Automation System (SAS)) Clause-4 pg. 107 0f 271	At station level, numerical protection and control IEDs shall be provided for all 33 kV feeders, 11 kV feeders, power transformers, bus couplers, and incomers as applicable. Each IED shall be capable of performing protection, control, measurement, monitoring, event recording, and disturbance recording functions. IEDs shall support IEC 61850 MMS and GOOSE communication natively without protocol converters. All protection functions, logic schemes, interlocking, and automation shall be implemented within the IEDs to ensure fail-safe operation independent of station level systems. The IEDs shall provide time-stamped events. Disturbance records shall be stored in non- volatile memory and shall be retrievable locally and remotely. IEDs shall include self- diagnostics, watchdog	At station level, numerical protection and control IEDs shall be provided for all 33 kV feeders, 11 kV feeders, power transformers, bus couplers, and incomers as applicable. Each IED shall be capable of performing protection, control, measurement, monitoring, event recording, and disturbance recording functions. IEDs shall support IEC 61850 MMS or GOOSE communication natively without protocol converters. All protection functions, logic schemes, interlocking, and automation shall be implemented within the IEDs to ensure fail-safe operation independent of station level systems. The IEDs provide time-stamped events. Disturbance records shall be stored in non- volatile memory and shall be retrievable locally and remotely. IEDs shall include self-diagnostics, watchdog	

		supervision, and health monitoring alarms. The status (ON/OFF) of all 33 kV & 11 kV breakers shall be monitored and displayed continuously by SAS.	supervision, and health monitoring alarms. The status (ON/OFF) of all 33 kV & 11 kV breakers shall be monitored and displayed continuously by SAS	
37	SOW Specification No:A07(Substation Automation System (SAS)) Clause-3 pg. 107 0f 271	The SAS shall be based on a distributed, hierarchical architecture consisting of Bay Level, Station Level, and Remote Level systems. All protection and control functions shall be performed at Bay Level using intelligent electronic devices (IEDs). Station Level shall provide centralized monitoring, control, data concentration, event management, and gateway functionality. Remote Level shall interface with the Load Dispatch Centre or centralized control room. The system shall use Ethernet-based communication with redundancy to eliminate single points of failure.	The SAS shall be based on a distributed, hierarchical architecture consisting of Bay Level, Station Level, and Remote Level systems. All protection and control functions shall be performed at Bay Level using intelligent electronic devices (IEDs). Station Level shall provide centralized monitoring, control, data concentration, event management, and gateway functionality. The system shall use Ethernet-based communication with redundancy to eliminate single points of failure. OT integration with remote command center to be carried out by OIL separately. However, the server of current project shall be OPC UA , IEC 104 compliant. The SAS shall have provision for retrieval, storage and analysis of disturbance records (e.g., COMTRADE files) from the protection IEDs. The SAS shall also acquire, display and continuously record relevant real-time electrical parameters for online monitoring, analysis and historical trending. The provision for report preparation shall be available.	
38	SOW Specification No:A07(Substation Automation System	The SAS communication network shall be based on an Ethernet station bus architecture using industrial-grade managed switches. The network shall be	The SAS communication network shall be based on an Ethernet station bus architecture using industrial-grade managed switches. The network shall be	

	(SAS)) Clause-5 pg. 107 0f 271	designed with redundancy using PRP or HSR or equivalent redundancy protocols to avoid single points of failure. VLAN segregation shall be implemented to separate protection traffic, SCADA traffic, and engineering access. Network devices shall support SNMP for monitoring and diagnostics	designed with redundancy using PRP or HSR or RSTP in ring topology or equivalent redundancy protocols to avoid single points of failure. VLAN segregation shall be implemented to separate protection traffic, SCADA traffic, and engineering access. Network devices shall support SNMP for monitoring and diagnostics	
39	SOW Specification No:A07 (Substation Automation System (SAS) clause-11 pg.109 of 271	Indicative Architecture of SAS	Architecture of SAS has been revised and attached as Annexure 07.1. Following are few guidelines related to SAS. a) All servers shall be provided in 1+1 redundant configuration (2 Nos. Each type). In case of dedicated server i) Engineering Server- 2 nos. ii) Historian Server- 2 Nos In case of combined server, redundant means 2 (two) nos of combined server. b) The redundant servers shall be configured such that failure of the primary/active server shall result in automatic and seamless switchover to the standby server, without loss of critical data or interruption.	**Annexure A07.1**

			c) The Server shall be OPC UA compliant and shall support secure communication and data exchange with OPC UA-enabled systems/devices, as required for integration with the enterprise or plant SCADA/DCS/PLC/RTU and other third-party systems. d) Monitor size shall be minimum 22 inch.	
40	SOW Specification No: A08 (Energy Management System (EMS) clause-1 pg 110 of 271	The Energy Management System (EMS) shall be a centralized and integrated system for continuous monitoring, analysis, reporting, and management of electrical energy and power quality parameters of the 33/11 kV substation. The EMS shall acquire real-time and historical data from Power Quality Analysers, Trivector (ABT) Energy Meters, Multifunction Meters, and relevant data points from the Substation Automation System (SAS). The scope of work shall include system design, supply, installation, configuration, integration, testing, commissioning, documentation, training, and provision for future expansion of the EMS without requiring major hardware or software modifications	The Energy Management System (EMS) shall be a centralized and integrated system for continuous monitoring, analysis, reporting, and management of electrical energy and power quality parameters of the 33/11 kV substation. The EMS shall acquire real-time and historical data from Power Quality Analysers, Trivector (ABT) Energy Meters, Multifunction Meters, and relevant data points from the Substation Automation System (SAS). The scope of work shall include system design, supply, installation, configuration, integration, testing, commissioning, documentation, training, and provision for future expansion of the EMS without requiring major hardware or software modifications EMS can be offered as an integrated solution with AMS or SAS or as an standalone solution.	

41	SOW Specification No: A08 (Energy Management System (EMS) clause-7 pg:111 of 271	The EMS server shall be an industrial-grade or rack-mounted server hosting the EMS application software, real-time database, historical data historian, analytics engine, and reporting modules. The EMS software shall provide real-time dashboards, energy flow visualization, feeder-wise and transformer-wise energy accounting, load profiling, power quality analysis, alarm and event management, and loss calculation. The system shall support multi-user access with role-based permissions and shall allow future deployment in redundant or virtualized environments.	The EMS server shall be an industrial-grade or rack-mounted server hosting the EMS application software, real-time database, historical data historian, analytics engine, and reporting modules. The EMS software shall provide real-time dashboards, energy flow visualization, feeder-wise and transformer-wise energy accounting, load profiling, power quality analysis, alarm and event management. The system shall support multi-user access with role-based permissions and shall allow future deployment in redundant or virtualized environments. Redundant servers for EMS shall be considered for the project. The server used shall be OPC UA compliant. Integration with enterprise platform not in the scope of the tender.	
42	SOW Specification No: A08 (Energy Management System (EMS) clause-9 pg:111 of 271	A local EMS Human Machine Interface (HMI) shall be provided in the substation for operators and engineers. The HMI shall be web-based and accessible through standard browsers. It shall provide graphical dashboards, trend analysis, alarm views, and report access based on user roles and access privileges.	Two (2) local EMS Human Machine Interface (HMI) shall be provided in the substation (GEG Control Room & E-House Control Room) for operators and engineers. The HMI shall provide graphical dashboards, trend analysis, alarm views, and report access based on user roles and access privileges. HMI size shall be minimum 22 inch.	
43	SOW Specification No:A09 (Asset Monitoring System) clause:01 pg. 113 of 271	The contractor shall design, supply, install, test, and commission a comprehensive Asset Monitoring System (AMS) for continuous condition monitoring and health assessment of critical electrical equipment installed within the E-House substation. The system shall be capable of monitoring the operational condition and performance of key assets including power transformers,	The contractor shall design, supply, install, test, and commission a comprehensive Asset Monitoring System (AMS) for continuous condition monitoring and health assessment of critical electrical equipment installed within the E-House substation like 33 kV AIS panel, 11kV AIS panel, power transformer, station transformer, UPS &	

		33 kV and 11 kV switchgear panels. The AMS shall acquire real-time operational data from intelligent electronic devices (IEDs), protection relays, and dedicated sensors installed on equipment. Typical parameters to be monitored shall include transformer winding and oil temperature, transformer loading, insulation condition indicators, busbar temperature, cable termination temperature, humidity within the E-House, and other relevant environmental conditions. The system shall provide continuous monitoring to detect abnormal operating conditions at an early stage and enable predictive and condition-based maintenance of electrical assets.	Battery chargers. The system shall be capable of monitoring the operational condition and performance of key assets including power transformers, 33 kV and 11 kV switchgear panels. The AMS shall acquire real-time operational data from intelligent electronic devices (IEDs), protection relays, and/or dedicated sensors installed on equipment. Typical parameters to be monitored shall include transformer winding and oil temperature, transformer loading, Transformer oil insulation condition indicators, panel busbar temperature as per joints, Panel cable per phase termination temperature, minimum two humidity sensors inside each panel within the E-House, UPS & Battery charger AC input characteristics, output DC characteristics, any alarm, tripping, battery charging current, battery bank voltage, Station transformers winding temperatures for each phase(HV & LV), loadings of each phase(HV & LV), any alarm or tripping and other relevant environmental conditions. The system shall provide continuous monitoring to detect abnormal operating conditions at an early stage and enable predictive and condition-based maintenance of electrical assets. The AMS system can be a standalone solution or integrated solution with SAS and data collected by AMS shall be available at control room for monitoring by operators on real time basis.	
44	SOW Specification No:A09 (Asset	The AMS HMI and software shall provide centralized visualization, monitoring, and	The AMS HMI and software shall provide centralized visualization, monitoring,	

	Monitoring System) clause:03 pg. 113 of 271	analysis of all connected substation assets through an industrial-grade workstation located in the E-House control room. The HMI shall display the substation single-line diagram with real-time status, measurements, and alarm indications for monitored equipment including transformers, switchgear at 11 KV and 33 KV. The software shall support real-time data acquisition, alarm and event management, historical data logging, and parameter trending for key operational parameters such as temperature, loading, humidity, and equipment status. The system shall allow configurable alarm thresholds, event recording with time stamping, and generation of basic operational and maintenance reports. The HMI software shall support multi-user access with role-based permissions and provide secure remote monitoring capability. The system shall be supplied as part of an integrated solution from reputed manufacturers	and analysis of all connected substation assets through an industrial-grade workstation located in the E-House control room. A separate HMI of minimum size of 22 inch for AMS shall be considered. In case of integrated solution with SAS a dedicated HMI for AMS to be provided. The HMI shall display the substation single-line diagram with real-time status, measurements and alarm indications for monitored equipment including transformers, switchgear at 11 KV and 33 KV. The software shall support real-time data acquisition, alarm and event management, historical data logging, and parameter trending for key operational parameters such as temperature, loading, humidity, and equipment status. The system shall allow configurable alarm thresholds, event recording with time stamping, and generation of basic operational and maintenance reports. The HMI software shall support multi-user access with role-based permissions and provide secure remote monitoring capability. Redundant servers for EMS shall be considered for the project. The server used shall be OPC UA compliant. Integration with enterprise platform not in the scope of the tender.	
45	SOW Specification No:A10 (CYBER-SECURITY) pg 114 of 271	Clause:1, 2, 3,4,5,6 & 7	The specification has been amended as below" The required Cyber security provision at the station level shall be under the scope of the bidder. Servers used for different system like SAS, EMS,	

			AMS shall be OPC UA , IEC 104 compliant. Integration of the station level system with enterprise level remote command control system and ensuring cyber security will be under the scope of OIL"	
46	SOW Specification No:A11 (APFC) clause-D(VII)(c) pg 118 of 271	Series reactors for harmonic detuning and limitation of	Series reactors (Copper based) for harmonic detuning and limitation of	
47	SOW Specification No:A11 (APFC) clause-A(1) pg 116 of 271	This Scope covers supply, installation, testing and commissioning of HT Automatic Power Factor Control Panel (APFC) to be integrated in a 3 Phase, 50 Hz system at 11 KV system voltage. APFC panel shall be installed inside E-House. Accordingly, Heat Generating components like Capacitor bank of the APFC shall be installed outside while control panels shall be installed inside E-house. All necessary civil work required for the installation of capacitor banks are covered under this scope.	This Scope covers supply, installation, testing and commissioning of HT Automatic Power Factor Control Panel (APFC) to be integrated in a 3 Phase, 50 Hz system at 11 KV system voltage. APFC panel shall be installed inside E-House. Accordingly, Heat Generating components like Capacitor bank of the APFC shall be installed outside while control panels shall be installed inside E-house. All necessary civil work required for the installation of capacitor banks are covered under this scope. Design of the APFC panel shall be under the scope of bidder. Necessary input like system load profile for the last two(02) years has been shared as Annexure A11.1.	Annexure A11.1 in Excel form
48	SOW Specification No:A11 (APFC) clause-C pg 116 of 271	c) Maximum Load expected: 3 MW d) Lowest pf recorded: 0.79 lagging f) Desired pf: 0.99 to Unity	c) Maximum Load to be considered: 2.5 MW d) Lowest power factor: 0.72	

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			f) Desired power factor (PF): 0.95 lagging to unity	
49	SOW Specification No:A11 (APFC) clause-D (1) pg 117 of 271	The APFC Panel shall have industrial CRCA enclosure of thickness not less than 2 mm free standing and compact in size. Ground clearance of bottom most part of APFC Panel should not be less than 150 mm.	The APFC Panel shall have industrial CRCA enclosure of thickness not less than 2 mm free standing and compact in size. Ground clearance of bottom most part of APFC Panel should not be less than 150 mm. Space shall be kept in the enclosure for the augmentation of the APFC panel capacity to cater to the load requirement of 2.5 MW.	
50	SOW Specification No:A11 (APFC) clause-D (IV)(a) pg 117 of 271	Achieve target power factor of 0.99 to unity at the PCC	Achieve target power factor of 0.95 lagging to unity at the PCC	
51	SOW Specification No:A12.2 (UPS and battery Back up) clause-3 pg.128 0f 271	The bidder shall be fully responsible for determining the appropriate UPS kVA rating and battery bank capacity based on the connected load details, duty cycle and required autonomy. The bidder shall carry out detailed load assessment during the engineering stage, considering present load, future expansion margin of at least 20%, and diversity factor. Battery sizing calculations shall be submitted, clearly indicating the number of cells, Ah capacity, discharge characteristics and backup duration. The offered system shall be adequately rated to meet the specified autonomy under worst-case operating conditions. The battery system shall be suitable for the required DC voltage level	The bidder shall be fully responsible for determining the appropriate UPS kVA rating and battery bank capacity based on the connected load details, duty cycle and required autonomy. UPS back up time shall be minimum **3 hours** .The bidder shall carry out detailed load assessment during the engineering stage, considering present load, future expansion margin of at least 20%, and diversity factor. Battery sizing calculations shall be submitted, clearly indicating the number of cells, Ah capacity, discharge characteristics and backup duration. The offered system shall be adequately rated to meet the specified autonomy under worst-case operating conditions. The battery system shall be suitable for the required DC voltage level	

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<tr>
<td>52</td>
<td>SOW Specification No:A13.1(CABLES-HT CABLE) clasue-4.2 pg 134 of 271</td>
<td>The cable, joints, outdoor and indoor termination and their accessories and fittings may conform to other Indian and/or equivalent standards or important publications to improve upon their performance but shall not fall short of the requirement of this specification. The tenderer shall clearly indicate such standards in their offers. Details of the termination kit is as follows:
<table>
<tr><td>Type of Kit</td><td>Voltage Grade</td><td>Indoor</td><td>Outdoor</td></tr>
<tr><td rowspan="2">End Termination Kit</td><td>33 kV</td><td>5</td><td>4</td></tr>
<tr><td>11 kV</td><td>22</td><td>2</td></tr>
<tr><td>Straight Through Termination kit</td><td>11 kV</td><td colspan="2">3</td></tr>
</table>
</td>
<td>Cable requirement: A revised indicative power cable requirement for the project has been attached as Annexure-A13.1(A), however bidder is advised to visit the site and assess the required cable length for supply and installation. In addition to the feeders mentioned in the attachment, Cables to NGRs along with termination kit shall also be considered separately by bidder.</td>
<td>A13.1(A)</td>
</tr>
<tr>
<td>53</td>
<td>SOW Specification No:A13.2(LT CONTROL CABLE) Clause:1 pg 147 of 271</td>
<td>This specification covers, design, manufacture, testing at manufacturer’s works, supply and delivery, free at Destination of ISI marked of 1.1KV grade PVC insulated armoured stranded heat resistant (HR), FRLS copper control cables as specified in quantity schedule to be used at sub-stations of OIL. Sizes of the LT control cable are:

i. 2C x 2.5 sq. mm
ii. 4C x 2.5 sq. mm
iii. 7C x 2.5 sq.mm
iv. 10C x 2.5 sq. mm</td>
<td>This specification covers, design, manufacture, testing at manufacturer’s works, supply and delivery, free at Destination of ISI marked of 1.1KV grade PVC insulated armoured stranded heat resistant (HR), FRLS copper control cables as specified in quantity schedule to be used at sub-stations of OIL. Sizes of the LT control cable are:

i. 2C x 2.5 sq. mm
ii. 4C x 2.5 sq. mm
iii. 7C x 2.5 sq.mm
iv. 10C x 2.5 sq. mm</td>
<td></td>
</tr>
</table>

<table>
<tr><td></td><td></td><td>The Control Cables are required for the control, protection, instrumentation, auxiliary Power Supply. Following information shall be made available along with bid: manufacturer's literatures, drawings, instruction manuals to enable the purchaser to make an appraisal of the quality and suitability of the materials offered. Failure to comply with the provision may be sufficient reason to reject the bid.</td><td>The Control Cables are required for the control, protection, instrumentation, auxiliary Power Supply. Following information shall be made available along with bid: manufacturer's literatures, drawings, instruction manuals to enable the purchaser to make an appraisal of the quality and suitability of the materials offered. Failure to comply with the provision may be sufficient reason to reject the bid.

Sizing of LT power cable for internal loads of E-house shall be under the scope of bidder only.
1) For non-linear loads like UPS, battery Charger and Incomer from rooftop solar plant etc., four(04) core LT power cable of required size shall be used.
2) 1R*4C*240 sq.mm 415 V power cable to be connected from new LT panel of E-house to GEG LT panel and GTG LT panel.
3) Running Earth (1R*1C(Al)*120 sq.mm) to be used against each power cable (33 kV & 11 KV) except feeder 1R, 1L, 2R & 2L.</td><td></td></tr>
<tr><td>54</td><td>SOW Specification No: A14 (Relay) clause 8.2</td><td><table><tr><th colspan="2">33 kV AIS switchgear</th></tr><tr><td>Incomer feeder</td><td>Minimum 50, 50N,51,51N,51V, 24, 59,27, 81, 87B</td></tr><tr><td>Outgoing Feeder (Transformer)</td><td>Minimum 50, 50N,51,51N,51V, 24,</td></tr></table></td><td><table><tr><th colspan="2">33 kV AIS switchgear</th></tr><tr><td>Incomer feeder</td><td>Minimum 50, 50N,51,51N,51V, 24, 59,27, 81</td></tr><tr><td>Outgoing Feeder (Transformer)</td><td>Minimum 50, 50N,51,51N,51V, 24, 87T, 59,27, 81, BR,</td></tr></table></td><td></td></tr>
</table>

		<table><tr><td></td><td>87T, 59,27, 81, 87B, BR,</td></tr><tr><td>Bus coupler</td><td>Minimum 50, 50N,51,51N,51V, 24, 59,27, 81, 87B,</td></tr></table>	<table><tr><td>Bus coupler</td><td>Minimum 50, 50N,51,51N,51V, 24, 59,27, 81</td></tr></table>	
55	SOW Specification No:A15(Tri-vector Meter) Clause-1.2 pg 191 of 271	The meter shall be complied with Indian Companion Standard (ICS) of Category B for DLMS specification. The Category B specifies the parameters to be used for metering along with other additional features. The meter records parameters under import and or export conditions	The meter shall be capable of recording the specified metering parameters under both import and export conditions. The meter shall support the required parameters and additional features as applicable to the metering application.	
56	SOW Specification No:A16(Rooftop Solar plant) clause-2 (a) pg.203 of 271	The PV modules shall be purchased from class-I local supplier. Bidder shall comply with latest MNRE Notification regarding Approved Models and Manufacturers of Solar Photovoltaic Modules (Requirement for Compulsory Registration) Order, 2019 and its amendments issued time to time.	Solar panel capacity will be as per the available space. Accordingly, a minimum capacity of 30 kWp is to be considered for the rooftop solar plant subjected to structural stability, safety, operation feasibility and other technical feasibility. The PV modules shall be purchased from class-I local supplier. Bidder shall comply with latest MNRE Notification regarding Approved Models and Manufacturers of Solar Photovoltaic Modules (Requirement for Compulsory Registration) Order, 2019 and its amendments issued time to time.	
57	SOW Specification No:A16(Rooftop Solar plant) clause 11 (1) pg.213 of 271	Bidders should also educate the consumers during their O&M period. Data monitoring of inverters, solar meters and Pyranometer shall be done at the local work station	Bidders should also educate the consumers during their O&M period. Data monitoring of inverters, solar meters and Pyranometer shall be done at the local work station. Online real-time monitoring of solar power generation shall be provided at the OIL Control Room through the plant SCADA/SAS	

			system. The communication link for transmitting the required real-time data to the OIL Control Room shall be through a dedicated, reliable and secure communication network. Communication arrangements relying on public internet connectivity shall not be acceptable	
58	SOW Specification No:A21(E-house) clause-2(B)(3) page 235 of 271	Wall Mounted Screen to monitor real time power system data in mimic diagram (SAS)	Wall Mounted commercial Screen/display of minimum size of 75 inch suitable for continuous display of real time power system data acquired through SAS, EMS, AMS and Rooftop SOLAR PV plant shall be included in the E-house-2.	

ANNEXURE-II

59	SOW Specification No:A21(E-house) clause-3(iii) pg.237 of 271	The switchboard and control equipment housings which shall be located within on-board protected enclosures such as switch rooms and operator's cabins shall be manufactured to IP 55 design. Bidders need to ensure that EHouse container will be designed for IP 55. Bidders need to demonstrate actual testing on the product for water numeral i.e. IP X5 and required test results will be provided. Further the Dust numeral to be proven by Design. Bidder to demonstrate the following tests at assembly location to confirm the product suitability to IP 55 as below A. Water Ingress Test in Black Condition and prior to insulation to check Water Ingress on the Complete Container weld joints. B. During Final inspection, water leak test to be performed for Doors, Cutouts and external attachments. C.Air leak test at doors to check possible Dust Ingress by Paper Flutter Test. D.The Air leak test to be performed only on Doors to avoid any possibility dust ingress through same.	The switchboard and control equipment housings which shall be located within on-board protected enclosures such as switch rooms and operator's cabins shall be manufactured to minimum IP54 design. Bidders need to ensure that E- House container will be designed for minimum IP54 design. The dust and water numeral to be proven by Design. Bidder to demonstrate the following tests or submit test certificates before dispatch at assembly location to confirm the product suitability to IP 54 or above as below: i) Water Ingress Test in Black Condition and prior to insulation to check Water Ingress on the Complete Container weld joints. ii) During Final inspection, water leak test to be performed for Doors, Cut out and external attachments. iii) Air leak test at doors to check possible Dust Ingress by Paper Flutter Test.	

