

	BHARAT HEAVY ELECTRICALS LIMITED TRANSMISSION BUSINESS ENGINEERING MANAGEMENT	Doc. No.	TB-399-316-162 Rev-00
	400/230-110 kV SUB STATION AT VELLALAVIDUTHI	Part No.	SECTION -1
	AIR CONDITIONING SYSTEM		SHEET 1 OF 5

SECTION-1

INTENT, SYSTEM REQUIREMENT AND SCOPE

1.0.0 INTENT OF SPECIFICATION

- 1.1.0 This specification covers the manufacturing, inspection/testing, dispatch and erection, testing & commissioning at site of **Air-Conditioning System** as mentioned in different sections of this specification for **400/230-110 kV SUB STATION AT VELLALAVIDUTHI of TAMILNADU TRANSMISSION CORPORATION LTD (TANTRANSCO)**.
- 1.2.0 The requirements specified under '**SECTION 2, SECTION 3, SECTION 4 & SECTION 5**' of the specification shall be considered as part of this section. In case of variance between various sections, the requirements of **SECTION 1** shall prevail.
- 1.3.0 The Bidder shall be deemed to have understood completely all the tender drawings and documents and quoted accordingly.
- 1.4.0 The Contract shall be on unit rate basis for the quantities furnished by BHEL. During contract stage, quantities of various items of BOQ may vary to any extent and same rates will be applicable so far the resultant variation in total contract value is within $\pm 30\%$. Variations beyond $\pm 30\%$ shall be negotiated mutually.
- 1.5.0 It is recommended that Bidders have no deviation on technical requirement & scope. Bidder shall submit signed and stamped copy of "Certificate of No deviation" (Schedule 1 of Section 5) for 'NIL DEVIATION'.
- 1.6.0 The term 'Customer' appearing in this specification shall refer to **TANTRANSCO**, the term 'Purchaser' shall refer to **BHEL** and the term 'Contractor' shall refer to the successful **Bidder**.
- 1.7.0 The system / equipment shall be capable of performing the required duties as per the specification requirements.

	BHARAT HEAVY ELECTRICALS LIMITED TRANSMISSION BUSINESS ENGINEERING MANAGEMENT	Doc. No.	TB-399-316-162 Rev-00
	400/230-110 KV SUB STATION AT VELLALAVIDUTHI	Part No.	SECTION -1
	AIR CONDITIONING SYSTEM		SHEET 2 OF 5

2.0.0 AIR CONDITIONING REQUIREMENT

2.0.1 Air Conditioning System for Control Room Building areas:

Air-conditioning units for control room building shall be set to maintain the following inside conditions:

Dry Bulb temperature : 24 °C ± 2 °C

Air conditioning shall be provided in the following areas of the switchyard Control room building:

SI .No.	Area to be protected	Type of Air conditioning Unit
01	Control and Relay Panel Room at first floor	2TR High Wall Split Air Conditioner
02	EE Room at First floor	

Building drawing is also enclosed as a part of the specification for Bidders reference.

3.0.0 ELECTRICAL SYSTEM REQUIREMENTS

1Ph, 230V AC power supply for each AC units in control room Building shall be provided by BHEL.

Further supplying and fixing of 20Amps DP plug and socket in sheet enclosure with 32A DP MCB in flush with wall with earth connection (AC Plug) (Legrand MDS)/Hager (L&T) make and *all cabling between the indoor and outdoor unit, all interconnection within the AC units and from AC units to the power supply points shall be supplied & done by contractor.*

4.0.0 SCOPE OF SUPPLY & SERVICES

The scope of equipment to be furnished and services to be provided under the contract are outlined hereinafter and the same is to be read in conjunction with the provisions contained in other sections/ clauses. The scope of work under the contract shall be deemed to include all such items, which although are not specifically mentioned in the bid documents and / or in Bidder's proposal, but are required to make the equipment/ system complete for its safe, efficient, reliable and trouble free operation. **NO EXTRA COST** implication to BHEL shall be considered during contract stage on account of supply & installation of these unaccounted items.