60	SOW Specification No:A21(E-house) clause-3(XI) pg.237 of 271	The floor framing shall be fabricated from ASTM A36 / JIS 3101 or equivalent steel members to form a rigid rectangular frame. The frame shall be braced with cross members as required to support the equipment installed in the Ehouse.	The floor framing shall be fabricated from ASTM A36 / JIS 3101/IS 2062 or equivalent steel members to form a rigid rectangular frame. The frame shall be braced with cross members as required to support the equipment installed in the E-house	
61	SOW Specification No:A25(Civil Works) clause-10	(i) The Occupational Safety, Health and Working Condition Code 2020 (ii) The Code on Wages,2019 (iii) The Workman Compensation Act, 1923. (iv) The Payment of Wages Act. 1963. (v) The Payment of Bonus Act, 1965. (vi) Inter-State Migrant (Regulation of Employment and Condition of Service) Act, 1979. (ix) The Employees Provident Fund and Miscellaneous Provisions Act, 1952. (x) GST (xi) Building and Other Construction Workers Welfare Cess Act 1996. or any other Acts or Status not here in above specifically mentioned having bearing over engagement of workers directly or indirectly for execution of work. The Contractor shall not make the Company liable to reimburse the Contractor for the statutory increase in the wage rates of the Contract Labour appointed by the Contractor. Such statutory increase in the wage rates of Contract Labour shall be borne by the Contractor.	(i) The Occupational Safety, Health and Working Condition Code 2020 (ii) The Code on Wages,2019 (iii) The Workman Compensation Act, 1923. (iv) The Payment of Wages Act. 1963. (v) The Payment of Bonus Act, 1965. (vi) Inter-State Migrant (Regulation of Employment and Condition of Service) Act, 1979. (ix) The Employees Provident Fund and Miscellaneous Provisions Act, 1952. (x) GST (xi) Building and Other Construction Workers Welfare Cess Act 1996. or any other Acts or Status not here in above specifically mentioned having bearing over engagement of workers directly or indirectly for execution of work. The Contractor shall not make the Company liable to reimburse the Contractor for the statutory increase in the wage rates of the Contract Labour appointed by the Contractor. Such statutory increase in the wage rates of Contract Labour shall be borne by the Contractor. Bidder shall comply with the Building and Other Construction Workers Welfare Cess Act, 1996 and other applicable statutory provisions. Applicable statutory liabilities/levies shall be dealt	

			with as per the tender conditions; no separate exemption from the civil scope is provided.	
62	SOW Specification No:A21(2) (E-house) Annexure A21.1(A) pg.235 of 271	The project envisaged the requirement of two (02) separate E-houses. The Ehouses are to be named as E-house:1 (Electrical switchgear room) & E-House:2 (Control room) for ease of communication. Please refer drawing A21.1 for general arrangement of the E-house. Following equipment are proposed to be installed inside the E-houses: A) E-House:1 (Electrical Switchgear Room): 1. 33 kV Switchgear (AIS) & 11 kV Switch gear (AIS) with Protection Relays & Local Control arrangement 2. LT switchgear 3. 2 no. 500kVA dry type auxiliary transformer (Inside E house) 4. Battery (110V VRLA maintenance free), Battery Charger, UPS etc. 5. Job allocation/Conference room-1 No 6. Rooftop Solar PV panels 7. LV AC & DC Distribution system 8. Earthing for enclosure and Electronic earthing for panel 9. Lightning protection 10. SCADA/Internet/CCTV/Fire alarm cabinets 11. Inter panel and equipment cabling between all supplied items 12. Lightings with occupancy sensor and Receptacles, 13. DC/AC Emergency lighting system. 14. AC control panel. Split AC system with dehumidifier to suit equipment and ambient heat loads	The project envisaged the requirement of two (02) separate E-houses. The Ehouses are to be named as E-house:1 (Electrical switchgear room) & E-House:2 (Control room) for ease of communication. Please refer drawing A21.1(A) for general arrangement of the E-house. Following equipment are proposed to be installed inside the E-houses: A) E-House:1 (Electrical Switchgear Room): 1. 33 kV Switchgear (AIS) & 11 kV Switch gear (AIS) with Protection Relays & Local Control arrangement 2. LT switchgear 3. Two (2) no. 500kVA dry type auxiliary transformer (Inside E house) or may be placed outside e-house subjected to adequate weather protection for Dry type transformer 4. Battery (110V VRLA maintenance free), Battery Charger, UPS etc. 5. Job allocation/Conference room-1 number. 6. Rooftop Solar PV panels 7. LV AC & DC Distribution system 8. Earthing for enclosure and Electronic earthing for panel 9. Lightning protection 10. SCADA/Internet/CCTV/Fire alarm cabinets 11. Inter panel and equipment cabling between all supplied items 12. Lightings with occupancy sensor and Receptacles,	A21.1(A)

		15. Fire detection & fire-fighting system , Fire Extinguisher 16. Platform surrounding E-house with railing 17. Railing in E-House roof for safety of personnel carrying out installation & maintenance of solar roof top 18. First Aid box 19. Provision to Hang, paste Electric Shock treatment Chart, SLD, SOP, Emergency Contact nos. Etc. 20. Trolley for rack in/rack out of VCB, if any 21. Provision to keep OIL telephone 22. Other accessories as per project requirements B) E-House:2 (Control Room) 1. New Control room for control and monitoring 2. Synchronizing panel 3. Wall Mounted Screen to monitor real time power system data in mimic diagram (SAS) 4. HMI-Energy Monitoring System 5. HMI-CCTV 6. HMI- Asset Monitoring/Condition Monitoring Screen, 7. First Aid box 8. Provision to keep OIL telephone 9. Provision to Hang, paste Electric Shock treatment Chart, SLD, SOP, Emergency Contact nos. etc. 10. Fire extinguisher 11. Cabinet to keep OIL's intranet module, CCTV NVR etc. 12. Provision for placing biometric system 13. Officer's Room-2 14. Supervisor room-1	13. DC/AC Emergency lighting system. 14. AC control panel. Split AC system with dehumidifier to suit equipment and ambient heat loads 15. Fire detection & fire-fighting system , Fire Extinguisher 16. Platform surrounding E-house with railing 17. Railing in E-House roof for safety of personnel carrying out installation & maintenance of solar roof top 1 8. First Aid box 19. Provision to Hang, paste Electric Shock treatment Chart, SLD, SOP, Emergency Contact nos. etc. 20. Trolley for rack in/rack out of VCB, if any 21. Provision to keep OIL telephone 22. Other accessories as per project requirements B) E-House:2 (Control Room) 1. New Control room for control and monitoring 2. Synchronizing panel/system 3. Wall Mounted commercial Screen/display of minimum size of 75 inch suitable for continuous display of real time power system data acquired through SAS, EMS, AMS and Rooftop SOLAR PV plant shall be included in the E-house-2 4. HMI-Energy Monitoring System 5. HMI-CCTV 6. HMI- Asset Monitoring/Condition Monitoring Screen, 7. First Aid box 8. Provision to keep OIL telephone	

		15. Common room – 1 16. Table for keeping PCs, Telephone etc. in control room 17. File Rack in control room 18. Key holder 19. Other accessories as per project requirements	9. Provision to Hang, paste Electric Shock treatment Chart, SLD, SOP, Emergency Contact nos. etc. 10. Fire extinguisher 11. Cabinet to keep OIL's intranet module, CCTV NVR etc. 12. Provision for placing biometric system 13. Officer's Room-2 14. Supervisor room-1 15. Common room – 1 16. E-House Control room furniture for PCs, and operators 17. File Rack in control room 18. Key holder 19. Other accessories as per project requirements In addition, following guidelines for the drawing A21.1(A) shall be considered by the bidder: 1) Provision for constructing one (01) Kitchen and one (01) bathroom shall be kept. The construction of this structure will be under OIL's future scope. Accordingly, the overall dimension of E-house:2 with control room shall be such that it accommodates the same of required dimension. Please refer the attached Annexure-A21.1(A) for complete understanding of the project requirement.	

			2) Rear side clearance of all electrical equipment shall be minimum 1 Meter if not fixed with wall or less than 25 mm gap. 3) Staircase from platform connecting at least all three sides (Power transformer, Control Room & road) of electrical E-house-1 is mandatory. 4) Separate Battery room with exhaust system is mandatory. 5) Monkey ladders on all four sides of E-house:1 is mandatory. 6) Arc pressure relief provision for both 33 kV and 11 kV panel shall be considered in E-house:1 7) The Station Transformer shall be placed in a separate room as shown in the layout. 8) APFC control panel shall be installed inside the electrical switchgear room of E-house:1 or out side as per design. 9) 33 kV AIS and 11 kV AIS shall be suitably oriented and positioned such that there is no physical overlap or interference between the two switchgear line-ups during breaker racking-in and racking-out operations. The layout shall ensure adequate unobstructed operating space in front of each AIS for safe and	

			unhindered movement of the circuit breaker and circuit breaker trolley. 10) Wherever overlap or potential interference between the 33 kV AIS and 11 kV AIS cannot be completely avoided due to space constraints of E-house, a minimum clear distance of **2 metres** shall be maintained between the respective AIS line-ups to ensure safe and unobstructed breaker racking-in/racking-out operations. 11) The area of the utility rooms like Room No:1,2,3 & 4 of E-house:2 shall not be less than 95% of the area of each room shown in the attachment-A21.1(A). 12) The dimension of the control room shall not be less than the dimension shown in the attachment-A21.1(A). 13) The corridor width shall not be less than the requirement shown in the attachment A21.1(A).	
63	SOR/SOQ Section-IV Clause-B(30) pg 436 of 511	33/11 kV, 5 MVA Transformer: 1 No	33/11 kV, 5 MVA Transformer: 2 Nos.	

Annexure-A06.1(A)

GENERAL NOTES :-

1. POWER SUPPLY CONDITIONS

SYSTEM VOLTAGE	–	415V±10% , 3ø, 4W, 50Hz ±3%
CONTROL VOLTAGE	–	230V AC/110V AC/24V DC

2. PANEL DESIGN/CONSTRUCTION DETAILS

DESIGN	–	**NON DRAWOUT**
MOUNTING	–	FLOOR MOUNTED
DEGREE OF PROTECTION	–	IP–41 DUST AND VERMIN PROOF
OPERATION	–	SINGLE FRONT
INSTALLATION	–	INDOOR
FABRICATION MATERIAL	–	CRCA
SHEET THICKNESS FOR		
SIDE SHEET & PARTITION	–	1.6 MM CRCA
FRAME, EQUIPMENT MOUNTING PLATE	–	2 MM CRCA
REMOVABLE TOP & BOTTOM SHEET, FRONT & REAR DOOR	–	2 MM CRCA
REMOVABLE GLAND PLATE	–	2.0 MM CRCA
CABLE ENTRY	–	**BOTTOM**
MINIMUM OPERATING HEIGHT	–	300 MM
SEALING ARRANGEMENT	–	**NEOPRENE GASKET TO BE** USED TO MAKE THE PANEL DUST AND VERMIN PROOF.

3. PAINTING

PRETREATMENT – PRE–TREATMENT OF SHEET METAL SHALL BE CARRIED OUT BEFORE POWDER COATING WITH NINE TANK HOT DIP PROCESS FOR– DEGREASING, WATER RINSING, WATER RINSING, DERUSTING, WATER RINSING,ACTIVATION, PHOSPHATING, WATER RINSING AND PASSIVATION, THAN FORCE AIR DRYING.

PAINTING SHADE FOR		
DOORS/COVERS, SIDE, FRAMES,	–	**RAL7032**
MOUNTING PLATE	–	**ORANGE**

4. BUS BARS DETAILS

MATERIAL	–	ALUMINUM ELECTROLYTIC GRADE E91
BUS BAR INSULATION	–	HEAT SHRINKABLE PVC SLEEVES WITH COLOURED RED , YELLOW , BLUE & BLACK FOR PHASE IDENTIFICATION
BUS BAR SUPPORTS	–	NON–HYGROSCOPIC, NON CARBONISING, CORROSION RESISTANT , SMC SUPPORTS
MAX. TEMP. RISE OF BUSBARS	–	35°C ABOVE AMBIENT OF 50°C
AIR CLEARANCES FOR MAIN BUS BARS		
PHASE TO PHASE	–	25 MM (MIN.)
PHASE TO NEUTRAL	–	19 MM (MIN.)
PHASE TO EARTH	–	19 MM (MIN.)
NEUTRAL TO EARTH	–	19 MM (MIN.)

5. DOOR EARTHING – 2.5 SQ. MM GREEN Cu. WIRE

6. PANEL WIRING

AC VOLTAGE CIRCUIT	–	1.5 SQ MM RED,YELLOW,BLUE & BLACK
CURRENT CIRCUIT	–	2.5 SQ MM RED,YELLOW,BLUE & BLACK
AC CONTROL CIRCUIT	–	1.5 SQ MM RED FOR PHASE & BLACK FOR NEUTRAL
POWER CIRCUIT	–	4.0 SQ MM BLACK WITH COLOUR CODING SLEEVE
24V DC POWER CIRCUIT	–	1.5 SQ MM RED FOR (+)VE AND BLUE COLOR FOR (–)VE.
24V DC CONTROL CIRCUIT	–	1.0 SQ MM GREY FOR (+)VE AND WHITE COLOR FOR (–)VE.
WIRE MAKE	–	FINOLEX/POLYCAB
LUGS MAKE	–	DOWELLS/HEX/3D
PVC DUCT MAKE	–	AKG/TRINITY
TERMINAL MAKE	–	ELMAX/CONNECTWELL/PHOENIX

7. LABELLING – BLACK ANODISED ALUMINIUM ENGRAVED DESCRIPTION PLATE SHALL BE PROVIDED ON EACH FEEDER AND PANEL IT SELF.

8. LOCKING ARRANGEMENT

FEEDERS FRONT DOORS – LOCKS OPENABLE WITH KEY

9. SWITCH BOARD IS IN THE LINE WITH EIL SPECIFICATION '6–51–0004, REV.–04'

10. ANTI VIBRATION MOUNTING PAD –15mm.

NO	REVISIONS	DATE	CHKD
1	REVISED AS PER CLIENT COMMENTS	22.09.14	VK
2	AS BUILT DRAWING	07.02.15	VK

ALL DIMENSIONS ARE IN mm
ALL DIMENSIONS TOLERANCE=±2.5%
DRAWN BY:VK ON:15.05.14
CHKD. BY:BKS ON:15.05.14
APPD BY:BKS ON:15.05.14
SCALE :1
FILE NAME :

VIDHYUT CONTROL INDIA PVT. LTD.
(AN ISO 9001 COMPANY)
D-12 & 13, SEC.-17, KAVI NAGAR INDL. AREA,
GHAZIABAD - 201002. (INDIA)
PH:- 0120-4261050-52 Fax:-4261053
EMail:project@vcipl.net,vcipl2000@gmail.com

DRAWING TITLE: GENERAL NOTES	W.O.NO. 101556 / REV. : 1
END USER: M/S OIL INDIA LIMITED	DRW. NO. 101556–NOTES
CONSULTANT: M/S ENGINEERS INDIA LIMITED	AW **
CLIENT: M/S GREEN POWER INTERNATIONAL PVT. LTD.	
PROJECT 1XTCG 2032V16(11KV) MWM NATURAL GAS GENSET BASED POWER PLANT (SITE-PS2)	SHEET 1 OF 1

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NO Push button NC Push button Emergency PB	Thermostat D– Heating Device T– Thermal Switch	Thermocouple	Panel heater	Annunciator	Control Transformer	AC Motor
Lockable NC Push button Lockable emergency PB	Relay without Diode	ON delay timer	Solenoid	Meter A–Measuring quantity	Isolation Transformer	DC Motor
Selector Switch Selector switch Lockable	Contactor	OFF delay timer	Signal splitter (4...20mA / 4...20mA)	Protection relay A– Types of protection	Three Core Current Transformer	Generator
MCB Over load relay	Relay With Varistor circuit	Pulse timer	Transducer Y–Output quantity X–Measuring quantity	Ethernet to OFC converter Modbus to Ethernet Gateway	Two Core Current Transformer	Lightning Arrester
Circuit Breaker	Relay With Diode	Cyclic timer	Lamp	Ethernet Switch 8–port Ethernet Switch 4–port	Single Core Current Transformer	Isolator with Earthing Switch
MCCB	RTD 2 wire	Recorder X–Recorded quantity	LED	Check syn. relay	Three Core Potential Transformer	regulator
MPCB	RTD 3 wire	AC to DC convertor DC to DC convertor	Fuse Terminal Block Terminal Block	Power transformer	Two Core Potential Transformer	Auto transformer

NO	REVISIONS	DATE	CHKD
1	REVISED AS PER CLIENT COMMENTS	22.09.14	VK
2	AS BUILT DRAWING	07.02.15	VK

ALL DIMENSIONS ARE IN mm
ALL DIMENSIONS TOLERANCE=±2.5%

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CHKD.	BY:BKS	ON:15.05.14
APPD	BY:BKS	ON:15.05.14

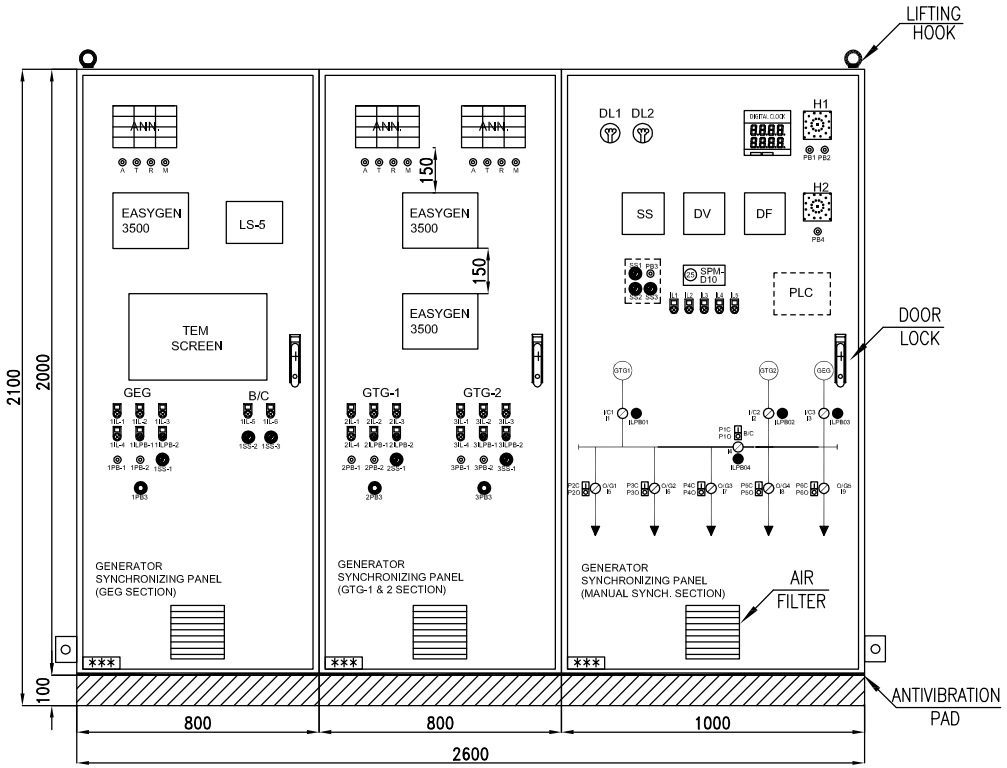
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FILE NAME :

VIDHYUT CONTROL INDIA PVT. LTD.
(AN ISO 9001 COMPANY)
D-12 & 13, SEC.-17, KAVI NAGAR INDL. AREA,
GHAZIABAD - 201002. (INDIA)
PH:- 0120-4261050-52 Fax:-4261053
EMail:project@vcipl.net,vcipl2000@gmail.com

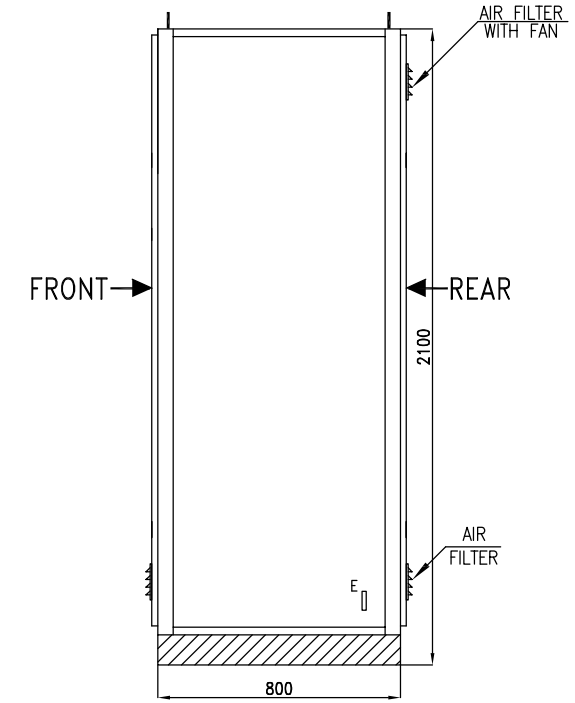
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END USER: M/S OIL INDIA LIMITED	DRW. NO. 101556–501
CONSULTANT: M/S ENGINEERS INDIA LIMITED	AW **
CLIENT: M/S GREEN POWER INTERNATIONAL PVT. LTD.	
PROJECT: 1XTCG 2032V16(11KV) MWM NATURAL GAS GENSET BASED POWER PLANT (SITE-PS2)	SHEET 1 OF 1

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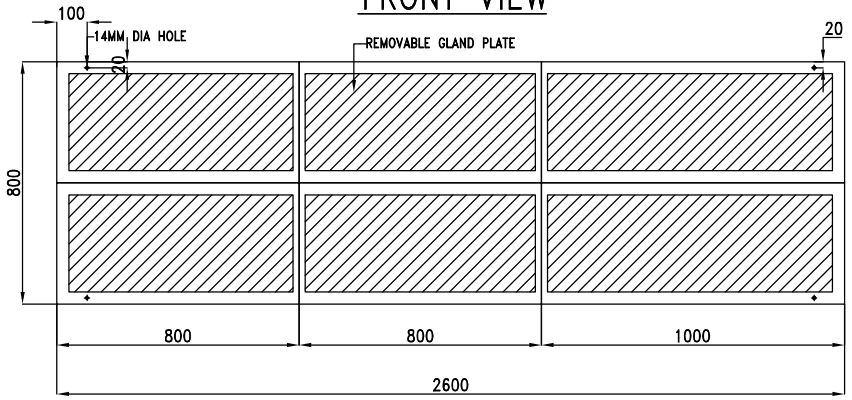
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FRONT VIEW



SIDE VIEW



BOTTOM VIEW

BUSBAR SIZE :-	
EARTH	**: 1X50X6 SQ MM CU. OR EQ.**
PAINT SHADE	**: RAL 7032**
BACK	**: OPEN**
CABLE ENTRY	**: BOTTOM**

NO	REVISIONS	DATE	CHKD
1	REVISED AS PER CLIENT COMMENTS	22.09.14	VK
2	AS BUILT DRAWING	07.02.15	VK

ALL DIMENSIONS ARE IN mm
ALL DIMENSIONS TOLERANCE=±2.5%

DRAWN	BY:VK	ON:15.05.14
CHKD.	BY:BKS	ON:15.05.14
APPD	BY:BKS	ON:15.05.14

SCALE :1
FILE NAME :

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GHAZIABAD - 201002. (INDIA)
PH:- 0120-4261050-52 Fax:-4261053
EMail:project@vcipl.net,vcipl2000@gmail.com

DRAWING TITLE:	GA FOR GENERATOR CONTROL PANEL FOR PS-2 SITE	W.O.NO. 101556	REV. : 1
END USER:	M/S OIL INDIA LIMITED	DRW. NO. 101556-102	
CONSULTANT:	M/S ENGINEERS INDIA LIMITED	AW Appx. 650Kg	
CLIENT:	M/S GREEN POWER INTERNATIONAL PVT. LTD.		
PROJECT:	1XTCG 2032V16(11KV) MWM NATURAL GAS GENSET BASED POWER PLANT (SITE-PS2)	SHEET 1 OF 2	

LEGENDS–

GEG SECTION–

1IL-1	–	GEG. RUNNING INDICATION LIGHT
1IL-2	–	VCB ON INDICATION LIGHT
1IL-3	–	VCB OFF INDICATION LIGHT
1IL-4	–	TEM FAULT INDICATION LIGHT
1IL-5	–	B/C ON INDICATION LIGHT
1IL-6	–	B/C OFF INDICATION LIGHT
1ILPB-1	–	NIC ON ILLUMINATION P/B
1ILPB-2	–	NIC OFF ILLUMINATION P/B
1PB-1	–	GEG.-1 START PUSH BUTTON
1PB-2	–	GEG.-1 STOP PUSH BUTTON
1PB-3	–	EMG. STOP PUSH BUTTON
1SS-1	–	AUTO/MANUAL SEL. SWITCH
1SS-2	–	B/C ENABLE SWITCH
1SS-3	–	B/C AUTO/MANUAL SEL. SWITCH
E-3500	–	AUTO SYNCHRONISING RELAY
LS-5	–	BUSCOUPLER SYNCHRONISING RELAY
TEM SCREEN	–	HMI FOR GEG
ANN.	–	ANNUNCIATOR
A	–	ACCEPT PUSH BUTTON
T	–	TEST PUSH BUTTON
R	–	RESET PUSH BUTTON
M	–	MUTE PUSH BUTTON

GTG-1 SECTION–

2IL-1	–	GTG.-1 RUNNING INDICATION LIGHT
2IL-2	–	VCB ON INDICATION LIGHT
2IL-3	–	VCB OFF INDICATION LIGHT
2IL-4	–	COMMON FAULT INDICATION LIGHT
2ILPB-1	–	NIC ON ILLUMINATION P/B
2ILPB-2	–	NIC OFF ILLUMINATION P/B
2PB-1	–	GTG.-1 START PUSH BUTTON
2PB-2	–	GTG.-1 STOP PUSH BUTTON
2PB-3	–	EMG. STOP PUSH BUTTON
2SS-1	–	AUTO/MANUAL SEL. SWITCH
E-3500	–	AUTO SYNCHRONISING RELAY
ANN.	–	ANNUNCIATOR
A	–	ACCEPT PUSH BUTTON
T	–	TEST PUSH BUTTON
R	–	RESET PUSH BUTTON
M	–	MUTE PUSH BUTTON

GTG-2 SECTION–

3IL-1	–	GTG.-2 RUNNING INDICATION LIGHT
3IL-2	–	VCB ON INDICATION LIGHT
3IL-3	–	VCB OFF INDICATION LIGHT
3IL-4	–	COMMON FAULT INDICATION LIGHT
3ILPB-1	–	NIC ON ILLUMINATION P/B
3ILPB-2	–	NIC OFF ILLUMINATION P/B
3PB-1	–	GTG.-2 START PUSH BUTTON
3PB-2	–	GTG.-2 STOP PUSH BUTTON
3PB-3	–	EMG. STOP PUSH BUTTON
3SS-1	–	AUTO/MANUAL SEL. SWITCH
E-3500	–	AUTO SYNCHRONISING RELAY
ANN.	–	ANNUNCIATOR
A	–	ACCEPT PUSH BUTTON
T	–	TEST PUSH BUTTON
R	–	RESET PUSH BUTTON
M	–	MUTE PUSH BUTTON

MANUAL SYNC. SECTION–

DL-1	–	DARK LAMP-1
DL-2	–	DARK LAMP-2
DV	–	DOUBLE VOLTMETER
SS	–	SYNCHRONOSCOPE
DF	–	DOUBLE FREQUENCY METER
SS-1	–	MANUAL SYNCHRONIZING SELECTOR SWITCH ON/OFF
SS-2	–	VOLTAGE RAISE/LOW SELECTOR SWITCH
SS-3	–	SPEED RAISE/LOW SELECTOR SWITCH
25	–	MANUAL CHECK SYNCHRONIZING RELAY (SPM-D10)
IL1	–	INDICATION LIGHT-SYNCHRONIZING ON
IL2	–	INDICATION LIGHT-DC SUPPLY ON
IL3	–	INDICATION LIGHT-DC FAIL
IL4	–	INDICATION LIGHT-AC SUPPLY ON
IL5	–	INDICATION LIGHT-ALARM ON
PB1	–	PUSH BUTTON-ALARM ACCEPT H1
PB2	–	PUSH BUTTON-ALARM TEST H1
PB3	–	PUSH BUTTON-SYNCHRONIZING BREAKER CLOSE
PB4	–	PUSH BUTTON-ALARM ACCEPT H2
ILPB01	–	ILLUMINATED PUSH BUTTON-SYNCHRONIZING ON GTG-1
ILPB02	–	ILLUMINATED PUSH BUTTON-SYNCHRONIZING ON GTG-2
ILPB03	–	ILLUMINATED PUSH BUTTON-SYNCHRONIZING ON GEG
ILPB04	–	ILLUMINATED PUSH BUTTON-SYNCHRONIZING ON B/C
I1	–	BREAKER STATUS INDICATOR FOR GTG-1 I/C
I2	–	BREAKER STATUS INDICATOR FOR GTG-2 I/C
I3	–	BREAKER STATUS INDICATOR FOR GEG I/C
I4	–	BREAKER STATUS INDICATOR FOR B/C
I5	–	BREAKER STATUS INDICATOR FOR O/G1
I6	–	BREAKER STATUS INDICATOR FOR O/G2
I7	–	BREAKER STATUS INDICATOR FOR O/G3
I8	–	BREAKER STATUS INDICATOR FOR O/G4
I9	–	BREAKER STATUS INDICATOR FOR O/G5
P1C	–	BREAKER CLOSE PUSH BUTTON FOR B/C
P1O	–	BREAKER OPEN PUSH BUTTON FOR B/C
P2C	–	BREAKER CLOSE PUSH BUTTON FOR O/G-1
P2O	–	BREAKER OPEN PUSH BUTTON FOR O/G-1
P3C	–	BREAKER CLOSE PUSH BUTTON FOR O/G-2
P3O	–	BREAKER OPEN PUSH BUTTON FOR O/G-2
P4C	–	BREAKER CLOSE PUSH BUTTON FOR O/G-3
P4O	–	BREAKER OPEN PUSH BUTTON FOR O/G-3
P5C	–	BREAKER CLOSE PUSH BUTTON FOR O/G-4
P5O	–	BREAKER OPEN PUSH BUTTON FOR O/G-4
P6C	–	BREAKER CLOSE PUSH BUTTON FOR O/G-5
P6O	–	BREAKER OPEN PUSH BUTTON FOR O/G-5
H1	–	BUZZER-1
H2	–	BUZZER-2
D.C.	–	DIGITAL CLOCK
PLC	–	PROGRAMMABLE LOGIC CONTROLLER

NO	REVISIONS	DATE	CHKD
1	REVISED AS PER CLIENT COMMENTS	22.09.14	VK
2	AS BUILT DRAWING	07.02.15	VK

ALL DIMENSIONS ARE IN mm
ALL DIMENSIONS TOLERANCE=±2.5%
DRAWN BY:VK ON:15.05.14
CHKD. BY:BKS ON:15.05.14
APPD BY:BKS ON:15.05.14
SCALE :1
FILE NAME :

VIDHYUT CONTROL INDIA PVT. LTD.
(AN ISO 9001 COMPANY)
D-12 & 13, SEC.-17, KAVI NAGAR INDL. AREA,
GHAZIABAD - 201002. (INDIA)
PH:- 0120-4261050-52 Fax:-4261053
EMail:project@vcipl.net,vcipl2000@gmail.com

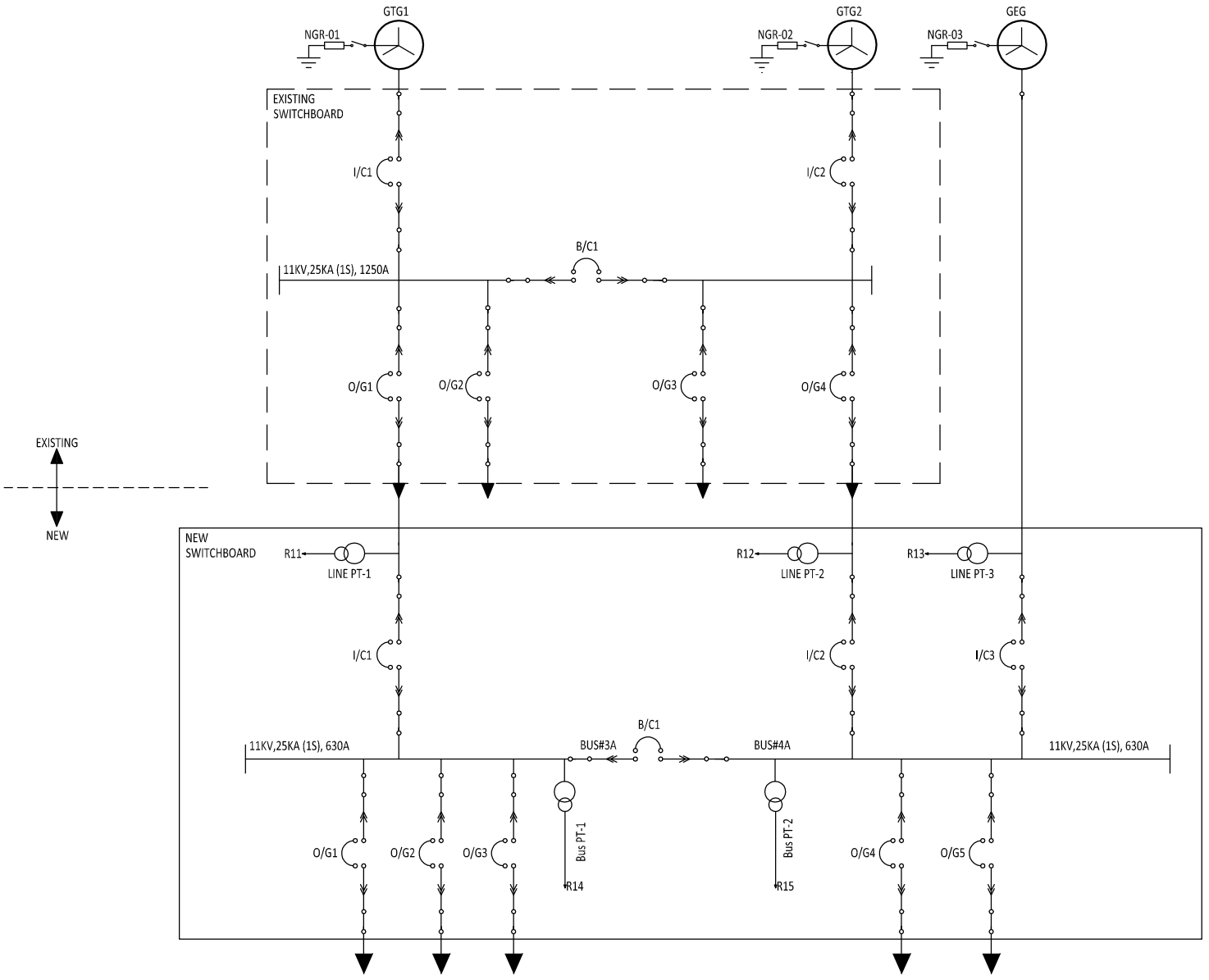
DRAWING TITLE:	GA FOR GENERATOR CONTROL PANEL FOR PS-2 SITE
W.O.NO.	101556
REV. :	1
END USER:	M/S OIL INDIA LIMITED
DRW. NO.	101556-102
CONSULTANT:	M/S ENGINEERS INDIA LIMITED
	AW **
CLIENT:	M/S GREEN POWER INTERNATIONAL PVT. LTD.
PROJECT:	1XTCG 2032V16(11KV) MWM NATURAL GAS GENSET BASED POWER PLANT (SITE-PS2)
SHEET	2 OF 2

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NO	REVISIONS	DATE	CHKD
1	REVISED AS PER CLIENT COMMENTS	22.09.14	VK
2	AS BUILT DRAWING	07.02.15	VK

ALL DIMENSIONS ARE IN mm
ALL DIMENSIONS TOLERANCE=±2.5%

DRAWN	BY:VK	ON:15.05.14
CHKD.	BY:BKS	ON:15.05.14
APPD	BY:BKS	ON:15.05.14

SCALE :1
FILE NAME :

VIDHYUT CONTROL INDIA PVT. LTD.
(AN ISO 9001 COMPANY)
D-12 & 13, SEC.-17, KAVI NAGAR INDL. AREA,
GHAZIABAD - 201002. (INDIA)
PH:- 0120-4261050-52 Fax:-4261053
EMail:project@vcipl.net,vcipl2000@gmail.com

DRAWING TITLE:	SLD FOR GENERATOR CONTROL PANEL FOR PS-2 SITE
END USER:	M/S OIL INDIA LIMITED
CONSULTANT:	M/S ENGINEERS INDIA LIMITED
CLIENT:	M/S GREEN POWER INTERNATIONAL PVT. LTD.
PROJECT:	1XTCG 2032V16(11KV) MWM NATURAL GAS GENSET BASED POWER PLANT (SITE-PS2)

W.O.NO. 101556	REV. : 1
DRW. NO. 101556-302	
AW **	
SHEET 1 OF 1	

VIDHYUT CONTROL (I) PVT LTD

D-12 & 13, SECTOR 17,KAVI NAGAR INDUSTRIAL AREA
Ghaziabad (UP), 201002, UP, INDIA
PH: 0120-4261050/51/52, Fax No.:0120-4261053
email : vcipl2000@gmail.com

Bill of Material

ASBUILT

Panel : GENERATOR SYNCHRONIZING PANEL FOR PS-2 SITE	**Project : SO/101556**	**Customer Name : M/S Green Power International Pvt.Ltd.,**	**Quantity : 1.00 Nos**

SNo. 1 **Feeder Details**: - CONTROL OANEL -

Material / Item Description	**Make**	**Quantity**

SNo. 2 **Feeder Details**: - SMPS -

Material / Item Description	**Make**	**Quantity**
* SMPS, 40A, 230V AC/24V DC	PHOENIX(GPIPL SCOPE)	2
* MCB, Sch Pole:2 FltLvl:10KA Rat:6A Type:C CURVE	Schneider	3
* MCB, Sch Pole:2 FltLvl:10KA Rat:40A Type:C CURVE	Schneider	2
* MCB, Sch Pole:2 FltLvl:10KA Rat:25A Type:C CURVE	Schneider	1
* AUXCONTACT, Sch	Schneider	1
* Shunt Release for MCB, Sch Rel:MX+OF Shunt Release Volt:12-24V AC/DC	Schneider	1
* INDICATION LIGHT, TEC Rat:RED Volt:24V DC	TECNIC	1
* MCB, Sch Pole:1 FltLvl:10KA Rat:6A Type:C CURVE	Schneider	6
* ELECTRONIC DIGITAL CLOCK, REPUTED Rat:RED COLOUR Rel:7 SEGMENT LED DISPLAY	REPUTED	1
* UNDER VOLTAGE RELAY, TECH Type:2C/O Volt:24 VDC	TECKNIKA/REPUTED	1

SNo. 3 **Feeder Details**: - GEG-1 -

Material / Item Description	**Make**	**Quantity**
* MCB, Sch Pole:2 FltLvl:10KA Rat:16A Type:B CURVE	Schneider	1
* MCB, Sch Pole:1 FltLvl:10KA Rat:3A Type:C CURVE	Schneider	1

* MCB, Sch Pole:1 FltLvl:10KA Rat:6A Type:B CURVE	Schneider	5
* AUXCONTACT, Sch	Schneider	3
* AUXILLARY RELAY, Sch Rat:24V DC Type:MINIATURE RELAYS Rel:4 C/O	Schneider	18
* DIODE FOR AUXILLARY RELAY, Sch Rat:6-250V DC Type:PROTECTION MODULES	Schneider	18
* MCB, Sch Pole:2 FltLvl:10KA Rat:6A Type:C CURVE	Schneider	2
* AUXCONTACT, Sch	Schneider	2
* MCB, Sch Pole:3 FltLvl:10KA Rat:6A Type:C CURVE	Schneider	1
* AUXCONTACT, Sch	Schneider	1
* AUXILLARY RELAY, Sch Rat:24V DC Type:MINIATURE RELAYS Rel:4 C/O	Schneider	11
* DIODE FOR AUXILLARY RELAY, Sch Rat:6-250V DC Type:PROTECTION MODULES	Schneider	11
* EMERGENCY PUSH BUTTON, TECNIC Rat:RED Type:STAYPUT MUSHROOM ACTUATOR	TECNIC	1
* CONTACT ELEMENT, TECNIC Rat:WITH 1NO Type:ACTUATOR MOUNTING	TECNIC	1
* CONTACT ELEMENT, TECNIC Rat:WITH 1NC Type:ACTUATOR MOUNTING	TECNIC	3
* SELECTOR SWITCH, VASHNO Rat:22.5 MM BLACK Rel:3 POSITION	VASHNO	1
* NO ELEMENT, VASHNO	VASHNO	2
* MCB, Sch Pole:2 FltLvl:10KA Rat:6A Type:C CURVE	Schneider	1
* AUXCONTACT, Sch	Schneider	1
* CONTACT ELEMENT, TECNIC Rat:WITH 1NC Type:ACTUATOR MOUNTING	TECNIC	1
* CONTACT ELEMENT, TECNIC Rat:WITH 1NO Type:ACTUATOR MOUNTING	TECNIC	1
* PUSH BUTTON, TECNIC Rat:RED,22.5MM DIA Type:FLUSH	TECNIC	1
* PUSH BUTTON, TECNIC Rat:GREEN,22.5MM DIA Type:FLUSH	TECNIC	1
* INDICATION LIGHT, TEC Rat:RED Volt:24V DC	TECNIC	2
* INDICATION LIGHT, TEC Rat:GREEN Volt:24V DC	TECNIC	1
* INDICATION LIGHT, TEC Rat:AMBER Volt:24V DC	TECNIC	1
* AUXILLARY RELAY, Sch Rat:24V DC Type:MINIATURE RELAYS Rel:4 C/O	Schneider	6

* DIODE FOR AUXILLARY RELAY, Sch Rat:6-250V DC Type:PROTECTION MODULES	Schneider	6
* PUSH BUTTON, TECNIC Rat:RED Type:ILLUMINATED Volt:24 V DC	TECNIC	1
* PUSH BUTTON, TECNIC Rat:GREEN 22.5MM DIA Type:ILLUMINATED Volt:24V DC	TECNIC	1
* CONTACT ELEMENT, TECNIC Rat:WITH 1NO Type:ACTUATOR MOUNTING	TECNIC	2
* MCB, Sch Pole:2 FltLvl:10KA Rat:6A Type:C CURVE	Schneider	1
* PUSH BUTTON, TECNIC Rat:RED,22.5MM DIA Type:FLUSH	TECNIC	1
* PUSH BUTTON, TECNIC Rat:BLUE,22.5MM DIA Type:FLUSH	TECNIC	1
* PUSH BUTTON, TEC Rat:BLACK,22.5MM DIA Type:FLUSH	TECNIC	1
* PUSH BUTTON, TECNIC Rat:YELLOW,22.5MM DIA Type:FLUSH	TECNIC	1
* CONTACT ELEMENT, TECNIC Rat:WITH 1NO Type:ACTUATOR MOUNTING	TECNIC	4
* ANNUNCIATOR, MINILEC Rat:12WINDOW Type:MBAS-0600, SIZE-3D Volt:24V DC	MINILEC	1
* TEM I/O CARDS	SUPPLIED BY MWM(GPIPL SCOPE)	1
* AUTO SYNCHRONISING RELAY, EASYGEN-3500	WOODWARD(GPIPL SCOPE)	1

SNo. 4 **Feeder Details**: - GTG-1 -

Material / Item Description	**Make**	**Quantity**
* MCB, Sch Pole:2 FltLvl:10KA Rat:6A Type:C CURVE	Schneider	2
* AUXCONTACT, Sch	Schneider	2
* MCB, Sch Pole:3 FltLvl:10KA Rat:6A Type:C CURVE	Schneider	1
* AUXCONTACT, Sch	Schneider	1
* AUXILLARY RELAY, Sch Rat:24V DC Type:MINIATURE RELAYS Rel:4 C/O	Schneider	11
* DIODE FOR AUXILLARY RELAY, Sch Rat:6-250V DC Type:PROTECTION MODULES	Schneider	11
* SELECTOR SWITCH, VASHNO Rat:22.5 MM BLACK Rel:3 POSITION	VASHNO	1
* NO ELEMENT, VASHNO	VASHNO	2
* EMERGENCY PUSH BUTTON, TECNIC Rat:RED Type:STAYPUT MUSHROOM ACTUATOR	TECNIC	1
* CONTACT ELEMENT, TECNIC Rat:WITH 1NC Type:ACTUATOR MOUNTING	TECNIC	3

* CONTACT ELEMENT, TECNIC Rat:WITH 1NO Type:ACTUATOR MOUNTING	TECNIC	1
* MCB, Sch Pole:2 FltLvl:10KA Rat:6A Type:C CURVE	Schneider	1
* AUXCONTACT, Sch	Schneider	1
* CONTACT ELEMENT, TECNIC Rat:WITH 1NC Type:ACTUATOR MOUNTING	TECNIC	1
* CONTACT ELEMENT, TECNIC Rat:WITH 1NO Type:ACTUATOR MOUNTING	TECNIC	1
* PUSH BUTTON, TECNIC Rat:RED,22.5MM DIA Type:FLUSH	TECNIC	1
* PUSH BUTTON, TECNIC Rat:GREEN,22.5MM DIA Type:FLUSH	TECNIC	1
* INDICATION LIGHT, TECNIC Rat:RED Volt:110V AC	TECNIC	1
* INDICATION LIGHT, TEC Rat:AMBER Volt:24V DC	TECNIC	1
* AUXILLARY RELAY, Sch Rat:24V DC Type:MINIATURE RELAYS Rel:4 C/O	Schneider	6
* DIODE FOR AUXILLARY RELAY, Sch Rat:6-250V DC Type:PROTECTION MODULES	Schneider	6
* INDICATION LIGHT, TEC Rat:RED Volt:24V DC	TECNIC	2
* INDICATION LIGHT, TEC Rat:GREEN Volt:24V DC	TECNIC	1
* PUSH BUTTON, TECNIC Rat:RED Type:ILLUMINATED Volt:24 V DC	TECNIC	1
* PUSH BUTTON, TECNIC Rat:GREEN 22.5MM DIA Type:ILLUMINATED Volt:24V DC	TECNIC	1
* CONTACT ELEMENT, TECNIC Rat:WITH 1NO Type:ACTUATOR MOUNTING	TECNIC	2
* MCB, Sch Pole:2 FltLvl:10KA Rat:6A Type:C CURVE	Schneider	1
* PUSH BUTTON, TECNIC Rat:RED,22.5MM DIA Type:FLUSH	TECNIC	1
* PUSH BUTTON, TECNIC Rat:BLUE,22.5MM DIA Type:FLUSH	TECNIC	1
* PUSH BUTTON, TEC Rat:BLACK,22.5MM DIA Type:FLUSH	TECNIC	1
* PUSH BUTTON, TECNIC Rat:YELLOW,22.5MM DIA Type:FLUSH	TECNIC	1
* CONTACT ELEMENT, TECNIC Rat:WITH 1NO Type:ACTUATOR MOUNTING	TECNIC	4
* ANNUNCIATOR, MINILEC Rat:12WINDOW Type:MBAS-0600, SIZE-3D Volt:24V DC	MINILEC	1
* AUTO SYNCHRONISING RELAY, EASYGEN-3500	WOODWARD(GPIPL SCOPE)	1

SNo. 5 **Feeder Details**: - GTG-2 -

Material / Item Description	Make	Quantity
* MCB, Sch Pole:2 FltLvl:10KA Rat:6A Type:C CURVE	Schneider	2
* AUXCONTACT, Sch	Schneider	2
* MCB, Sch Pole:3 FltLvl:10KA Rat:6A Type:C CURVE	Schneider	1
* AUXCONTACT, Sch	Schneider	1
* AUXILLARY RELAY, Sch Rat:24V DC Type:MINIATURE RELAYS Rel:4 C/O	Schneider	11
* DIODE FOR AUXILLARY RELAY, Sch Rat:6-250V DC Type:PROTECTION MODULES	Schneider	11
* SELECTOR SWITCH, VASHNO Rat:22.5 MM BLACK Rel:3 POSITION	VASHNO	1
* NO ELEMENT, VASHNO	VASHNO	2
* EMERGENCY PUSH BUTTON, TECNIC Rat:RED Type:STAYPUT MUSHROOM ACTUATOR	TECNIC	1
* CONTACT ELEMENT, TECNIC Rat:WITH 1NC Type:ACTUATOR MOUNTING	TECNIC	3
* CONTACT ELEMENT, TECNIC Rat:WITH 1NO Type:ACTUATOR MOUNTING	TECNIC	1
* MCB, Sch Pole:2 FltLvl:10KA Rat:6A Type:C CURVE	Schneider	1
* AUXCONTACT, Sch	Schneider	1
* CONTACT ELEMENT, TECNIC Rat:WITH 1NC Type:ACTUATOR MOUNTING	TECNIC	1
* CONTACT ELEMENT, TECNIC Rat:WITH 1NO Type:ACTUATOR MOUNTING	TECNIC	1
* PUSH BUTTON, TECNIC Rat:RED,22.5MM DIA Type:FLUSH	TECNIC	1
* PUSH BUTTON, TECNIC Rat:GREEN,22.5MM DIA Type:FLUSH	TECNIC	1
* INDICATION LIGHT, TECNIC Rat:RED Volt:110V AC	TECNIC	1
* INDICATION LIGHT, TEC Rat:AMBER Volt:24V DC	TECNIC	1
* AUXILLARY RELAY, Sch Rat:24V DC Type:MINIATURE RELAYS Rel:4 C/O	Schneider	6
* DIODE FOR AUXILLARY RELAY, Sch Rat:6-250V DC Type:PROTECTION MODULES	Schneider	6
* INDICATION LIGHT, TEC Rat:RED Volt:24V DC	TECNIC	2
* INDICATION LIGHT, TEC Rat:GREEN Volt:24V DC	TECNIC	1
* PUSH BUTTON, TECNIC Rat:RED Type:ILLUMINATED Volt:24 V DC	TECNIC	1
* PUSH BUTTON, TECNIC Rat:GREEN 22.5MM DIA Type:ILLUMINATED Volt:24V DC	TECNIC	1