	BHARAT HEAVY ELECTRICALS LIMITED TRANSMISSION BUSINESS ENGINEERING MANAGEMENT	Doc. No.	TB-399-316-162 Rev-00
	400/230-110 KV SUB STATION AT VELLALAVIDUTHI	Part No.	SECTION -1
	AIR CONDITIONING SYSTEM		SHEET 3 OF 5

4.1.0 SCOPE OF SUPPLY

- i. The Bill of Quantities shall be read in conjunction with the Instructions to Bidders, General and Special Conditions of Contract, Technical Specifications, and Drawings.
- ii. The quantities given in the Bill of Quantities are estimated and provisional, and are given to provide a common basis for bidding. The basis of payment will be the actual quantities of work ordered and carried out, as measured by the Contractor and verified by the Purchaser and valued at the rates and prices bid in the priced Bill of Quantities.
- iii. A rate or price shall be entered against each item in the priced Bill of Quantities. The cost of Items against which the Contractor has failed to enter a rate or price shall be deemed to be covered by other rates and prices entered in the Bill of Quantities.
- iv. The whole cost of complying with the provisions of the Contract shall be included in the Items provided in the priced Bill of Quantities, and where no Items are provided, the cost shall be deemed to be distributed among the rates and prices entered for the related Items of Work.
- v. General directions and descriptions of work and materials are not necessarily repeated nor summarized in the Bill of Quantities. References to the relevant sections of the Contract documentation shall be made before entering prices against each item in the priced Bill of Quantities.
- vi. Miscellaneous items like hardware, fixtures etc. shall be deemed to be included under the relevant BOQ items and bidders shall consider the same while quoting for BOQ items.

a) Bill of Quantity for Air-conditioning units in Control Room Buildings

Sl. No.	Item Description	Unit	Quantity
1A.	Supply of Two Ton capacity High Wall Split air conditioner including all accessories as per specification.	Nos.	16
1B.	Supply of 20Amps DP plug and socket in sheet enclosure with 32A DP MCB in flush with wall with earth connection (AC Plug) (Legrand MDS)/Hager (L&T) make	Nos.	16
2.	Erection, Testing & Commissioning (ETC) for above mentioned 2TR High Wall type A/C Units	Nos.	16

	BHARAT HEAVY ELECTRICALS LIMITED TRANSMISSION BUSINESS ENGINEERING MANAGEMENT	Doc. No.	TB-399-316-162 Rev-00
	400/230-110 KV SUB STATION AT VELLALAVIDUTHI	Part No.	SECTION -1
	AIR CONDITIONING SYSTEM		SHEET 4 OF 5

Prices of following shall be deemed to be inclusive in unit's rates of above items:

- a. 10 RMT length of suitable size as per manufacturer standard (both liquid and refrigerant) of Copper refrigerant piping including insulation between indoor unit and outdoor condenser unit for each air Air-conditioning unit.
- b. 8 Meter of PVC drain piping from indoor units for each air conditioner.
- b. One Lot of MS brackets and M.S. frame for indoor & outdoor units respectively and fixing hardware like anchor bolts, nuts, fittings etc. as would be necessary for installation of each unit.
- c. *One no. stabliser of capacity 5KVA for each A/C unit.*
- d. Minimum BEE star rating of the AC units shall be 3 star, wherever applicable.

4.2.0 SERVICES TO BE PERFORMED BY CONTRACTOR

Erection, Testing & Commissioning (ETC) requirements

- a) The scope of ETC shall include erection, system testing and commissioning of system.
Unloading and storage is excluded from contractor's scope.
- b) Laying and termination of power and control cables for the equipment under the scope of this specification.
- c) Bidder shall arrange all machinery tools & tackles and consumables required for erection of the system.
- d) PVC drain piping for the condensate drain, wherever required.
- e) Refrigerant piping connections, wherever required.
- f) Earthing of all equipments through GI Flat/Wire of suitable size shall be done by contractor, however earthing material shall be supplied by BHEL as a free issue item.
- g) Bidder shall ensure that sufficient quantity of commissioning spares is made available for timely completion of commissioning of the system. These commissioning spare shall be in addition to mandatory spares.
- h) Submission of following documents for approval.
 1. Heat Load Calculation for different areas of control room building mentioned in this spec for submission to customer.