* CONTACT ELEMENT, TECNIC Rat:WITH 1NO Type:ACTUATOR MOUNTING	TECNIC	2
* MCB, Sch Pole:2 FltLvl:10KA Rat:6A Type:C CURVE	Schneider	1
* PUSH BUTTON, TECNIC Rat:RED,22.5MM DIA Type:FLUSH	TECNIC	1
* PUSH BUTTON, TECNIC Rat:BLUE,22.5MM DIA Type:FLUSH	TECNIC	1
* PUSH BUTTON, TEC Rat:BLACK,22.5MM DIA Type:FLUSH	TECNIC	1
* PUSH BUTTON, TECNIC Rat:YELLOW,22.5MM DIA Type:FLUSH	TECNIC	1
* CONTACT ELEMENT, TECNIC Rat:WITH 1NO Type:ACTUATOR MOUNTING	TECNIC	4
* ANNUNCIATOR, MINILEC Rat:12WINDOW Type:MBAS-0600, SIZE-3D Volt:24V DC	MINILEC	1
* AUTO SYNCHRONISING RELAY, EASYGEN-3500	WOODWARD(GPIPL SCOPE)	1

SNo. 6 **Feeder Details**: - BUSCOUPLER -

Material / Item Description	**Make**	**Quantity**
* MCB, Sch Pole:2 FltLvl:10KA Rat:6A Type:C CURVE	Schneider	2
* AUXCONTACT, Sch	Schneider	1
* MCB, Sch Pole:3 FltLvl:10KA Rat:6A Type:C CURVE	Schneider	2
* AUXCONTACT, Sch	Schneider	2
* AUXILLARY RELAY, Sch Rat:24V DC Type:MINIATURE RELAYS Rel:4 C/O	Schneider	4
* DIODE FOR AUXILLARY RELAY, Sch Rat:6-250V DC Type:PROTECTION MODULES	Schneider	4
* SELECTOR SWITCH, VASHNO Rat:22.5 MM BLACK Rel:3 POSITION	VASHNO	2
* NO ELEMENT, VASHNO	VASHNO	4
* INDICATION LIGHT, TEC Rat:RED Volt:24V DC	TECNIC	1
* INDICATION LIGHT, TEC Rat:GREEN Volt:24V DC	TECNIC	1
* BUSCOUPLER SYNCHRONIZING RELAY, LS-5	WOODWARD(GPIPL SCOPE)	1

SNo. 7 **Feeder Details**: - MANUAL SYNCHRONIZING -

Material / Item Description	**Make**	**Quantity**

* AUXILLARY RELAY, Sch Rat:110V AC Type:MINIATURE RELAYS Rel:4 C/O	Schneider	5
* DOUBLE VOLTMETER, AE Rat:O-500V Type:(DOUBLE)144*144 Volt:415/110V,PTR 110 VAC	AE	1
* DOUBLE FREQUENCY METER, AE Rat:45-55 HZ Type:Double Stage Rel:144*144 Volt:415/110 VAC	AE	1
* SYNCHROSCOPE, AE Rat:ACCURACY+-2 DEG Type:MOVING VANE TYPE Volt:110 V	AE	1
* BULB HOLDER, REPUTED	REPUTED	2
* SELECTOR SWITCH, VASHNO Rat:22.5 MM BLACK Rel:2 POSITION	VASHNO	1
* NO ELEMENT, VASHNO	VASHNO	2
* SELECTOR SWITCH, VASHNO Rat:22.5 MM BLACK Rel:3 POSITION	VASHNO	2
* NO ELEMENT, VASHNO	VASHNO	4
* AUXILLARY RELAY, Sch Rat:24V DC Type:MINIATURE RELAYS Rel:4 C/O	Schneider	59
* DIODE FOR AUXILLARY RELAY, Sch Rat:6-250V DC Type:PROTECTION MODULES	Schneider	59
* PUSH BUTTON, TECNIC Rat:RED Type:ILLUMINATED Volt:24 V DC	TECNIC	4
* PUSH BUTTON, TECNIC Rat:GREEN,22.5MM DIA Type:FLUSH	TECNIC	1
* CONTACT ELEMENT, TECNIC Rat:WITH 1NO Type:ACTUATOR MOUNTING	TECNIC	1
* Semaphore Indicators, REPUTED Type:DC Volt:24 VDC	REPUTED	9
* PUSH BUTTON, ESBEE Rat:BLACK(RED/GREEN) Type:FLUSH HEAD(NON ILLUMINATED) CatNo:HD15G3	ESBEE	6
* INDICATION LIGHT, TEC Rat:RED Volt:24V DC	TECNIC	1
* INDICATION LIGHT, TEC Rat:AMBER Volt:24V DC	TECNIC	1
* MCB, Sch Pole:2 FltLvl:10KA Rat:6A Type:C CURVE	Schneider	1
* AUXCONTACT, Sch	Schneider	1
* CONTACT ELEMENT, TECNIC Rat:WITH 1NO Type:ACTUATOR MOUNTING	TECNIC	2
* PUSH BUTTON, TECNIC Rat:BLUE,22.5MM DIA Type:FLUSH	TECNIC	1
* PUSH BUTTON, TECNIC Rat:YELLOW,22.5MM DIA Type:FLUSH	TECNIC	1
* AUXILLARY RELAY, Sch Rat:24V DC Type:MINIATURE RELAYS Rel:4 C/O	Schneider	1
* DIODE FOR AUXILLARY RELAY, Sch Rat:6-250V DC Type:PROTECTION MODULES	Schneider	1

* BUZZER, VASHNO Type:96x96 Volt:24V DC	VASHNO	1
* AUXILLARY RELAY, Sch Type:MINIATURE RELAYS Rel:4 C/O Volt:230V AC	Schneider	2
* MCB, Sch Pole:1 FltLvl:10KA Rat:6A Type:C CURVE	Schneider	1
* PUSH BUTTON, TECNIC Rat:BLUE,22.5MM DIA Type:FLUSH	TECNIC	1
* AUXCONTACT, Sch	Schneider	1
* INDICATION LIGHT, TECNIC Rat:AMBER Volt:230V AC	TECNIC	1
* BUZZER, VASHNO Type:96x96 Volt:240 VAC	VASHNO	1
* MANUAL CHECK SYNCHRONIZING RELAY, SPM D-10	WOODWARD(GPIPL SCOPE)	1

SNo. 8 **Feeder Details**: - PLC SYNCHRONIZING -

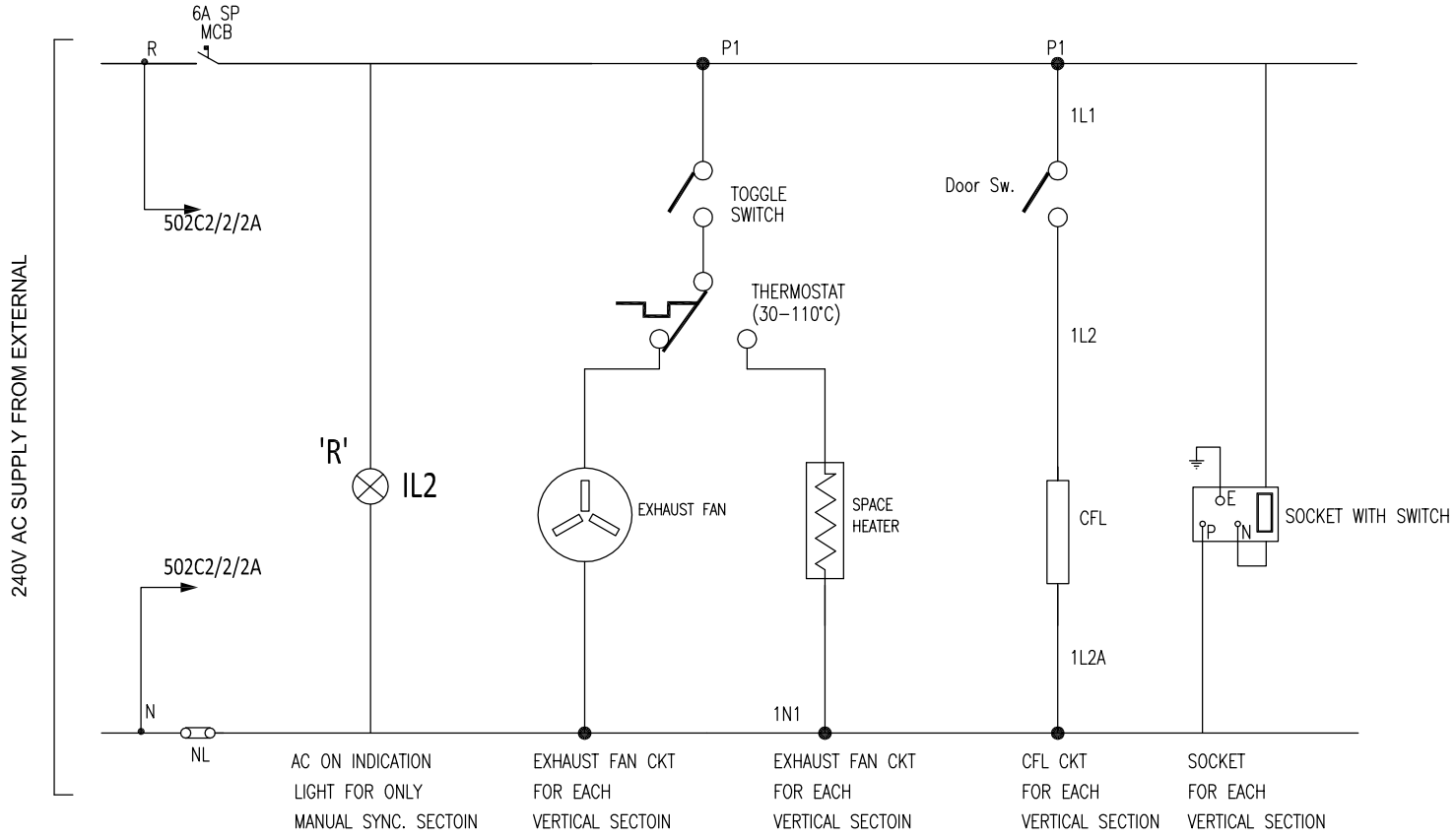
Material / Item Description	**Make**	**Quantity**
* RELAY MODULE BOARD, PHOENIX Rat:2C/O Type:INTERFACING MOD Volt:24V DC	PHOENIX	8
* PLC MODULE, (DI-64 , DO-64, AI-16, AO-8)	Schneider (GPIPL SCOPE)	1

SNo. 9 **Feeder Details**: - MISC. -

Material / Item Description	**Make**	**Quantity**
* MCB, Sch Pole:1 FltLvl:10KA Rat:6A Type:C CURVE	Schneider	3
* INDICATION LIGHT, TECNIC Rat:RED Volt:230V AC	TECNIC	1
* EXHAUST FAN, REXN Rat:6" Volt:220 VAC	REXNORD	3
* FILTER, REPUTED Rat:230*230	REPUTED	6
* CFL, CG Rat:11 WATT Type:WITH LAMP FITTING Volt:220 VAC	CROMPTON GREAVES	3
* DOOR SWITCH, REPUTED	REPUTED	3
* TOGGLE SWITCH, KAYCEE Rat:6A Type:(2 POSITION)	KAYCEE	3
* THERMOSTATE, ANCO Rat:30DEG C-110DEG C Type:2 PIN, 2 C/O	ANCO	3
* SPACE HEATER, TELELEC Rat:60 WATT Type:BOX Volt:240V	TELELEC	3
* POWER SOCKET, ANCHOR Rat:5/15A Type:WITH SWITCH Volt:220 VAC	ANCHOR	3

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1	REVISED AS PER CLIENT COMMENTS	22.09.14	VK
2	AS BUILT DRAWING	07.02.15	VK

ALL DIMENSIONS ARE IN mm
ALL DIMENSIONS TOLERANCE=±2.5%

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CHKD.	BY:BKS	ON:15.05.14
APPD	BY:BKS	ON:15.05.14

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FILE NAME :

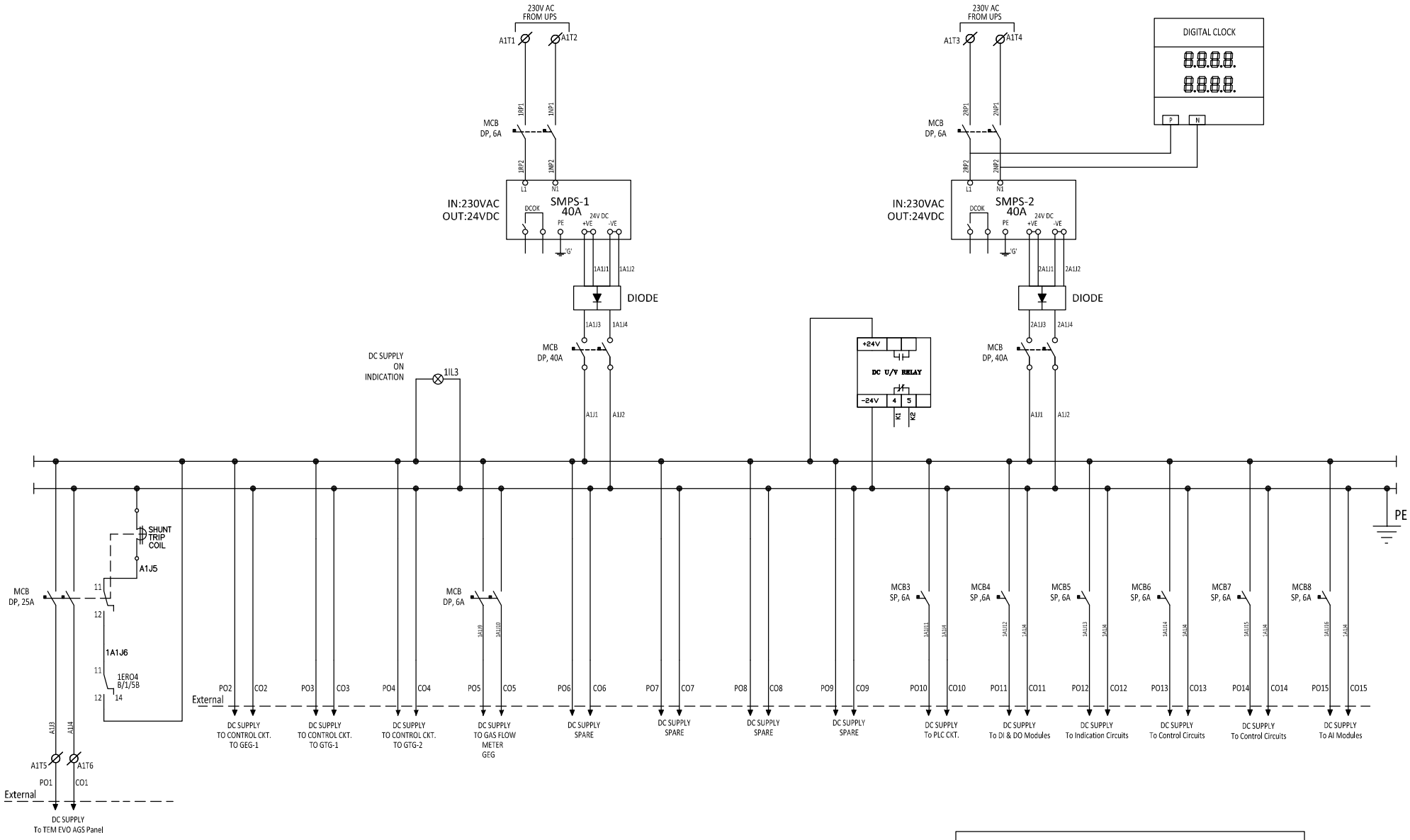
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D-12 & 13, SEC.-17, KAVI NAGAR INDL. AREA,
GHAZIABAD - 201002. (INDIA)
PH:- 0120-4261050-52 Fax:-4261053
EMail:project@vcipl.net,vcipl2000@gmail.com

CONTROL SCHEME FOR CFL & EXHAUST FAN CKT.

DRAWING TITLE:	SCH. FOR GENERATOR CONTROL PANEL FOR PS-2 SITE	W.O.NO. 101556 / REV. : 1
END USER:	M/S OIL INDIA LIMITED	DRW. NO. 101556–502
CONSULTANT:	M/S ENGINEERS INDIA LIMITED	AW **
CLIENT:	M/S GREEN POWER INTERNATIONAL PVT. LTD.	
PROJECT:	1XTCG 2032V16(11KV) MWM NATURAL GAS GENSET BASED POWER PLANT (SITE-PS2)	SHEET 1 OF 1

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CONTROL SCHEME OF SMPS

NO	REVISIONS	DATE	CHKD
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2	AS BUILT DRAWING	07.02.15	VK

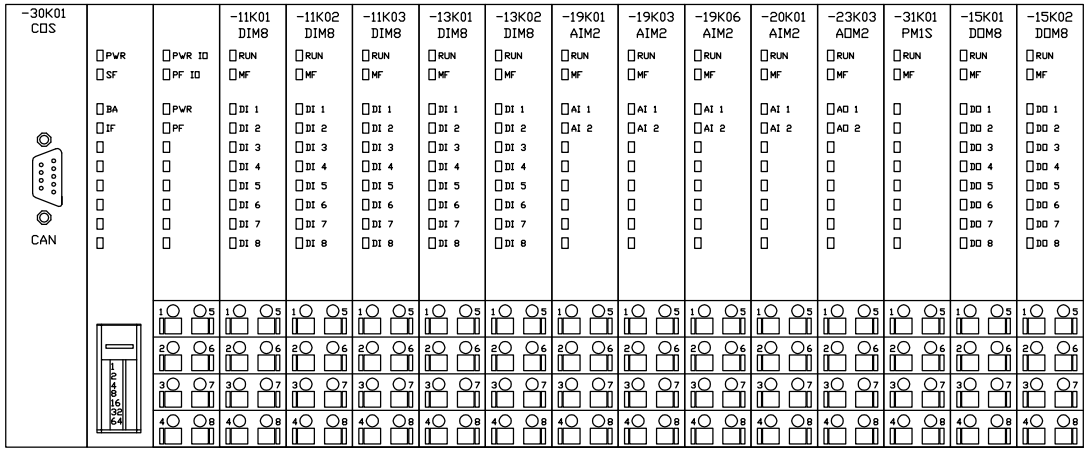
ALL DIMENSIONS ARE IN mm
ALL DIMENSIONS TOLERANCE=±2.5%
DRAWN BY:VK ON:16.05.14
CHKD. BY:BKS ON:16.05.14
APPD BY: ON:
SCALE :1
FILE NAME :

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PH:- 0120-4261050-52 Fax:-4261053
EMail:project@vcipl.net,vcipl2000@gmail.com

DRAWING TITLE: SCH FOR GENERATOR CONTROL PANEL FOR PS-2 SITE
W.O.NO. 101556
REV. : 1
END USER: M/S OIL INDIA LIMITED
DRW. NO. 101556-502-A1
CONSULTANT: M/S ENGINEERS INDIA LIMITED
AW **
CLIENT: M/S GREEN POWER INTERNATIONAL PVT. LTD.
PROJECT: 1XTCG 2032V16(11KV) MWM NATURAL GAS GENSET BASED POWER PLANT (SITE-PS2)
SHEET 1 OF 1

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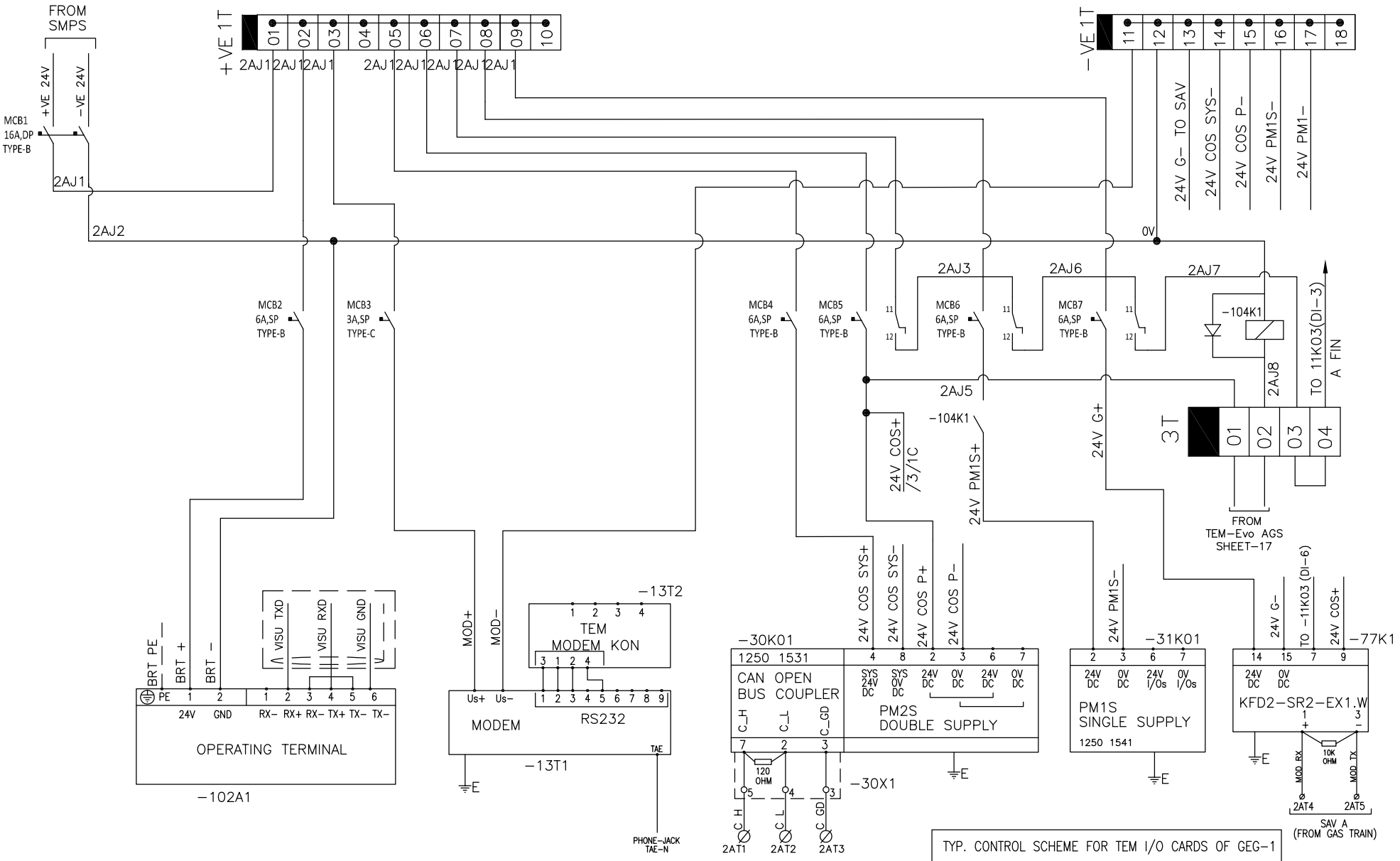
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APPD	BY:	ON:

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TYP. CONTROL SCHEME FOR TEM I/O CARDS OF GEG-1

DRAWING TITLE:	SCH FOR GENERATOR CONTROL PANEL FOR PS-2 SITE	W.O.NO. 101556 / REV. : 1
END USER:	M/S OIL INDIA LIMITED	DRW. NO. 101556-502-A
CONSULTANT:	M/S ENGINEERS INDIA LIMITED	AW **
CLIENT:	M/S GREEN POWER INTERNATIONAL PVT. LTD.	
PROJECT	1XTCG 2032V16(11KV) MWM NATURAL GAS GENSET BASED POWER PLANT (SITE-PS2)	SHEET 1 OF 15



NO	REVISIONS	DATE	CHKD
1	REVISED AS PER CLIENT COMMENTS	22.09.14	VK
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CHKD.	BY:BKS	ON:16.05.14
APPD	BY:	ON:

SCALE :1
FILE NAME :

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TYP. CONTROL SCHEME FOR TEM I/O CARDS OF GEG-1