	BHARAT HEAVY ELECTRICALS LIMITED TRANSMISSION BUSINESS ENGINEERING MANAGEMENT	Doc. No.	TB-399-316-162 Rev-00
	400/230-110 KV SUB STATION AT VELLALAVIDUTHI	Part No.	SECTION -1
	AIR CONDITIONING SYSTEM		SHEET 5 OF 5
2. Data sheet for Air-conditioning units along with catalogue for the model being offered inline with specification 3. Layout showing Location with all wall cut-out details for installation of Air-conditioning units in the control room building. Any other service not explicitly illustrated herein but which may be required to complete the system with its desired functionality shall be deemed to be included in the scope of the bidder. 5.0.0 QUALITY & INSPECTION The inspection of Air-conditioning units shall be done as per technical specification/ approved technical data sheet/GA before dispatch clearance. Contractor shall ensure to produce test certificates of AC units inline with technical requirement to satisfy customer. 6.0.0 HANDING & TAKING OVER After successful commissioning, All the Air-Conditioning units will be put through a run test for a week as per the specification requirement. After successful completion, they will be handed over to customer. Any defect noted during this period shall be rectified by the contractor without any cost implication to BHEL/ Customer.			

	BHARAT HEAVY ELECTRICALS LIMITED TRANSMISSION BUSINESS ENGINEERING MANAGEMENT	Doc. No.	TB-399-316-162 Rev-00
	400/230-110 kV SUB STATION AT VELLALAVIDUTHI	Part No.	SECTION -2
	AIR CONDITIONING SYSTEM		SHEET 1 OF 1

SECTION-2

EQUIPMENT SPECIFICATION

Air-conditioning Unit for Control Room Building

High wall type split AC units

The split AC units shall be complete with indoor evaporator unit, outdoor condensing units and cordless remote control units.

Outdoor unit shall comprise of hermetically/semi hermetically sealed compressors mounted on vibration isolators, propeller type axial flow fans and copper tube aluminium finned coils all assembled in a sheet metal casing. The casing and the total unit shall be properly treated and shall be weatherproof type. They shall be compact in size and shall have horizontal discharge of air.

The indoor units shall be high wall type. The indoor unit shall be compact and shall have elegant appearance. They shall have low noise centrifugal blowers driven by suitable motors and copper tube aluminium finned cooling coils. Removable and washable polypropylene filters shall be provided. They shall be complete with Multi-function cordless remote control unit with special features like programmable timer, sleep mode and soft dry mode etc.

Cooling capacity of 2TR AC units shall not be less than 22000btu/hr. and shall have energy efficiency rating of 3star or above.

The Split AC units shall be of Carrier, Voltas, Blue Star, Hitachi, Daikin, LG, National, O'General or Samsung make.

Warranty

All compressors shall have minimum 5 years Warranty from the date of supply.

Refrigerant Piping

Refrigerant piping shall be of heavy gauge copper to IS:2501 or IS:1239 heavy class seamless M.S. pipe complete with thermostatic expansion valve, liquid strainer, dehydrator, liquid line shut off valve, high and low pressure gauges.

	BHARAT HEAVY ELECTRICALS LIMITED TRANSMISSION BUSINESS ENGINEERING MANAGEMENT	Doc. No.	TB-399-316-162 Rev-00
	400/230-110 kV SUB STATION AT VELLALAVIDUTHI	Part No.	SECTION -3
	AIR CONDITIONING SYSTEM		SHEET 1 OF 5

SECTION-3

GENERAL TECHNICAL REQUIREMENTS

The provisions under this section are intended to supplement general requirements for the materials, equipment's and services covered under other sections.

PROJECT INFORMATION AND SYSTEM PARAMETERS

- a) Customer : M/s Tamil Nadu Transmission Corporation Limited
- b) Project Title : 400/230-110 kV Substation at Vellalaviduthi
- c) Transport facilities : Road/Rail

Physical and other parameters:

- Location of the substation : Vellala viduthi, Pudukottai district
- Nearest Railway station : Pudukottai Railway Southern Railway

3.1.3 Meteorological data

- (i) Maximum ambient temperature : 50°C
- (ii) Minimum ambient temperature : 20°C
- (iii) Maximum daily average ambient air temperature : 45° C
- (iv) Maximum yearly average ambient air temperature : 32° C
- (v) Maximum Humidity (%) : 100%
- (vi) Average thunder storm days per annum : 50
- (vii) Average rainy days per annum : 90
- (viii) Average annual rainfall (mm) : 1000 mm
- (ix) No. of months during which tropical monsoon condition prevail : 5
- (x) Maximum wind pressure : 150 Kgf/Sqmm
- (xi) Altitude above MSL : 1000M

However for design purpose, ambient temperature should be considered as 50° C and relative humidity as 100%.

MAIN ELECTRICAL PARAMETERS:		
a)	Fault Levels	400kV: 63kA for 1 sec. 230kV: 40kA for 3 sec. 110kV: 40kA for 3 sec.