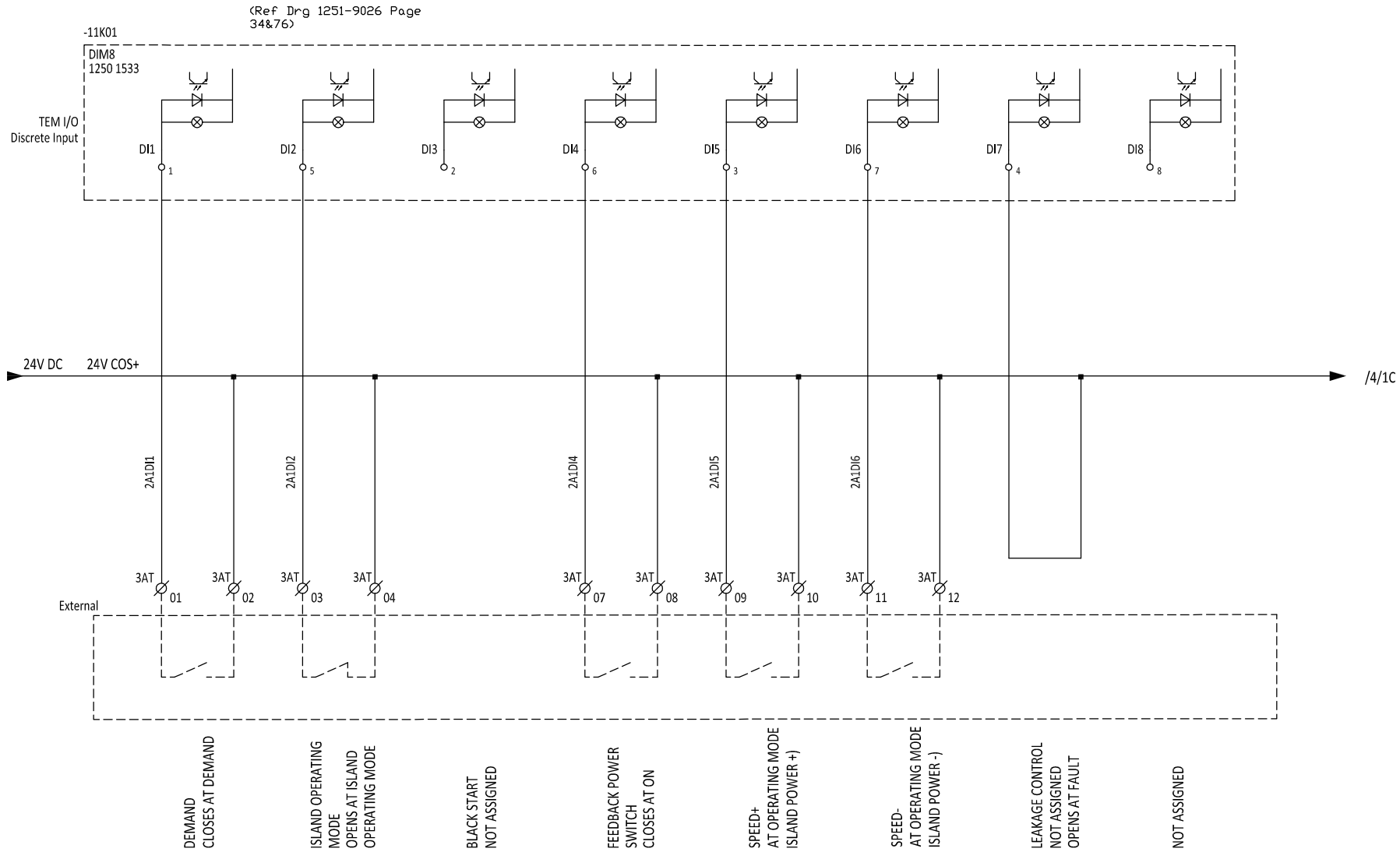
DRAWING TITLE: SCH FOR GENERATOR CONTROL PANEL FOR PS-2 SITE	W.O.NO. 101556 / REV. : 1
END USER: M/S OIL INDIA LIMITED	DRW. NO. 101556-502-A
CONSULTANT: M/S ENGINEERS INDIA LIMITED	AW **
CLIENT: M/S GREEN POWER INTERNATIONAL PVT. LTD.	
PROJECT: 1XTCG 2032V16(11KV) MWM NATURAL GAS GENSET BASED POWER PLANT (SITE-PS2)	SHEET 2 OF 15

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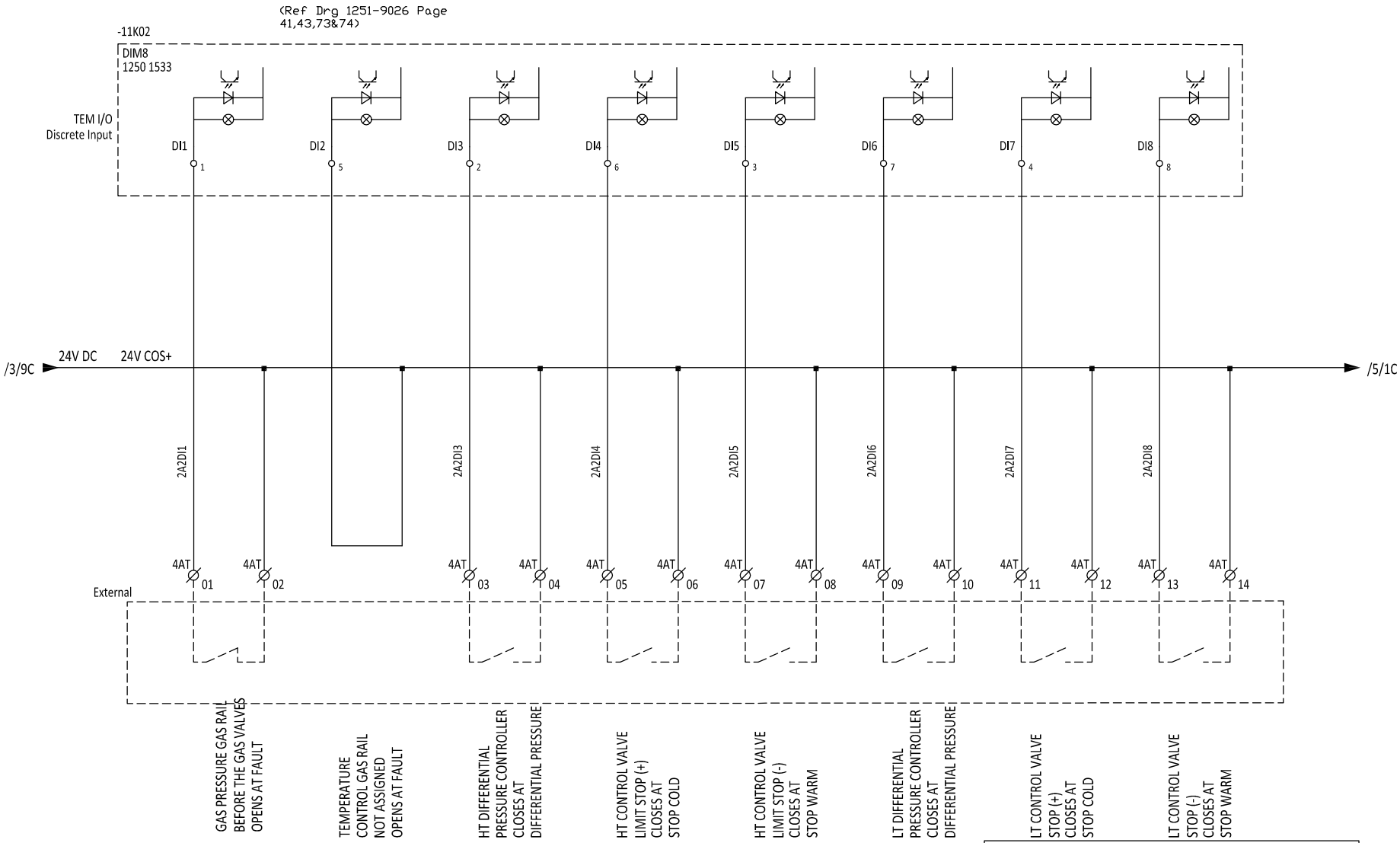
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TYP. CONTROL SCHEME FOR TEM I/O CARDS OF GEG-1

DRAWING TITLE: SCH FOR GENERATOR CONTROL PANEL FOR PS-2 SITE	W.O.NO. 101556	REV. : 1
END USER: M/S OIL INDIA LIMITED	DRW. NO. 101556-502-A	
CONSULTANT: M/S ENGINEERS INDIA LIMITED	AW **	
CLIENT: M/S GREEN POWER INTERNATIONAL PVT. LTD.		
PROJECT 1XTCG 2032V16(11KV) MWM NATURAL GAS GENSET BASED POWER PLANT (SITE-PS2)	SHEET 3 OF 15	

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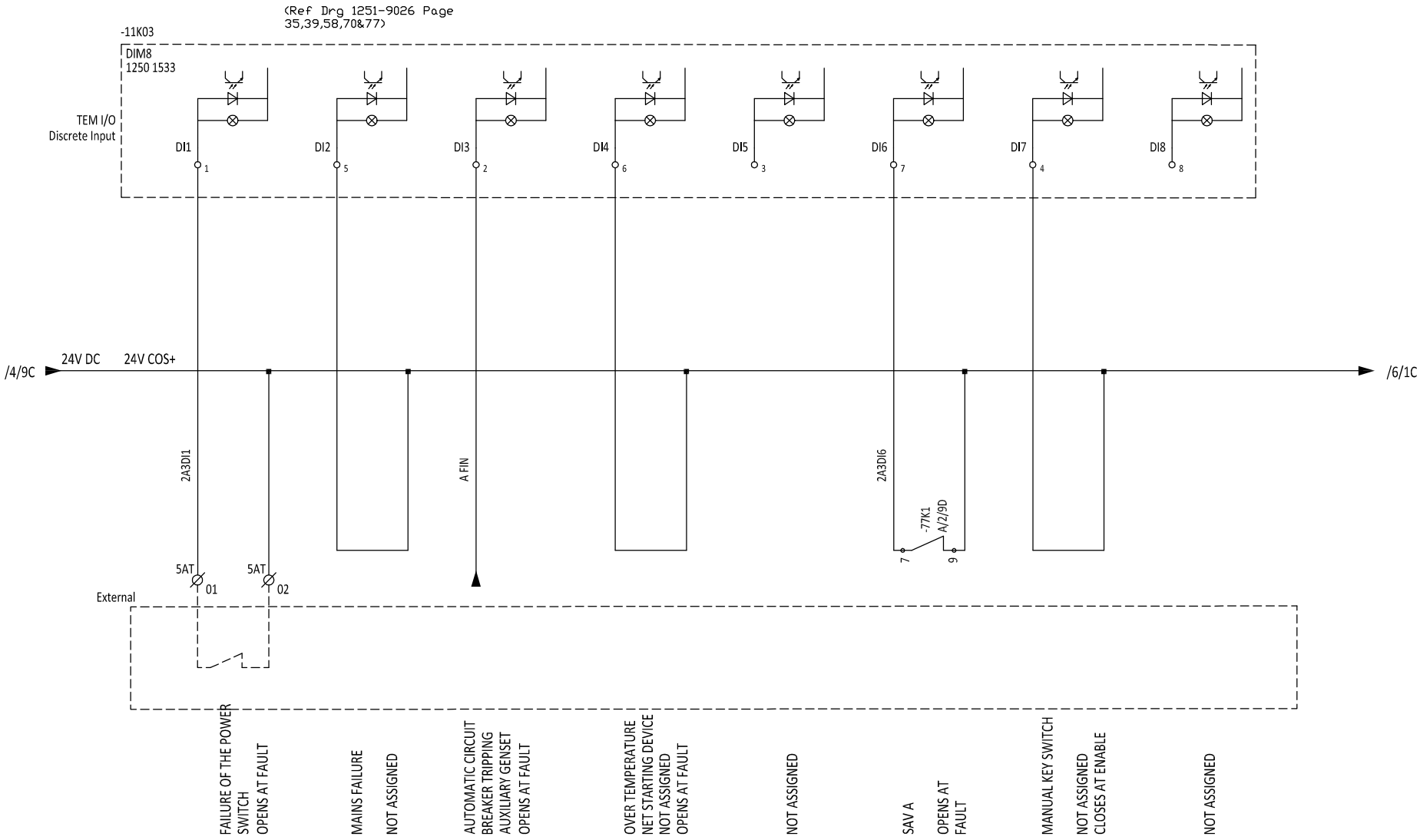
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TYP. CONTROL SCHEME FOR TEM I/O CARDS OF GEG-1

DRAWING TITLE: SCH FOR GENERATOR CONTROL PANEL FOR PS-2 SITE
W.O.NO. 101556
REV. : 1
END USER: M/S OIL INDIA LIMITED
DRW. NO. 101556-502-A
CONSULTANT: M/S ENGINEERS INDIA LIMITED
AW **
CLIENT: M/S GREEN POWER INTERNATIONAL PVT. LTD.
PROJECT: 1XTCG 2032V16(11KV) MWM NATURAL GAS GENSET BASED POWER PLANT (SITE-PS2)
SHEET 4 OF 15

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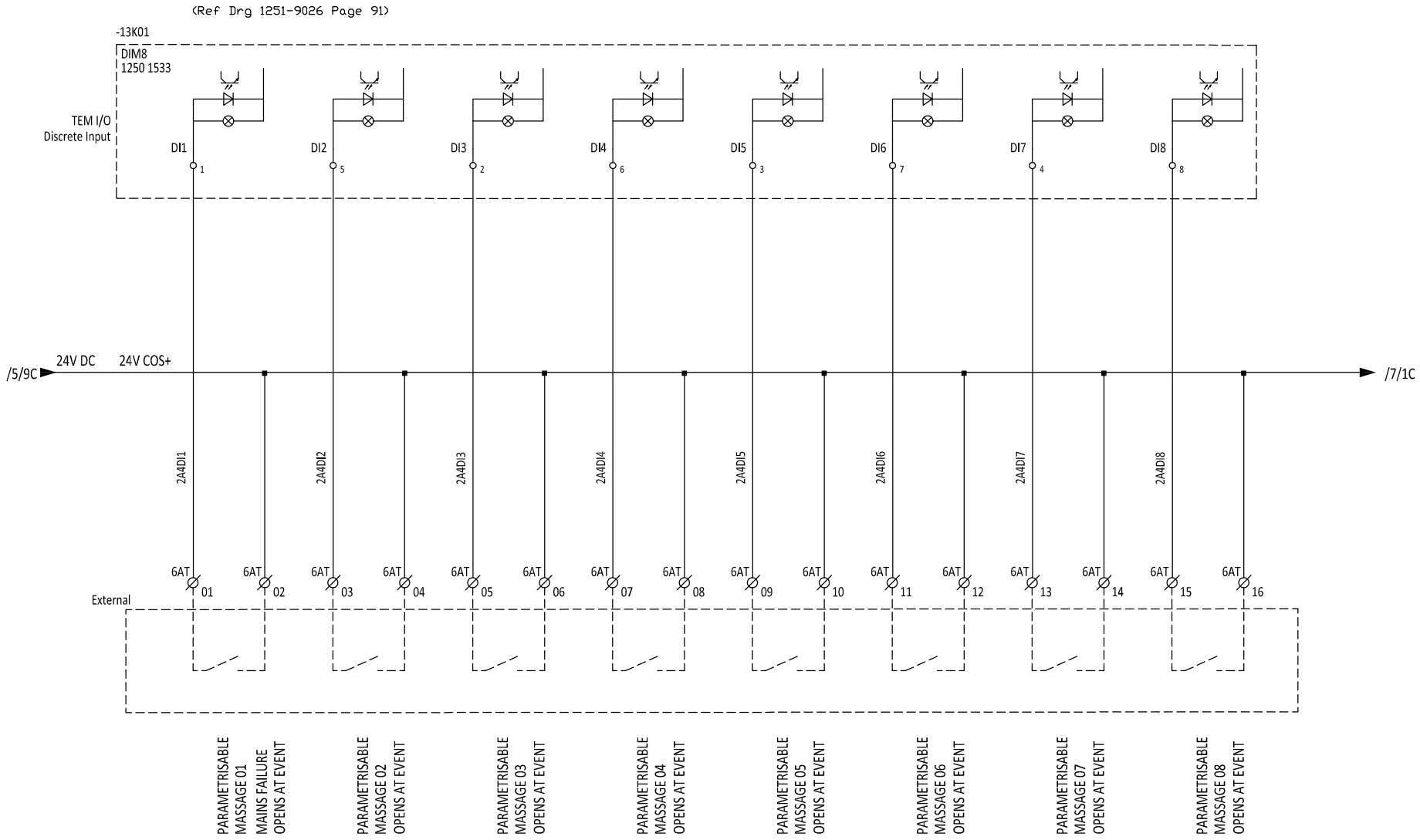
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TYP. CONTROL SCHEME FOR TEM I/O CARDS OF GEG-1

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W.O.NO. 101556
REV. : 1
END USER: M/S OIL INDIA LIMITED
DRW. NO. 101556-502-A
CONSULTANT: M/S ENGINEERS INDIA LIMITED
AW **
CLIENT: M/S GREEN POWER INTERNATIONAL PVT. LTD.
PROJECT 1XTCG 2032V16(11KV) MWM NATURAL GAS GENSET BASED POWER PLANT (SITE-PS2)
SHEET 5 OF 15

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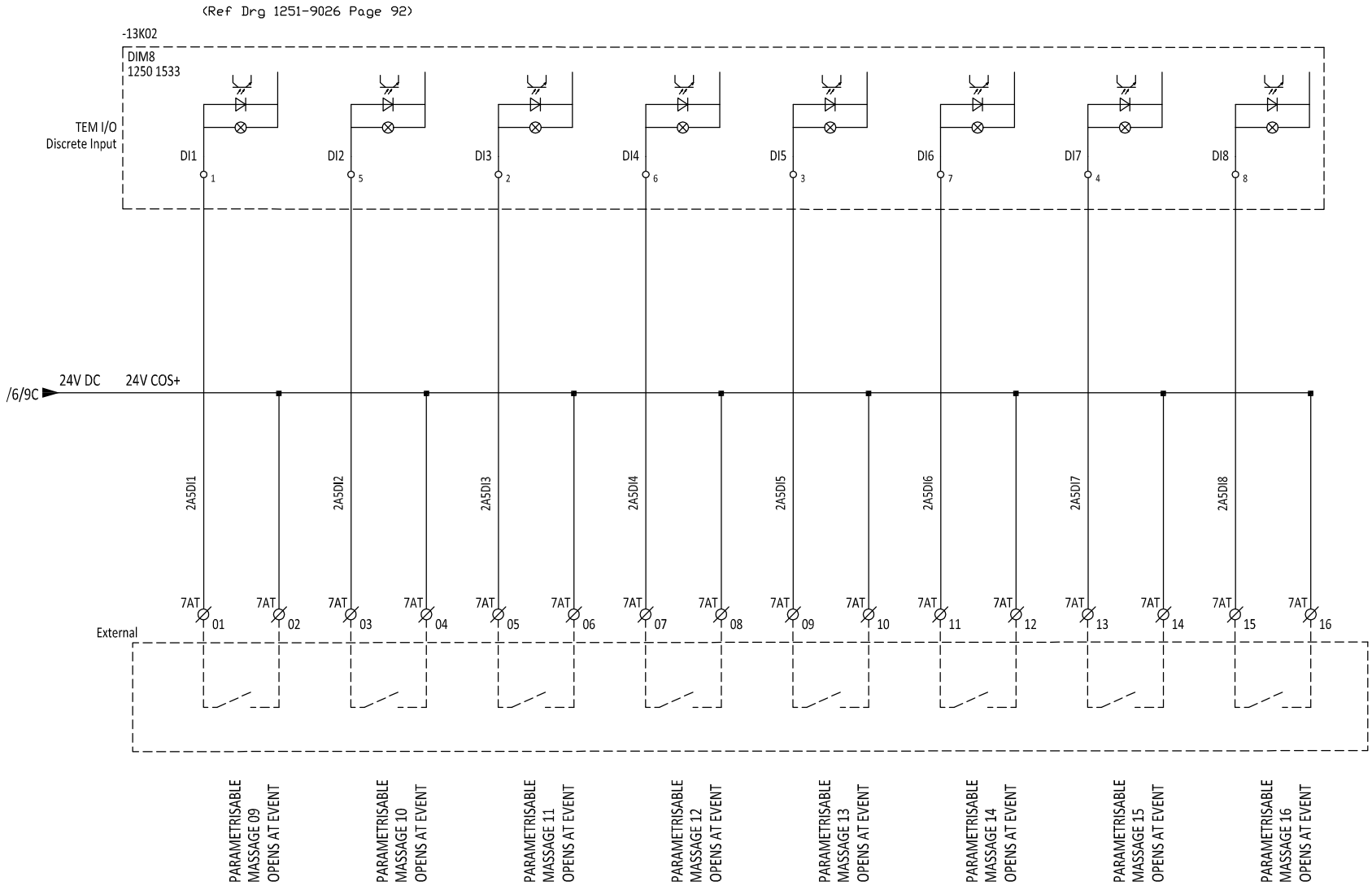
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TYP. CONTROL SCHEME FOR TEM I/O CARDS OF GEG-1

DRAWING TITLE: SCH FOR GENERATOR CONTROL PANEL FOR PS-2 SITE
W.O.NO. 101556
REV. : 1
END USER: M/S OIL INDIA LIMITED
DRW. NO. 101556-502-A
CONSULTANT: M/S ENGINEERS INDIA LIMITED
AW **
CLIENT: M/S GREEN POWER INTERNATIONAL PVT. LTD.
PROJECT 1XTCG 2032V16(11KV) MWM NATURAL GAS GENSET BASED POWER PLANT (SITE-PS2)
SHEET 6 OF 15

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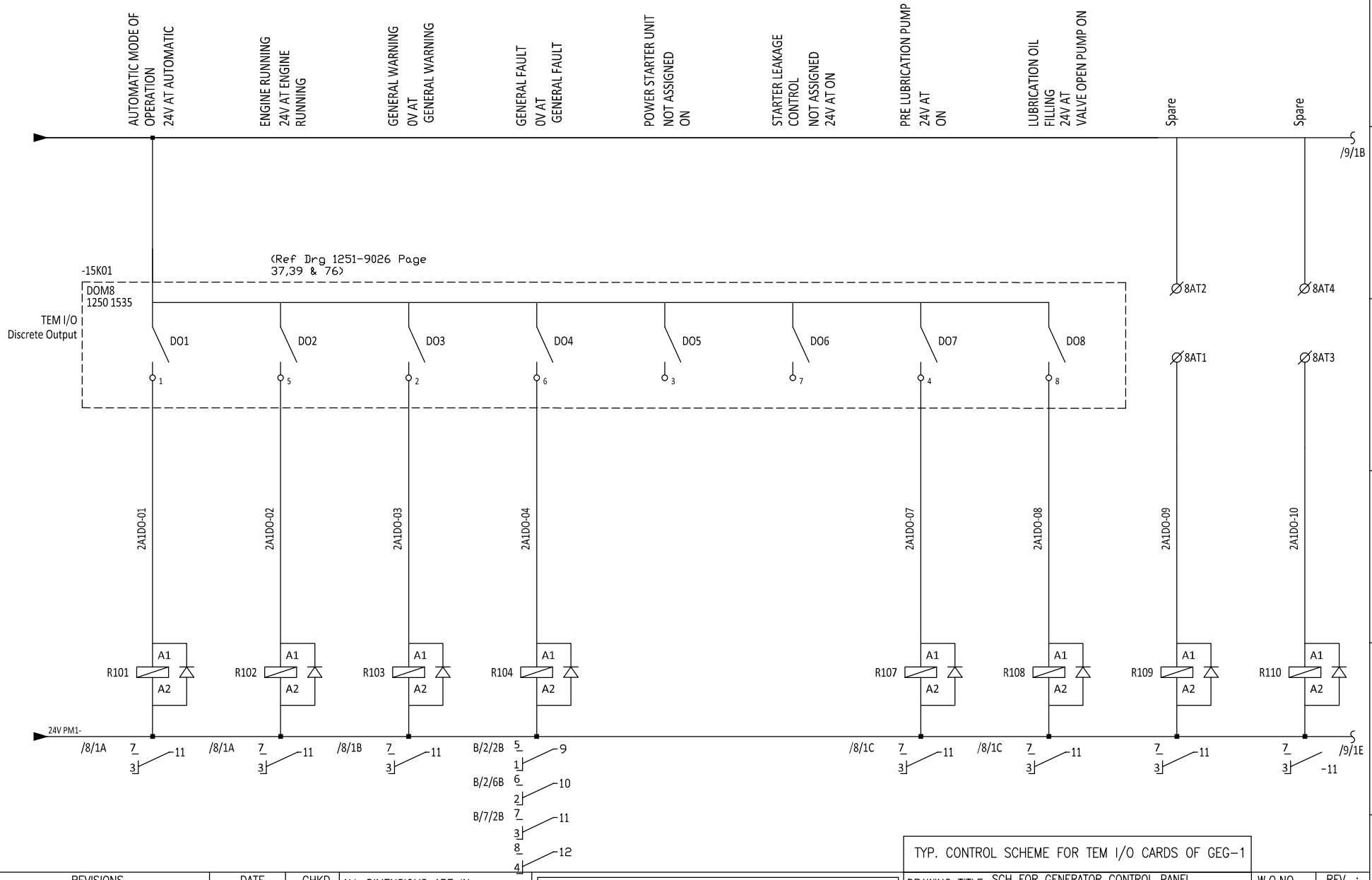
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TYP. CONTROL SCHEME FOR TEM I/O CARDS OF GEG-1

DRAWING TITLE: SCH FOR GENERATOR CONTROL PANEL FOR PS-2 SITE
W.O.NO. 101556
REV. : 1
END USER: M/S OIL INDIA LIMITED
DRW. NO. 101556-502-A
CONSULTANT: M/S ENGINEERS INDIA LIMITED
AW **
CLIENT: M/S GREEN POWER INTERNATIONAL PVT. LTD.
PROJECT 1XTCG 2032V16(11KV) MWM NATURAL GAS GENSET BASED POWER PLANT (SITE-PS2)
SHEET 7 OF 15

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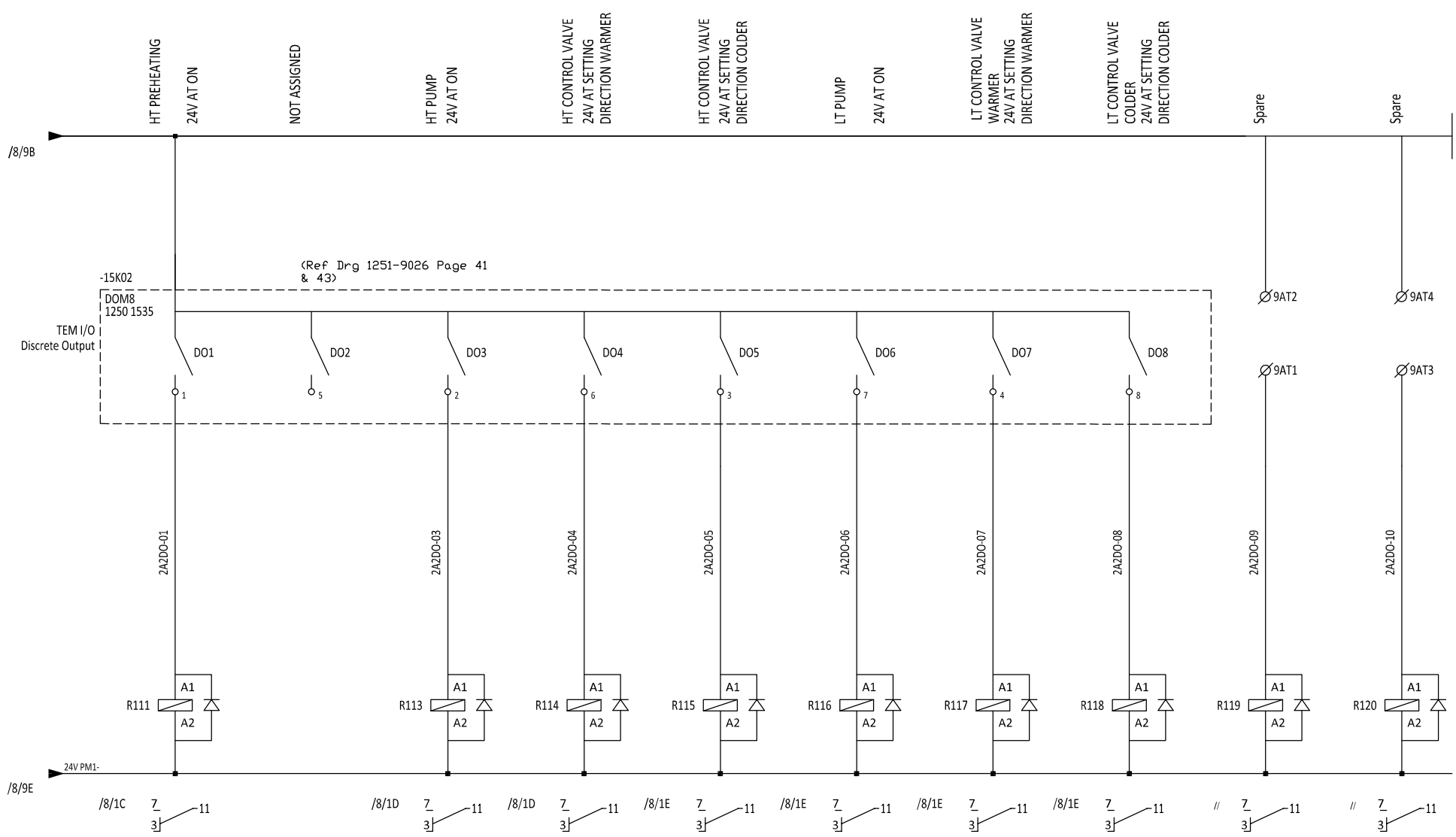
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TYP. CONTROL SCHEME FOR TEM I/O CARDS OF GEG-1

DRAWING TITLE: SCH FOR GENERATOR CONTROL PANEL FOR PS-2 SITE	W.O.NO. 101556	REV. : 1
END USER: M/S OIL INDIA LIMITED	DRW. NO. 101556-502-A	
CONSULTANT: M/S ENGINEERS INDIA LIMITED	AW **	
CLIENT: M/S GREEN POWER INTERNATIONAL PVT. LTD.		
PROJECT: 1XTCG 2032V16(11KV) MWM NATURAL GAS GENSET BASED POWER PLANT (SITE-PS2)	SHEET 8 OF 15	

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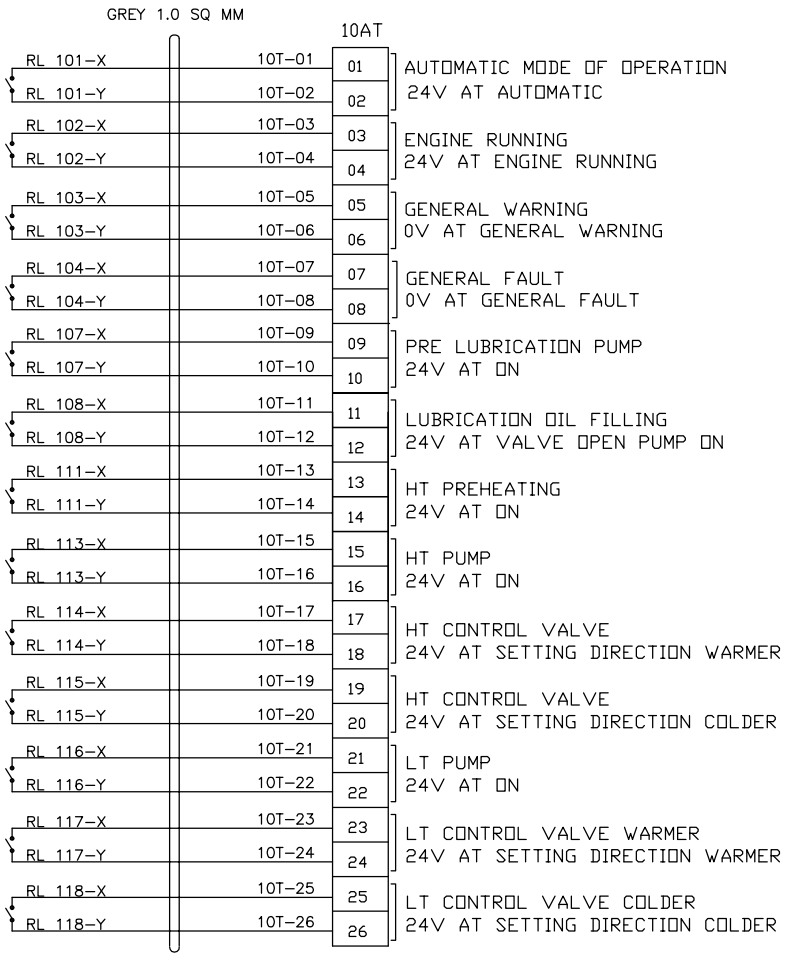
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DRAWING TITLE: SCH FOR GENERATOR CONTROL PANEL FOR PS-2 SITE	W.O.NO. 101556	REV. : 1
END USER: M/S OIL INDIA LIMITED	DRW. NO. 101556-502-A	
CONSULTANT: M/S ENGINEERS INDIA LIMITED	AW **	
CLIENT: M/S GREEN POWER INTERNATIONAL PVT. LTD.		
PROJECT: 1XTCG 2032V16(11KV) MWM NATURAL GAS GENSET BASED POWER PLANT (SITE-PS2)	SHEET 9 OF 15	

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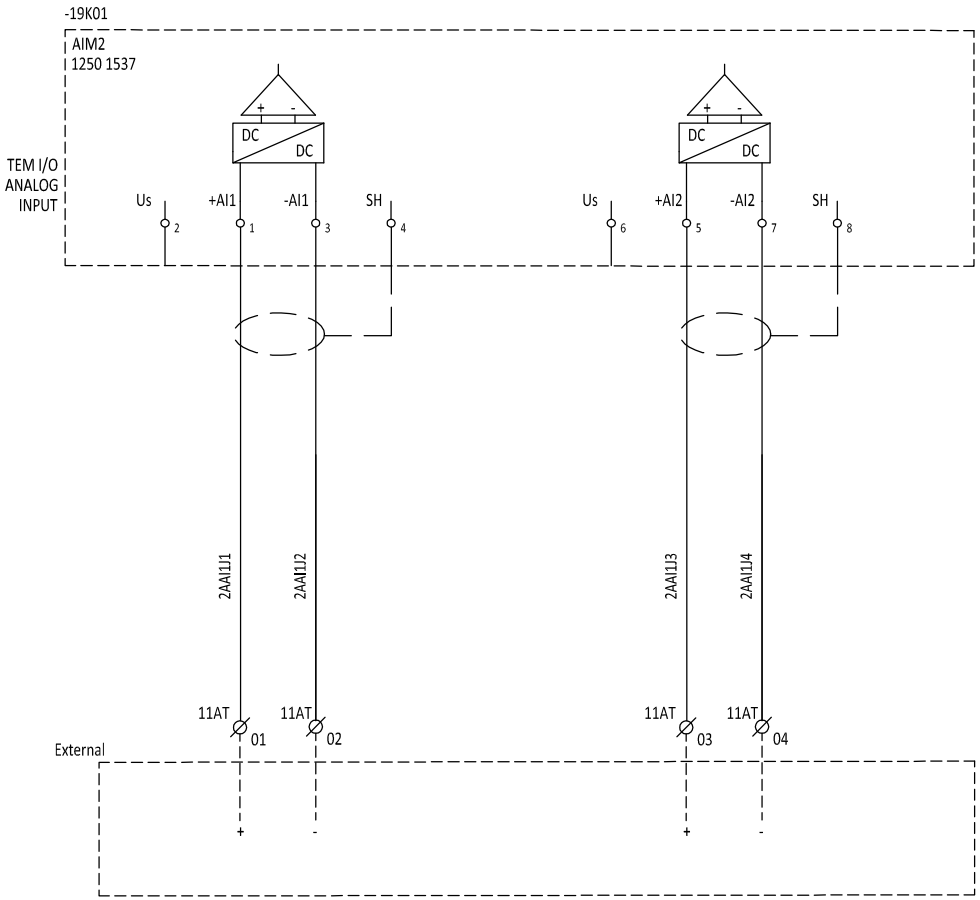
TYP. CONTROL SCHEME FOR TEM I/O CARDS OF GEG-1

DRAWING TITLE: SCH FOR GENERATOR CONTROL PANEL FOR PS-2 SITE	W.O.NO. 101556	REV. : 1
END USER: M/S OIL INDIA LIMITED	DRW. NO. 101556-502-A	
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CLIENT: M/S GREEN POWER INTERNATIONAL PVT. LTD.		
PROJECT: 1XTCG 2032V16(11KV) MWM NATURAL GAS GENSET BASED POWER PLANT (SITE-PS2)	SHEET 10 OF 15	

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(Ref Drg 1251-9026 Page 38)



NO	REVISIONS	DATE	CHKD
1	REVISED AS PER CLIENT COMMENTS	22.09.14	VK
2	AS BUILT DRAWING	07.02.15	VK

ALL DIMENSIONS ARE IN mm
ALL DIMENSIONS TOLERANCE=±2.5%

DRAWN	BY:VK	ON: 16.05.14
CHKD.	BY:BKS	ON: 16.05.14
APPD	BY:	ON:

SCALE :1
FILE NAME :

VIDHYUT CONTROL INDIA PVT. LTD.
(AN ISO 9001 COMPANY)
D-12 & 13, SEC.-17, KAVI NAGAR INDL. AREA,
GHAZIABAD - 201002. (INDIA)
PH:- 0120-4261050-52 Fax:-4261053
EMail:project@vcipl.net,vcipl2000@gmail.com

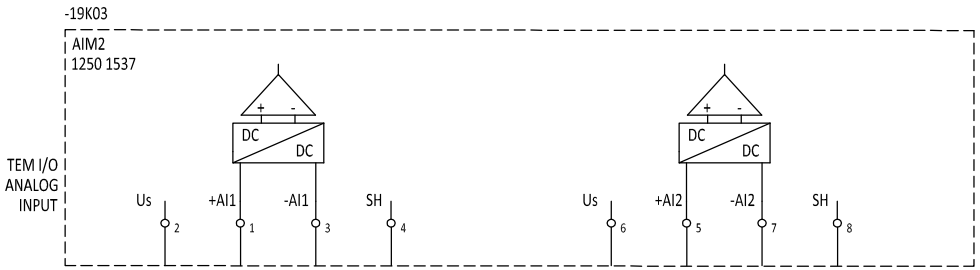
TYP. CONTROL SCHEME FOR TEM I/O CARDS OF GEG-1

DRAWING TITLE: SCH FOR GENERATOR CONTROL PANEL FOR PS-2 SITE	W.O.NO. 101556	REV. : 1
END USER: M/S OIL INDIA LIMITED	DRW. NO. 101556-502-A	
CONSULTANT: M/S ENGINEERS INDIA LIMITED	AW **	
CLIENT: M/S GREEN POWER INTERNATIONAL PVT. LTD.		
PROJECT: 1XTCG 2032V16(11KV) MWM NATURAL GAS GENSET BASED POWER PLANT (SITE-PS2)	SHEET 11 OF 15	

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(Ref Drg 1251-9026 Page 54)



External

ANALOG I/P
EXHAUST AFTER THE
MOTOR
(4-20mA=0-1000°C)
(NOT ASSIGNED)

ANALOG I/P
EXHAUST AFTER KAT
(4-20mA=0-1000°C)
(NOT ASSIGNED)

NO	REVISIONS	DATE	CHKD
1	REVISED AS PER CLIENT COMMENTS	22.09.14	VK
2	AS BUILT DRAWING	07.02.15	VK

ALL DIMENSIONS ARE IN mm
ALL DIMENSIONS TOLERANCE=±2.5%

DRAWN	BY:VK	ON: 16.05.14
CHKD.	BY:BKS	ON: 16.05.14
APPD	BY:	ON:

SCALE :1
FILE NAME :

VIDHYUT CONTROL INDIA PVT. LTD.
(AN ISO 9001 COMPANY)
D-12 & 13, SEC.-17, KAVI NAGAR INDL. AREA,
GHAZIABAD - 201002. (INDIA)
PH:- 0120-4261050-52 Fax:-4261053
EMail:project@vcipl.net,vcipl2000@gmail.com

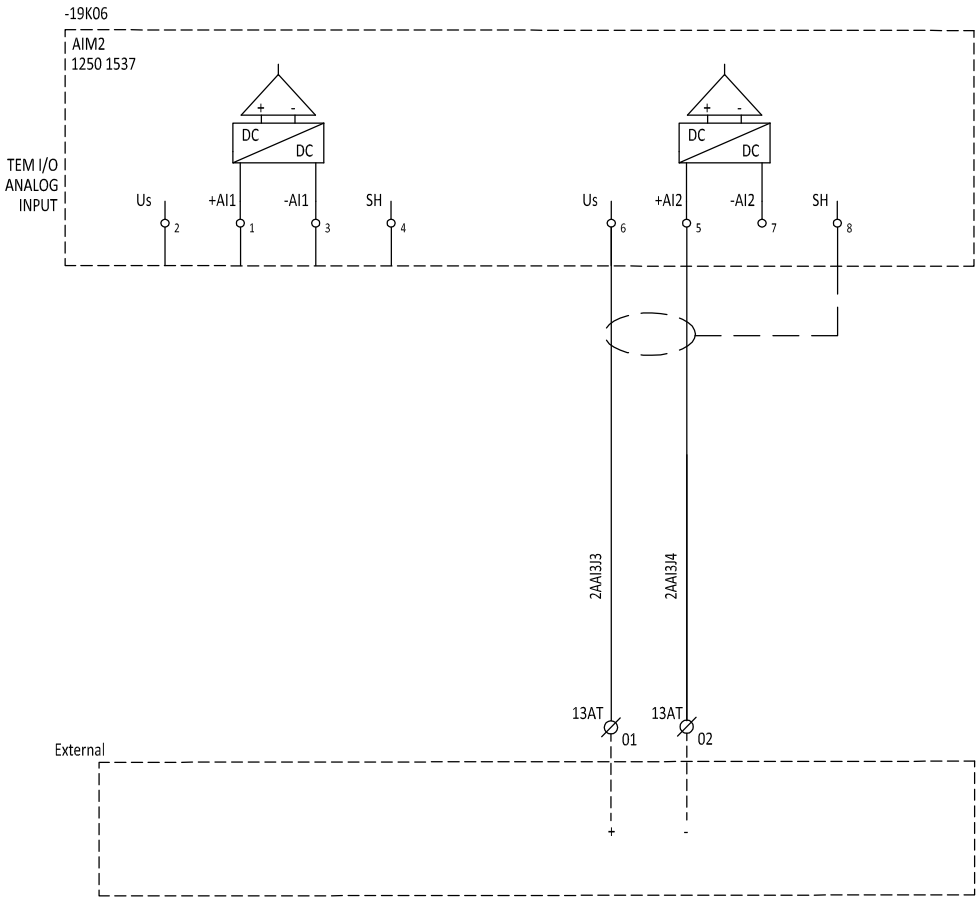
TYP. CONTROL SCHEME FOR TEM I/O CARDS OF GEG-1

DRAWING TITLE:	SCH FOR GENERATOR CONTROL PANEL FOR PS-2 SITE	W.O.NO. 101556 / REV. : 1
END USER:	M/S OIL INDIA LIMITED	DRW. NO. 101556-502-A
CONSULTANT:	M/S ENGINEERS INDIA LIMITED	AW **
CLIENT:	M/S GREEN POWER INTERNATIONAL PVT. LTD.	
PROJECT	1XTCG 2032V16(11KV) MWM NATURAL GAS GENSET BASED POWER PLANT (SITE-PS2)	SHEET 12 OF 15

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(Ref Drg 1251-9026 Page 53)



ANALOG I/P
COOLING WATER
BEFORE AWT
(4-20mA=0-200°C)
(NOT ASSIGNED)

ANALOG I/P
COOLING WATER
BEFORE SWT
(4-20mA=0-200°C)

NO	REVISIONS	DATE	CHKD
1	REVISED AS PER CLIENT COMMENTS	22.09.14	VK
2	AS BUILT DRAWING	07.02.15	VK

ALL DIMENSIONS ARE IN mm
ALL DIMENSIONS TOLERANCE=±2.5%

DRAWN	BY:VK	ON: 16.05.14
CHKD.	BY:BKS	ON: 16.05.14
APPD	BY:	ON:

SCALE :1
FILE NAME :

VIDHYUT CONTROL INDIA PVT. LTD.
(AN ISO 9001 COMPANY)
D-12 & 13, SEC.-17, KAVI NAGAR INDL. AREA,
GHAZIABAD - 201002. (INDIA)
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EMail:project@vcipl.net,vcipl2000@gmail.com

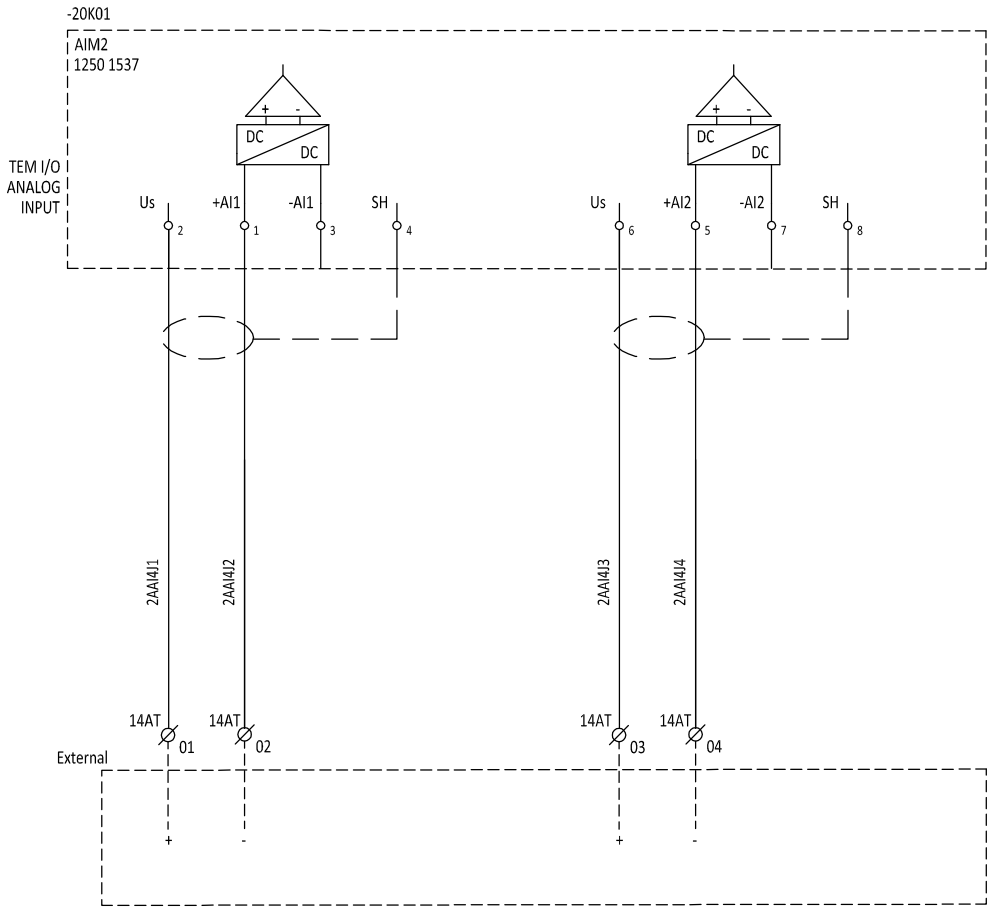
TYP. CONTROL SCHEME FOR TEM I/O CARDS OF GEG-1

DRAWING TITLE: SCH FOR GENERATOR CONTROL PANEL FOR PS-2 SITE	W.O.NO. 101556	REV. : 1
END USER: M/S OIL INDIA LIMITED	DRW. NO. 101556-502-A	
CONSULTANT: M/S ENGINEERS INDIA LIMITED	AW **	
CLIENT: M/S GREEN POWER INTERNATIONAL PVT. LTD.		
PROJECT 1XTCG 2032V16(11KV) MWM NATURAL GAS GENSET BASED POWER PLANT (SITE-PS2)	SHEET 13 OF 15	

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(Ref Drg 1251-9026 Page 47)



NO	REVISIONS	DATE	CHKD
1	REVISED AS PER CLIENT COMMENTS	22.09.14	VK
2	AS BUILT DRAWING	07.02.15	VK

ALL DIMENSIONS ARE IN mm
ALL DIMENSIONS TOLERANCE=±2.5%

DRAWN	BY:VK	ON: 16.05.14
CHKD.	BY:BKS	ON: 16.05.14
APPD	BY:	ON:

SCALE :1
FILE NAME :

VIDHYUT CONTROL INDIA PVT. LTD.
(AN ISO 9001 COMPANY)
D-12 & 13, SEC.-17, KAVI NAGAR INDL. AREA,
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EMail:project@vcipl.net,vcipl2000@gmail.com