**BHARAT HEAVY ELECTRICALS LIMITED**

TRANSMISSION BUSINESS ENGINEERING MANAGEMENT

Doc.
No.**TB-399-316-162**
Rev-00**400/230-110 kV SUB STATION AT**
VELLALAVIDUTHIPart
No.**SECTION -3**

AIR CONDITIONING SYSTEM

SHEET 2 OF 5

a)	Creepage Distance	25mm/kV
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AUXILIARY POWER SUPPLY:

Auxiliary electrical equipment's, maintenance equipment's etc., shall be suitable for operation on the following supply system.

3 phase AC Supply	415V, 3 phase 4 wire, 50 Hz, neutral grounded AC supply -10% to +10%, Frequency +/- 5%
1 phase AC supply	240V, single phase, 50 Hz, neutral grounded AC supply -10% to +10%, Frequency +/- 5%,
DC supply	220V, 2 wire DC supply + 10% to -15%, Ungrounded 48V, 2 wire DC supply , Positively earthed

GENERAL REQUIREMENT

ALL THE EQUIPMENTS / MATERIALS TO BE SUPPLIED SHOULD BE IN ACCORDANCE WITH RELEVANT LATEST / AMENDED IS/IEC, WHETHER IT HAS BEEN SPECIFICALLY MENTIONED IN THE SPECIFICATION OR NOT.

The bidder shall also furnish drawings for the following:

All EQUIPMENTS and type of clamps, fittings hardware, insulators, bus bar. These designs/ drawing shall be got approved by the purchaser before commencing the manufacture/ construction/ erection and are to be as per latest IS/ IEC.

GENERAL:

The bidder shall be fully responsible for providing all equipment, materials system and services specified or otherwise which are required to complete the construction and successful commissioning of the substation in all respects.

Any other items not specifically mentioned in the specification but which are required for erection of materials/equipment under the scope of work, testing and commissioning are deemed to be included in the scope of the specification unless specifically excluded.

All items shall be supplied as per schedule and as specified in the relevant Indian standard of latest revision. The Technical specification of the main materials/equipment is furnished. The Technical specification contained herein for the materials are for the guidance of the tenderer.

	BHARAT HEAVY ELECTRICALS LIMITED TRANSMISSION BUSINESS ENGINEERING MANAGEMENT	Doc. No.	TB-399-316-162 Rev-00
	400 / 230-110 kV SUB STATION AT VELLALAVIDUTHI	Part No.	SECTION -3
	AIR CONDITIONING SYSTEM		SHEET 3 OF 5

The bidders are requested to procure the equipment's/materials/component only from reputed /qualified manufacturer as per Technical requirement stipulated in Section-1 of Technical specifications. Approval of make of item shall be taken up by vendor from TANTRANSCO himself.

SPECIFIC REQUIREMENT

The bidder shall furnish make/manufacturer, catalogues, engineering data, technical information, design documents, drawings etc., fully in conformity with the technical specification and get approval from competent authority before commencement of any work.

All steel materials, other than materials for earthing should be of galvanized if not specified.

STANDARD:

The works covered by the specification shall be designed, engineered, manufactured, built, tested and commissioned in accordance with the Acts, Rules, Laws and Regulations of India.

The equipment to be furnished under this specification shall conform to latest issue with all amendments (as on the date of bid opening) of standards specified in the specification.

The Bidder shall note that standards mentioned in the specification are not mutually exclusive or complete in themselves, but intended to complement each other.

The Bidder shall also note that list of standards presented in this specification is not complete. Whenever necessary the list of standards shall be considered in conjunction with specific IS/IEC.

When the specific requirements stipulated in the specifications exceed or differ than those required by the applicable standards, the stipulation of the specification shall take precedence.

TEST CERTIFICATE:

Copies of all test certificates relating to material to be procured by the contractor for the works shall be forwarded to the OWNER.

INSPECTION :

The inspection may be carried out by the TANTRANSCO/BHEL at any stage of manufacture. The supplier shall grant free access to TANTRANSCO's/BHEL representative at a reasonable time when the work is in progress. The TANTRANSCO/BHEL shall have access at all times to the works and all other places of manufacture/fabrication, where the equipments are being manufactured/fabricated and the bidder shall provide

	BHARAT HEAVY ELECTRICALS LIMITED TRANSMISSION BUSINESS ENGINEERING MANAGEMENT	Doc. No.	TB-399-316-162 Rev-00
	400 / 230-110 kV SUB STATION AT VELLALAVIDUTHI	Part No.	SECTION -3
	AIR CONDITIONING SYSTEM		SHEET 4 OF 5

TANTRANSCO's/ BHEL representative all facilities for unrestricted inspection of the works, raw materials, manufacture of all the accessories and for conducting necessary tests.