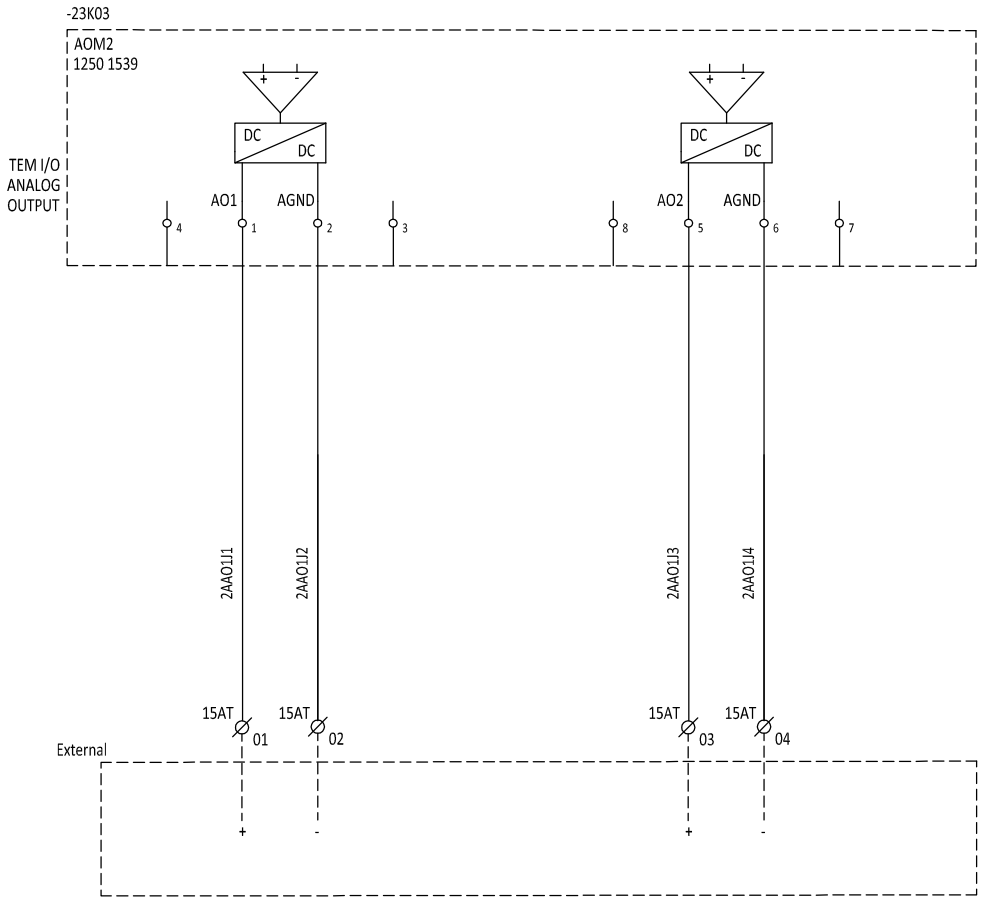
TYP. CONTROL SCHEME FOR TEM I/O CARDS OF GEG-1

DRAWING TITLE: SCH FOR GENERATOR CONTROL PANEL FOR PS-2 SITE	W.O.NO. 101556	REV. : 1
END USER: M/S OIL INDIA LIMITED	DRW. NO. 101556-502-A	
CONSULTANT: M/S ENGINEERS INDIA LIMITED	AW **	
CLIENT: M/S GREEN POWER INTERNATIONAL PVT. LTD.		
PROJECT 1XTCG 2032V16(11KV) MWM NATURAL GAS GENSET BASED POWER PLANT (SITE-PS2)	SHEET 14 OF 15	

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(Ref Drg 1251-9026 Page 47)



ANALOG O/P
GKS SET VALUE
(0-20mA = 100%)

ANALOG O/P
NKS SET VALUE
(0-20mA = 100%)

NO	REVISIONS	DATE	CHKD
1	REVISED AS PER CLIENT COMMENTS	22.09.14	VK
2	AS BUILT DRAWING	07.02.15	VK

ALL DIMENSIONS ARE IN mm
ALL DIMENSIONS TOLERANCE=±2.5%

DRAWN	BY:VK	ON: 16.05.14
CHKD.	BY:BKS	ON: 16.05.14
APPD	BY:	ON:

SCALE :1
FILE NAME :

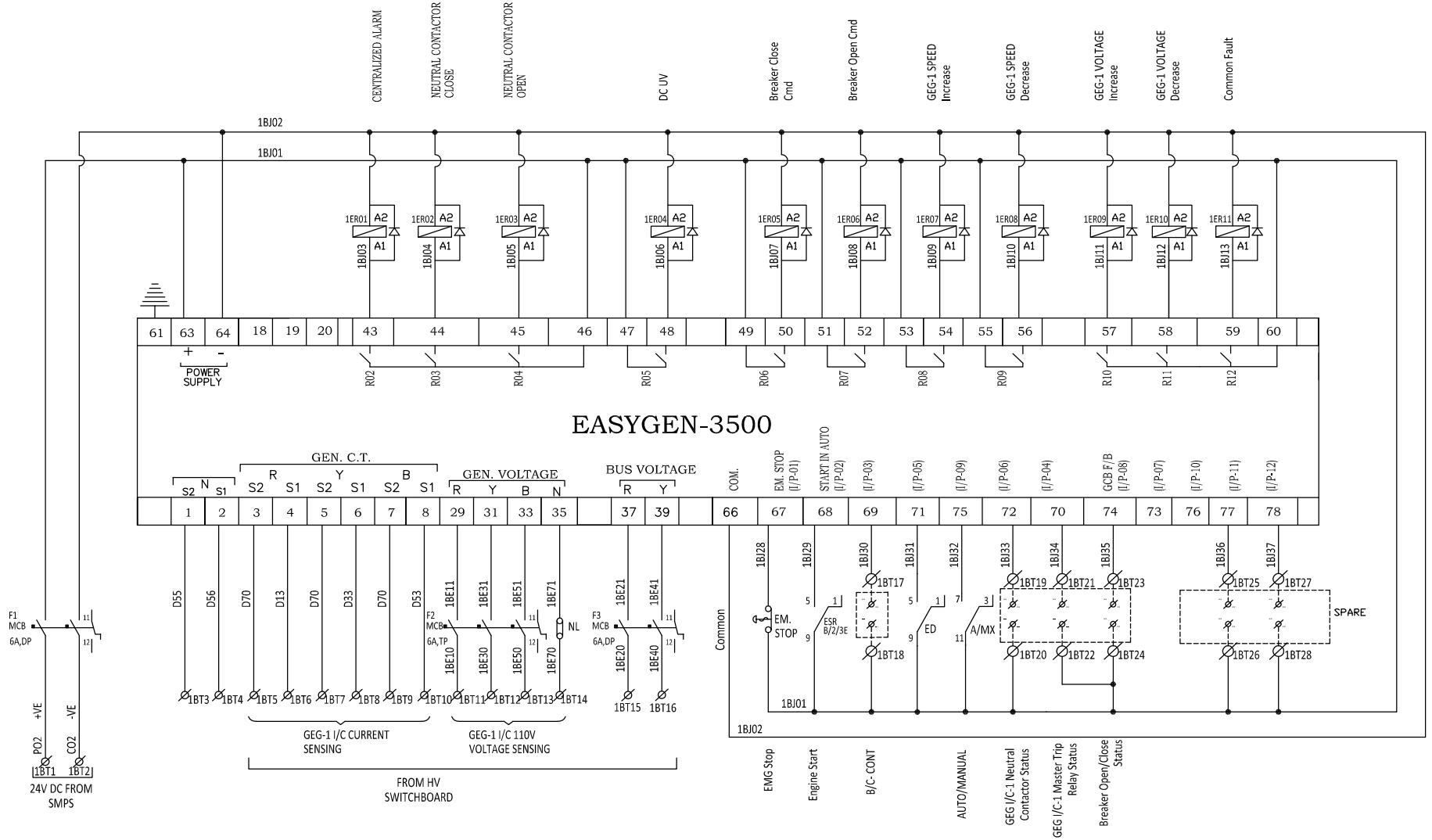
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PH:- 0120-4261050-52 Fax:-4261053
EMail:project@vcipl.net,vcipl2000@gmail.com

TYP. CONTROL SCHEME FOR TEM I/O CARDS OF GEG-1

DRAWING TITLE: SCH FOR GENERATOR CONTROL PANEL FOR PS-2 SITE	W.O.NO. 101556	REV. : 1
END USER: M/S OIL INDIA LIMITED	DRW. NO. 101556-502-A	
CONSULTANT: M/S ENGINEERS INDIA LIMITED	AW **	
CLIENT: M/S GREEN POWER INTERNATIONAL PVT. LTD.		
PROJECT: 1XTCG 2032V16(11KV) MWM NATURAL GAS GENSET BASED POWER PLANT (SITE-PS2)	SHEET 15 OF 15	

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NO	REVISIONS	DATE	CHKD
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ALL DIMENSIONS ARE IN mm
ALL DIMENSIONS TOLERANCE=±2.5%

DRAWN	BY:VK	ON:16.05.14
CHKD.	BY:BKS	ON:16.05.14
APPD	BY:	ON:

SCALE :1
FILE NAME :

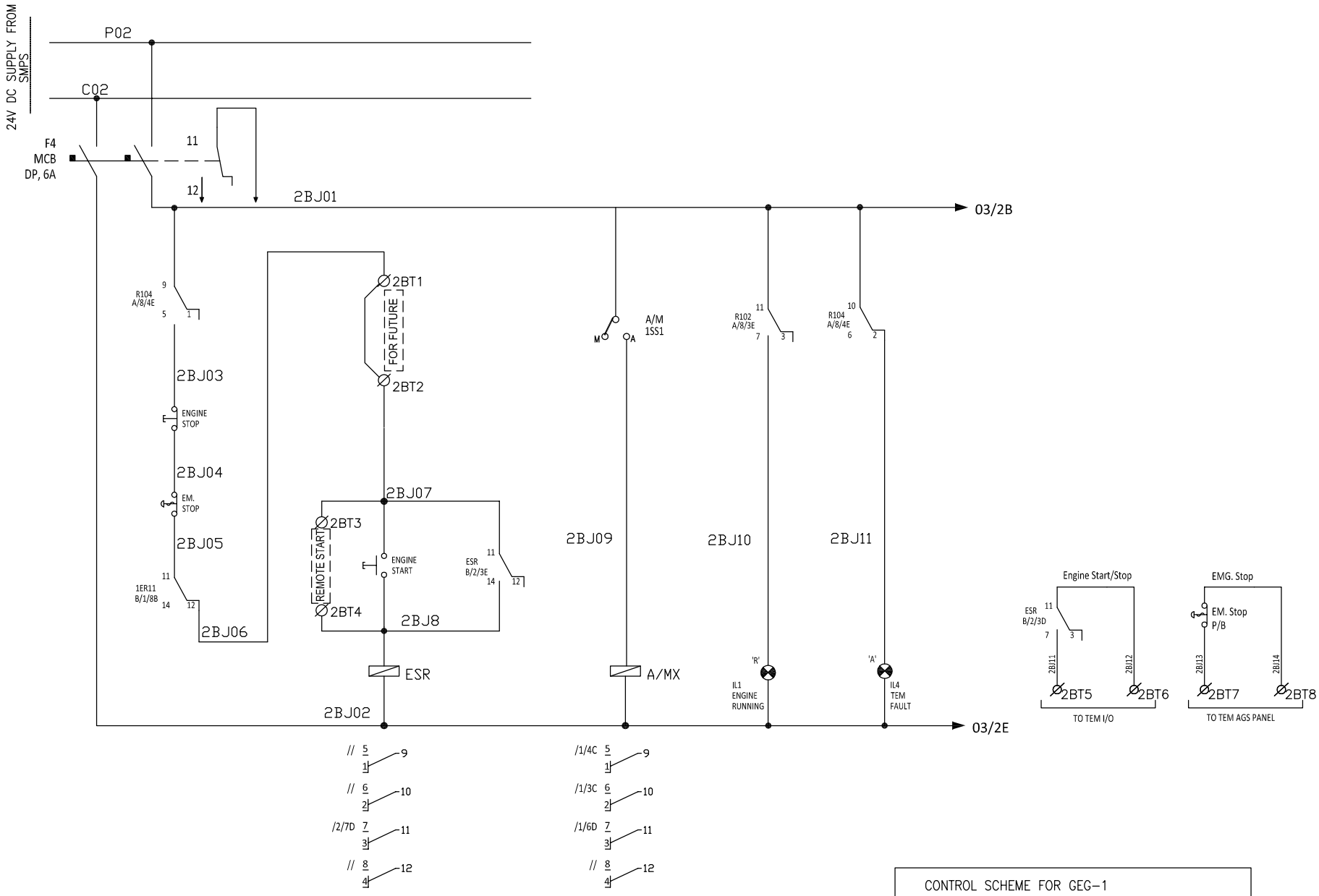
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EMail:project@vcipl.net,vcipl2000@gmail.com

CONTROL SCHEME FOR GEG-1

DRAWING TITLE: SCH FOR GENERATOR CONTROL PANEL FOR PS-2 SITE	W.O.NO. 101556	REV. : 1
END USER: M/S OIL INDIA LIMITED	DRW. NO. 101556-502-B	
CONSULTANT: M/S ENGINEERS INDIA LIMITED	AW **	
CLIENT: M/S GREEN POWER INTERNATIONAL PVT. LTD.		
PROJECT: 1XTCG 2032V16(11KV) MWM NATURAL GAS GENSET BASED POWER PLANT (SITE-PS2)	SHEET 1 OF 8	

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NO	REVISIONS	DATE	CHKD
1	REVISED AS PER CLIENT COMMENTS	22.09.14	VK
2	AS BUILT DRAWING	07.02.15	VK

ALL DIMENSIONS ARE IN mm
ALL DIMENSIONS TOLERANCE=±2.5%

DRAWN	BY:VK	ON: 16.05.14
CHKD.	BY:BKS	ON: 16.05.14
APPD	BY:	ON:

SCALE :1
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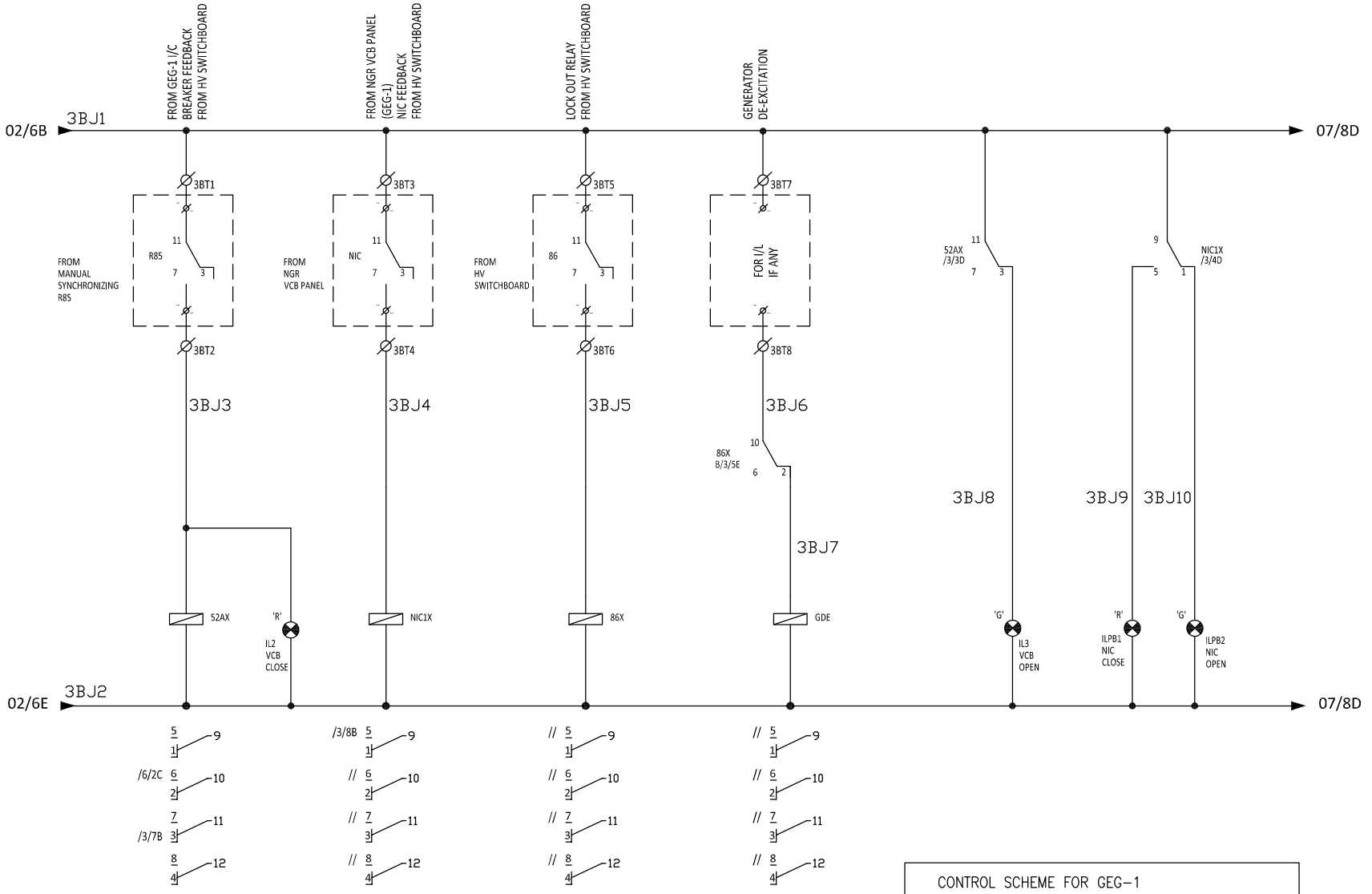
VIDHYUT CONTROL INDIA PVT. LTD.
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EMail:project@vcipl.net,vcipl2000@gmail.com

CONTROL SCHEME FOR GEG-1

DRAWING TITLE: SCH FOR GENERATOR CONTROL PANEL FOR PS-2 SITE	W.O.NO. 101556	REV. : 1
END USER: M/S OIL INDIA LIMITED	DRW. NO. 101556-502-B	
CONSULTANT: M/S ENGINEERS INDIA LIMITED	AW **	
CLIENT: M/S GREEN POWER INTERNATIONAL PVT. LTD.		
PROJECT: 1XTCG 2032V16(11KV) MWM NATURAL GAS GENSET BASED POWER PLANT (SITE-PS2)	SHEET 2 OF 8	

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NO	REVISIONS	DATE	CHKD
1	REVISED AS PER CLIENT COMMENTS	22.09.14	VK
2	AS BUILT DRAWING	07.02.15	VK

ALL DIMENSIONS ARE IN mm
ALL DIMENSIONS TOLERANCE=±2.5%

DRAWN	BY:VK	ON:16.05.14
CHKD.	BY:BKS	ON:16.05.14
APPD	BY:	ON:

SCALE :1
FILE NAME :

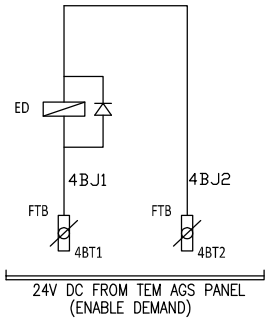
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EMail:project@vcipl.net,vcipl2000@gmail.com

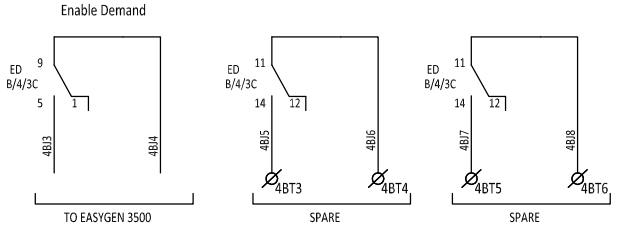
CONTROL SCHEME FOR GEG-1

DRAWING TITLE: SCH FOR GENERATOR CONTROL PANEL FOR PS-2 SITE	W.O.NO. 101556	REV. : 1
END USER: M/S OIL INDIA LIMITED	DRW. NO. 101556-502-B	
CONSULTANT: M/S ENGINEERS INDIA LIMITED	AW **	
CLIENT: M/S GREEN POWER INTERNATIONAL PVT. LTD.		
PROJECT: 1XTCG 2032V16(11KV) MWM NATURAL GAS GENSET BASED POWER PLANT (SITE-PS2)	SHEET 3 OF 8	

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NO	REVISIONS	DATE	CHKD
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2	AS BUILT DRAWING	07.02.15	VK

ALL DIMENSIONS ARE IN mm
ALL DIMENSIONS TOLERANCE=±2.5%

DRAWN	BY:VK	ON: 16.05.14
CHKD.	BY:BKS	ON: 16.05.14
APPD	BY:	ON:

SCALE :1
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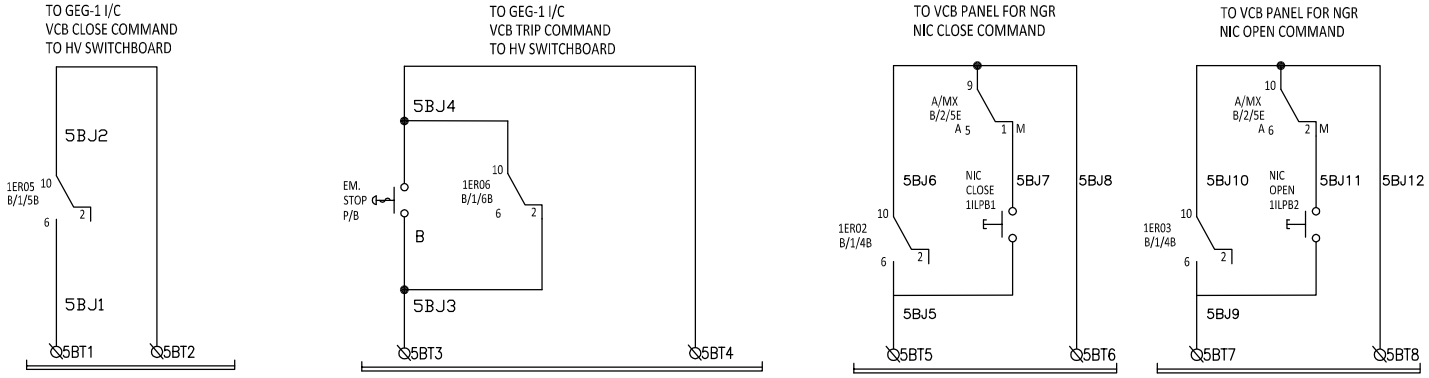
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EMail:project@vcipl.net,vcipl2000@gmail.com

CONTROL SCHEME FOR GEG-1

DRAWING TITLE: SCH FOR GENERATOR CONTROL PANEL FOR PS-2 SITE	W.O.NO. 101556	REV. : 1
END USER: M/S OIL INDIA LIMITED	DRW. NO. 101556-502-B	
CONSULTANT: M/S ENGINEERS INDIA LIMITED	AW **	
CLIENT: M/S GREEN POWER INTERNATIONAL PVT. LTD.		
PROJECT: 1XTCG 2032V16(11KV) MWM NATURAL GAS GENSET BASED POWER PLANT (SITE-PS2)	SHEET 4 OF 8	

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NO	REVISIONS	DATE	CHKD
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2	AS BUILT DRAWING	07.02.15	VK

ALL DIMENSIONS ARE IN mm
ALL DIMENSIONS TOLERANCE=±2.5%

DRAWN	BY:VK	ON: 16.05.14
CHKD.	BY:BKS	ON: 16.05.14
APPD	BY:	ON:

SCALE :1
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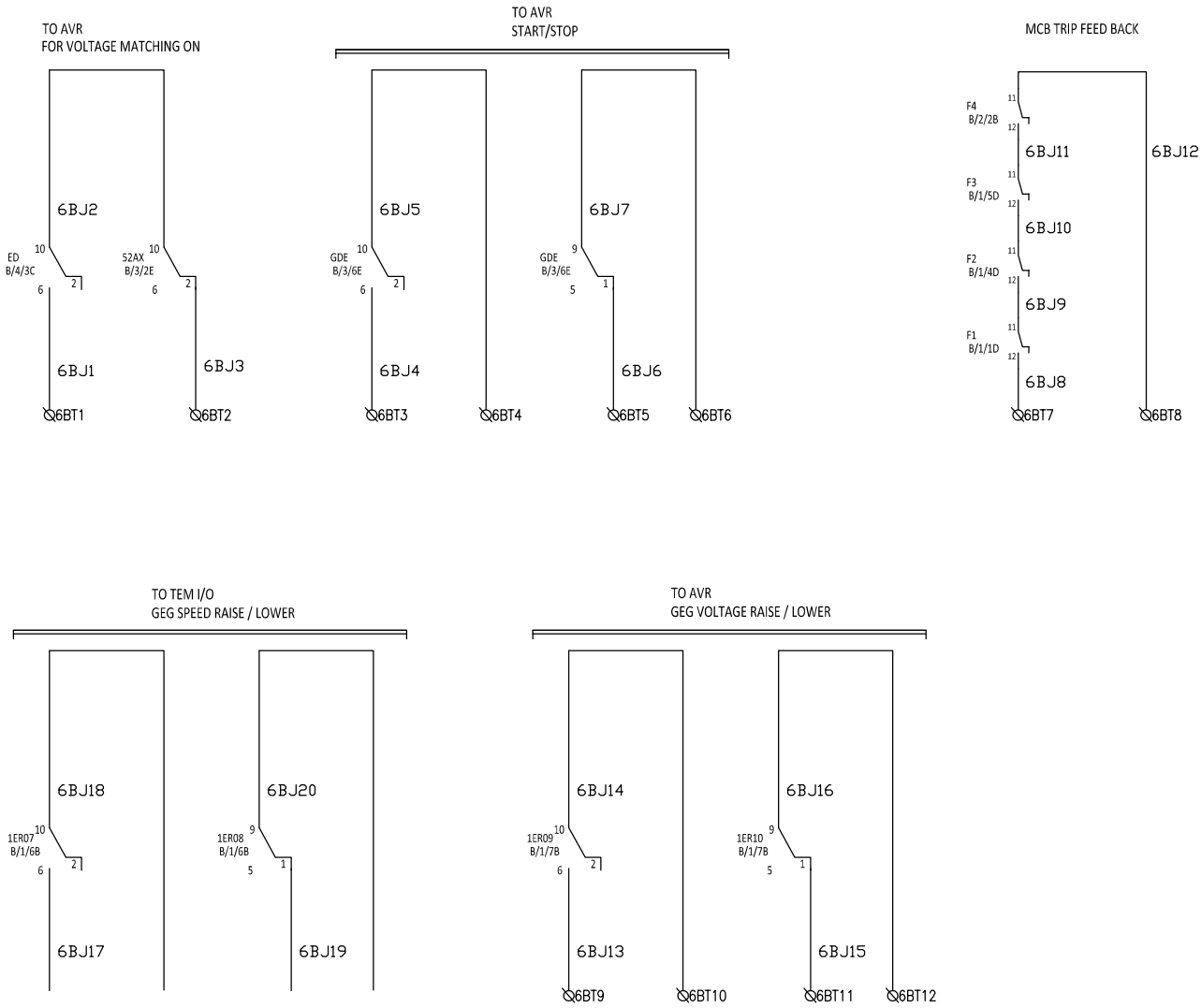
VIDHYUT CONTROL INDIA PVT. LTD.
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EMail:project@vcipl.net,vcipl2000@gmail.com

CONTROL SCHEME FOR GEG-1

DRAWING TITLE: SCH FOR GENERATOR CONTROL PANEL FOR PS-2 SITE	W.O.NO. 101556	REV. : 1
END USER: M/S OIL INDIA LIMITED	DRW. NO. 101556-502-B	
CONSULTANT: M/S ENGINEERS INDIA LIMITED	AW **	
CLIENT: M/S GREEN POWER INTERNATIONAL PVT. LTD.		
PROJECT: 1XTCG 2032V16(11KV) MWM NATURAL GAS GENSET BASED POWER PLANT (SITE-PS2)	SHEET 5 OF 8	

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ALL DIMENSIONS ARE IN mm
ALL DIMENSIONS TOLERANCE=±2.5%

DRAWN	BY:VK	ON: 16.05.14
CHKD.	BY:BKS	ON: 16.05.14
APPD	BY:	ON:

SCALE :1
FILE NAME :

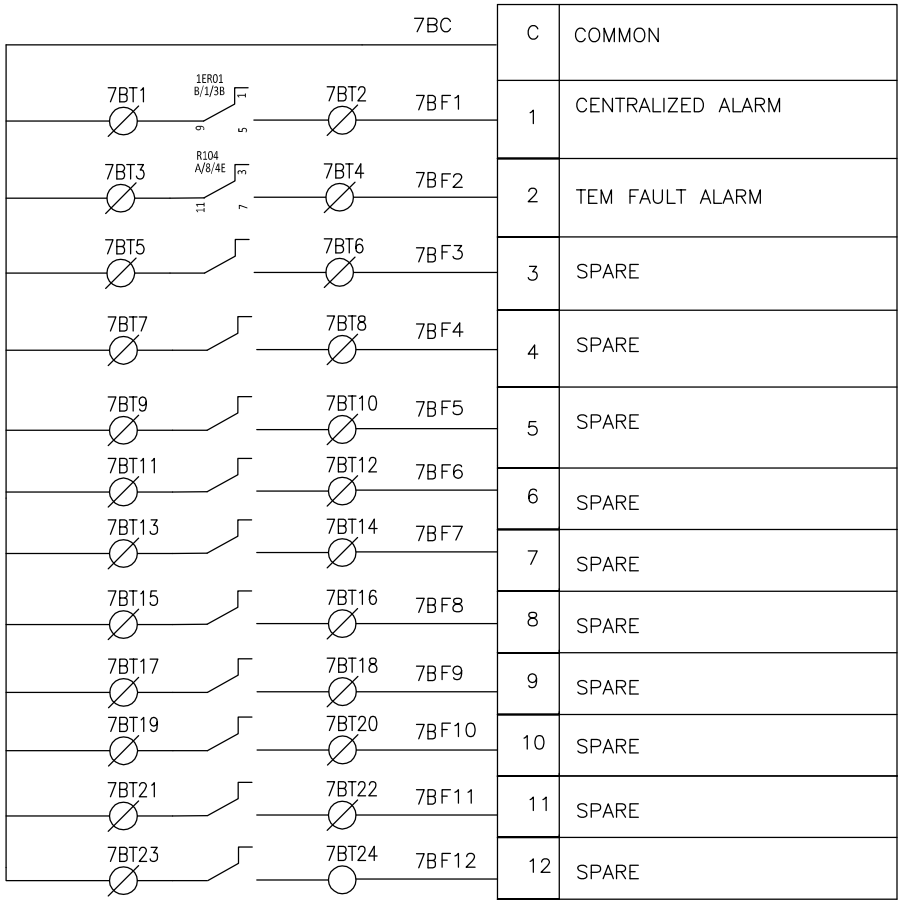
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EMail:project@vcipl.net,vcipl2000@gmail.com

CONTROL SCHEME FOR GEG-1

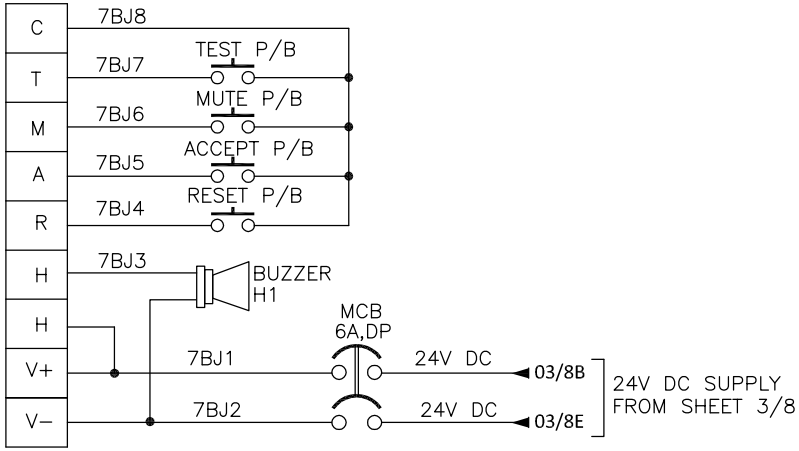
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END USER: M/S OIL INDIA LIMITED	DRW. NO. 101556-502-B	
CONSULTANT: M/S ENGINEERS INDIA LIMITED	AW **	
CLIENT: M/S GREEN POWER INTERNATIONAL PVT. LTD.		
PROJECT: 1XTCG 2032V16(11KV) MWM NATURAL GAS GENSET BASED POWER PLANT (SITE-PS2)	SHEET 6 OF 8	

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C	COMMON
1	CENTRALIZED ALARM
2	TEM FAULT ALARM
3	SPARE
4	SPARE
5	SPARE
6	SPARE
7	SPARE
8	SPARE
9	SPARE
10	SPARE
11	SPARE
12	SPARE



ANNUNCIATOR CIRCUIT

NO	REVISIONS	DATE	CHKD
1	REVISED AS PER CLIENT COMMENTS	22.09.14	VK
2	AS BUILT DRAWING	07.02.15	VK

ALL DIMENSIONS ARE IN mm
ALL DIMENSIONS TOLERANCE=±2.5%

DRAWN	BY:VK	ON: 16.05.14
CHKD.	BY:BKS	ON: 16.05.14
APPD	BY:	ON:

SCALE :1
FILE NAME :

VIDHYUT CONTROL INDIA PVT. LTD.
(AN ISO 9001 COMPANY)
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EMail:project@vcipl.net,vcipl2000@gmail.com

CONTROL SCHEME FOR GEG-1

DRAWING TITLE: SCH FOR GENERATOR CONTROL PANEL FOR PS-2 SITE	W.O.NO. 101556	REV. : 1
END USER: M/S OIL INDIA LIMITED	DRW. NO. 101556-502-B	
CONSULTANT: M/S ENGINEERS INDIA LIMITED	AW **	
CLIENT: M/S GREEN POWER INTERNATIONAL PVT. LTD.		
PROJECT: 1XTCG 2032V16(11KV) MWM NATURAL GAS GENSET BASED POWER PLANT (SITE-PS2)	SHEET 7 OF 8	

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(SHEET 8 IS RESERVE)

NO	REVISIONS	DATE	CHKD
1	REVISED AS PER CLIENT COMMENTS	22.09.14	VK
2	AS BUILT DRAWING	07.02.15	VK

ALL DIMENSIONS ARE IN mm
ALL DIMENSIONS TOLERANCE=±2.5%

DRAWN	BY:VK	ON:16.05.14
CHKD.	BY:BKS	ON:16.05.14
APPD	BY:	ON:

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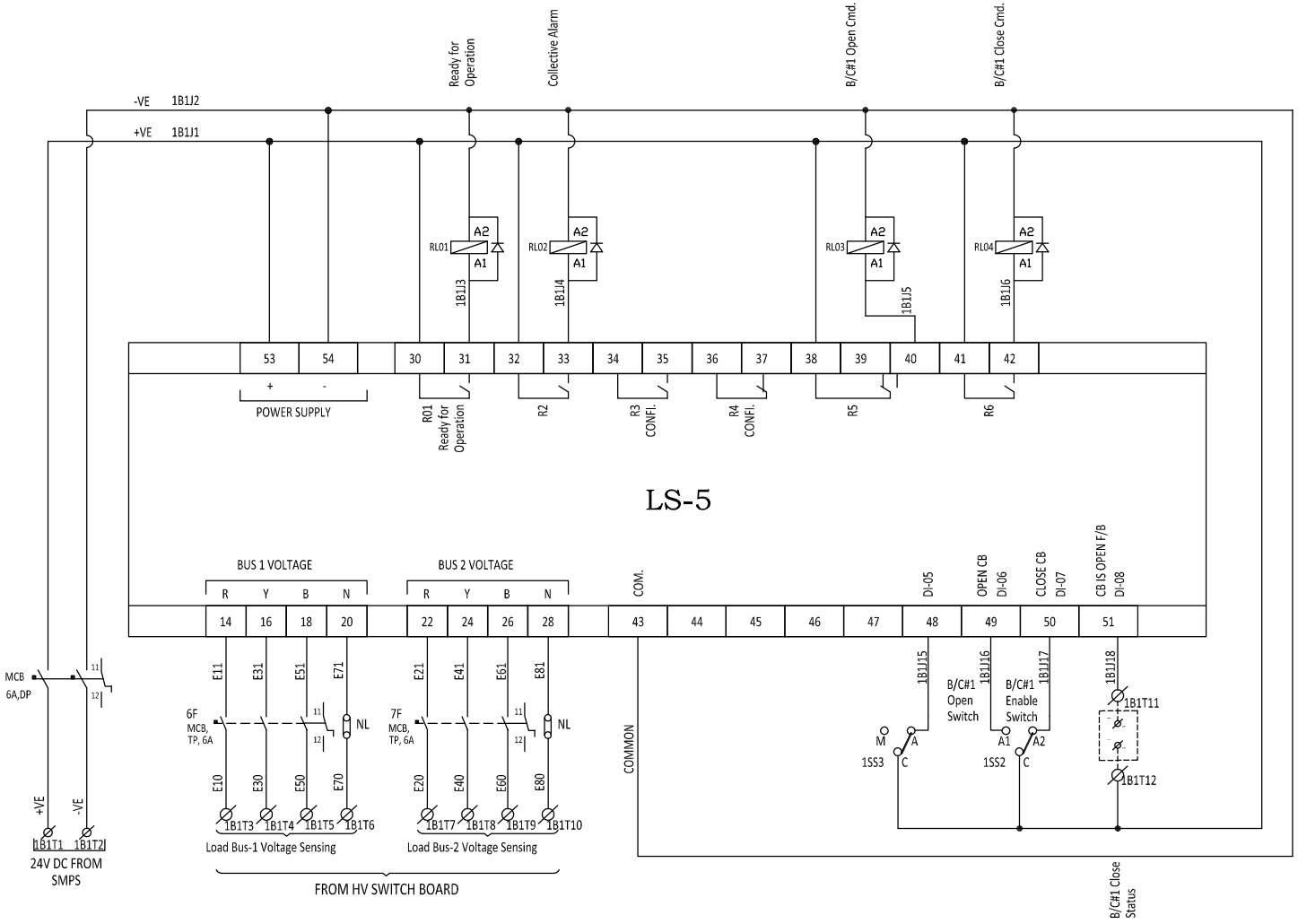
VIDHYUT CONTROL INDIA PVT. LTD.
(AN ISO 9001 COMPANY)
D-12 & 13, SEC.-17, KAVI NAGAR INDL. AREA,
GHAZIABAD - 201002. (INDIA)
PH:- 0120-4261050-52 Fax:-4261053
EMail:project@vcipl.net,vcipl2000@gmail.com

CONTROL SCHEME FOR GEG-1

DRAWING TITLE:	SCH FOR GENERATOR CONTROL PANEL FOR PS-2 SITE	W.O.NO. 101556 / REV. : 1
END USER:	M/S OIL INDIA LIMITED	DRW. NO. 101556-502-B
CONSULTANT:	M/S ENGINEERS INDIA LIMITED	AW **
CLIENT:	M/S GREEN POWER INTERNATIONAL PVT. LTD.	
PROJECT	1XTCG 2032V16(11KV) MWM NATURAL GAS GENSET BASED POWER PLANT (SITE-PS2)	SHEET 8 OF 8

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2	AS BUILT DRAWING	07.02.15	VK

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CHKD.	BY:BKS	ON: 16.05.14
APPD	BY:	ON:

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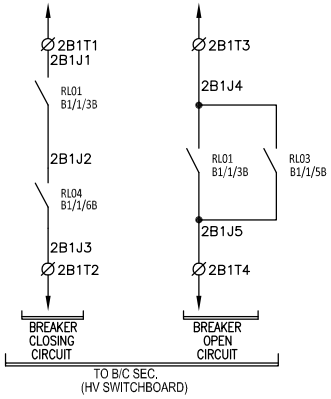
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CONTROL SCHEME FOR BUSCOUPLER

DRAWING TITLE: SCH FOR GENERATOR CONTROL PANEL FOR PS-2 SITE	W.O.NO. 101556	REV. : 1
END USER: M/S OIL INDIA LIMITED	DRW. NO. 101556-502-B1	
CONSULTANT: M/S ENGINEERS INDIA LIMITED	AW **	
CLIENT: M/S GREEN POWER INTERNATIONAL PVT. LTD.		
PROJECT: 1XTCG 2032V16(11KV) MWM NATURAL GAS GENSET BASED POWER PLANT (SITE-PS2)	SHEET 1 OF 4	

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CHKD.	BY:BKS	ON: 16.05.14
APPD	BY:	ON:

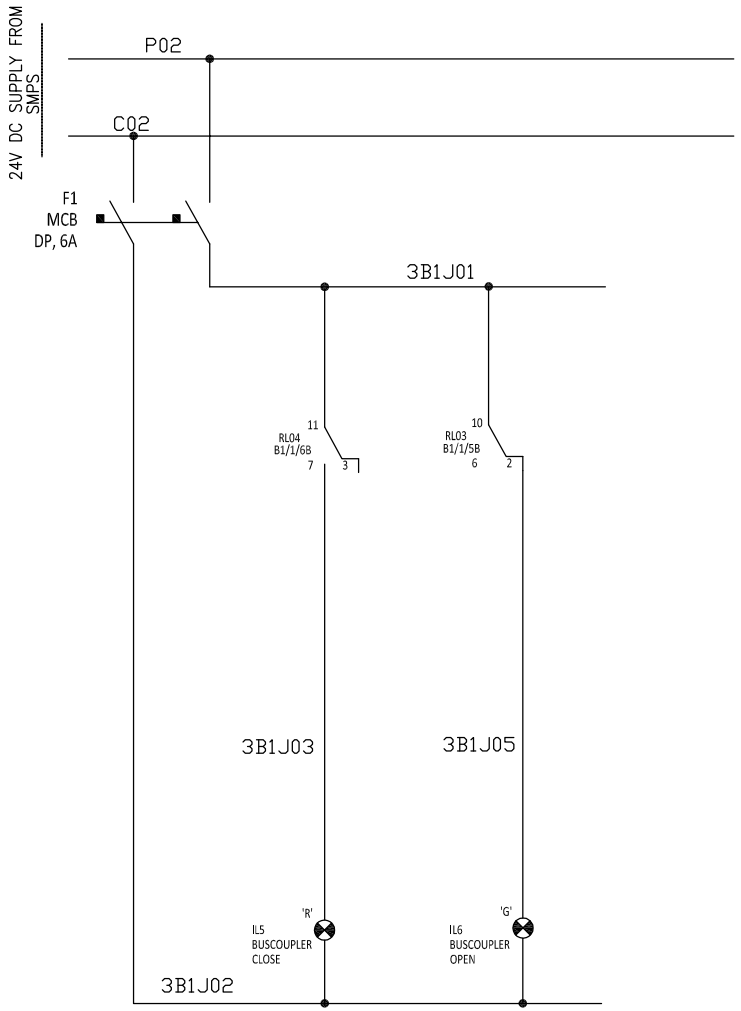
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CONTROL SCHEME FOR BUSCOUPLER

DRAWING TITLE: SCH FOR GENERATOR CONTROL PANEL FOR PS-2 SITE	W.O.NO. 101556	REV. : 1
END USER: M/S OIL INDIA LIMITED	DRW. NO. 101556-502-B1	
CONSULTANT: M/S ENGINEERS INDIA LIMITED	AW **	
CLIENT: M/S GREEN POWER INTERNATIONAL PVT. LTD.		
PROJECT: 1XTCG 2032V16(11KV) MWM NATURAL GAS GENSET BASED POWER PLANT (SITE-PS2)	SHEET 2 OF 4	

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CONTROL SCHEME FOR BUSCOUPLER

DRAWING TITLE:	SCH FOR GENERATOR CONTROL PANEL FOR PS-2 SITE	W.O.NO. 101556 / REV. : 1
END USER:	M/S OIL INDIA LIMITED	DRW. NO. 101556-502-B1
CONSULTANT:	M/S ENGINEERS INDIA LIMITED	AW **
CLIENT:	M/S GREEN POWER INTERNATIONAL PVT. LTD.	
PROJECT	1XTCG 2032V16(11KV) MWM NATURAL GAS GENSET BASED POWER PLANT (SITE-PS2)	SHEET 3 OF 4

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(SHEET 4 IS RESERVE)

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CONTROL SCHEME FOR BUSCOUPLER

DRAWING TITLE: SCH FOR GENERATOR CONTROL PANEL FOR PS-2 SITE

END USER: M/S OIL INDIA LIMITED

CONSULTANT: M/S ENGINEERS INDIA LIMITED

CLIENT: M/S GREEN POWER INTERNATIONAL PVT. LTD.

PROJECT: 1XTCG 2032V16(11KV) MWM NATURAL GAS GENSET BASED POWER PLANT (SITE-PS2)

W.O.NO. 101556 | REV. : 1

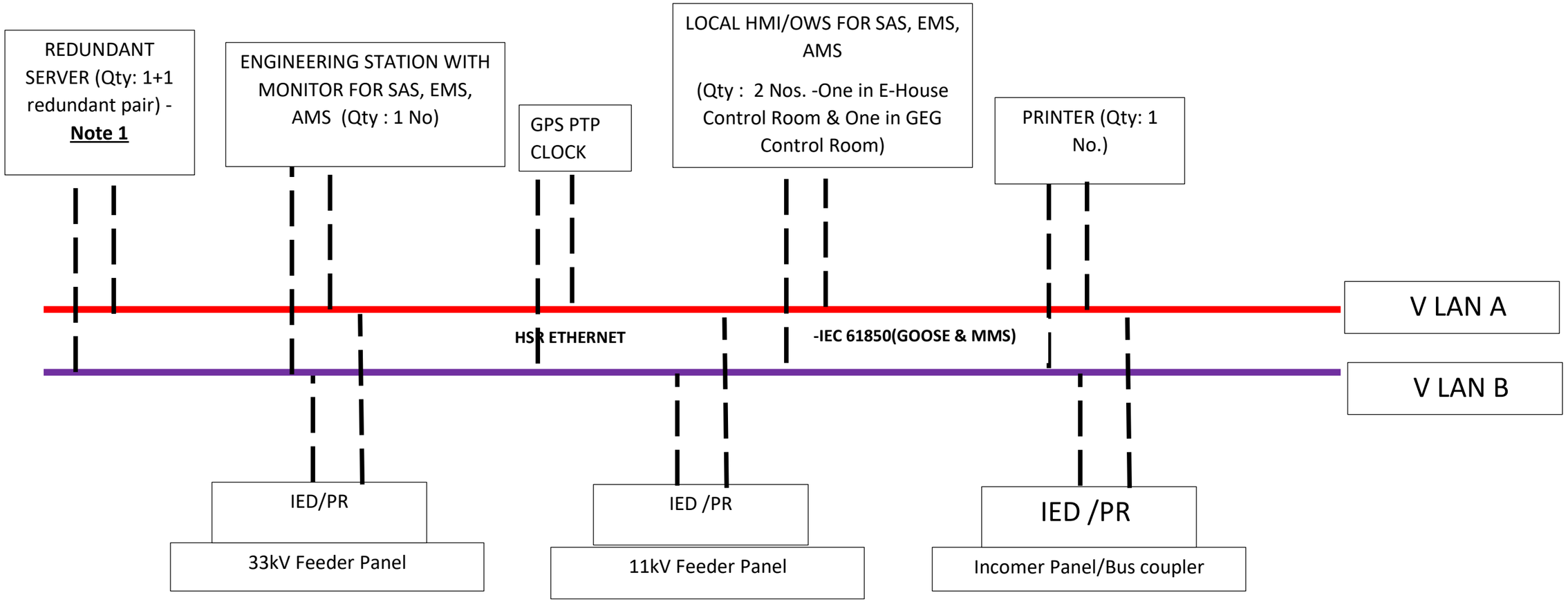
DRW. NO. 101556-502-B1

AW
**

SHEET 4 OF 4

Annexure-A07.1

INDICATIVE ARCHITECTURE OF SAS



Note 1 : The following servers shall be provided in **1+1 redundant configuration (2 Nos. each)**

(i) Engineering Server – 2 Nos.
(ii) Historian Server – 2 Nos.

The redundant servers shall be configured such that failure of the primary/active server shall result in automatic and seamless switchover to the standby server, without loss of critical data or interruption.

The Server shall be **OPC UA compliant** and shall support secure communication and data exchange with OPC UA-enabled systems/devices, as required for integration with the plant SCADA/DCS/PLC/RTU and other third-party systems.

Note 2: Monitor size shall be minimum 22 inch.

Annexure- A13.1(A)

Clause 4.2: Cable requirement: A indicative power cable requirement for the project is as follows, however bidder is advised to visit the site and assess the required cable length for supply and installation:

33 kV Air insulated switchgear							
Feeder	**Core**	**Conductor material**	**Cable Size**	**No of Run**	**Approx. Cable length(m)**	**Termination Kit (Out Door)**	**Termination Kit (Indoor)**
Incomer-1	3	Al	300 sq.mm	2	100	2	2
Outgoing (5 MVA-2 nos.)	3	Al	300 sq.mm	1	50	2	2
Total no of Kit						4	5

11 kV switchgear Air insulated switchgear							
Feeder No.	**Core**	**Conductor Material**	**Cable Size**	**No of Run**	**Approx. Cable length(m)**	**Termination Kit (Indoor)**	**Through Joint**
Incomer (2 Nos)	3	Al	240 sq.mm	Minimum 2	50	8	
1R	3	Al	240 Sq.mm	1	100	1	1
1L	3	Al	240 Sq.mm	1	100	1	1
2R	3	Al	240 Sq.mm	1	300	1	1
2L	3	Al	240 Sq.mm	1	300	1	1

Interconnector-1	3	Al	240 Sq.mm	1	100	2	
Interconnector-2		Al	240 Sq.mm	1	100	2	
Station Tranformer-1		Al	240 Sq.mm	1	20	2	
Station Transformer-2		Al	240 Sq.mm	1	20	2	
APFC		Al	240 sq.mm	1	50	2	
						22	2

The cable, joints, outdoor and indoor termination and their accessories and fittings may conform to other Indian and/or equivalent standards or important publications to improve upon their performance but shall not fall short of the requirement of this specification. The tenderer shall clearly indicate such standards in their offers.

Note: 1) Feeder STF-1, STF-2 & BESS+Solar are envisaged for the upcoming future project. No outgoing cable is required to be considered for these feeders.

2) Bidder is also advised to consider the cable and termination kits required for connection of NGR with Power transformer neutral using a switching device till the neutral earth electrode.

3) Bidder is advised to visit the site and assess the requirement of cable length and termination kit. The above-mentioned information is indicative in nature and actual requirement may change during project execution. It will be responsibility of the bidder to supply the required quantity of cable length and termination kit for completion of the project irrespective of the quantity mentioned above.