Inspection and acceptance of any equipment under this specification by the TANTRANSCO / BHEL shall not relieve the supplier of his obligation of furnishing equipment in accordance with the specification and shall not prevent subsequent rejection if the equipment is found to be defective. The supplier shall keep the TANTRANSCO/BHEL informed in advance, about the manufacturing programme so that arrangement can be made for inspection.

The TANTRANSCO/BHEL, reserves the right to insist for witnessing the acceptance/routine testing of the bought out items. No material shall be dispatched from its point of manufacture unless the material has been satisfactorily inspected and tested.

The correct grade and quality of steel shall be used by the supplier. To ascertain quality of steel, the TANTRANSCO/BHEL may at his discretion get the material tested at an approved laboratory.

The BHEL/TANTRANSCO or his representative shall have the right to inspect and/or test the goods /works to confirm their conformity to the supplier. BHEL/TANTRANSCO shall notify the supplier in writing of the identity of any representatives authorized for these purposes.

The inspections and tests may be conducted on the premises of the supplier or his Sub vendor at the point of delivery and /or at the goods' final destination. Where tests are conducted in the premises of Supplier, all reasonable facility and assistance including access to drawings and production data shall be furnished at no charge to the BHEL.

Should any inspected or tested goods fail to conform to specifications, the BHEL/TANTRANSCO may reject them and the supplier shall either replace the rejected goods or make all alterations necessary to meet specification requirements free of cost to the BHEL/TANTRANSCO within one week of intimation.

The BHEL/TANTRANSCO's right to inspect, test and where necessary reject the goods after the goods; arrival at the site, shall in no way be limited or waived by reason of the goods having been previously inspected. Tested and passed by the BHEL/TANTRANSCO or his representative prior to the goods dispatch.

Not less than 15 (Fifteen) days advance intimation shall be given about the quantity of materials that will be ready for inspection by the officers of TANTRANSCO/ BHEL/Third agency authorized by the Corporation. The materials should not be dispatched without instruction from the Corporation.

	BHARAT HEAVY ELECTRICALS LIMITED TRANSMISSION BUSINESS ENGINEERING MANAGEMENT	Doc. No.	TB-399-316-162 Rev-00
	400/230-110 kV SUB STATION AT VELLALAVIDUTHI	Part No.	SECTION -3
	AIR CONDITIONING SYSTEM		SHEET 5 OF 5

GUARANTEE:

The supplier shall guarantee that the goods under the Contract are new, unused of the most recent or current models and incorporated all recent improvements in design and materials unless provided otherwise in the Contract. The supplier shall further guarantee that the goods supplied under this Contract shall have no defects arising from design, materials or workmanship, installation and erection, if that may develop under normal use of the supplied goods. The supplier shall also guarantee the performance of the works executed by him including the performance of all the materials/goods supplied by him.

BHEL shall promptly notify supplier in writing of any claims arising under guarantee in respect of goods. Upon receipt of such notice, the supplier shall, with all reasonable speed, repair or replace the defective works or parts thereof, free of cost at site. All the expenses towards transportation of defective parts to supplier's works and of repaired/replaced parts to site shall be borne by the Supplier.

If the Supplier, having been notified, fails to remedy the defects within 14 days, the BHEL will proceed to take such remedial action as may be necessary, at the supplier's risk and expenses. All expenses in this regard will be recovered from Supplier.

PACKING AND FORWARDING:

The equipment shall be packed in crates suitable for vertical/horizontal Transport, as the case may be and suitable to withstand handling transport and outdoor storage during transit. The supplier shall be responsible for any damage to the equipment during transit due to improper and inadequate packing and handling. The easily damageable material shall be carefully packed and marked with the appropriate caution symbols. Wherever necessary, proper arrangement for lifting, such as lifting hooks etc., shall be provided. Any material found short inside the packing cases shall be supplied by supplier without any extra cost.

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

The packing, marking and documentation within and outside the package shall comply strictly with such special requirements as shall be expressly provided for in the Contract or in any subsequent instructions issued by BHEL.

**BHARAT HEAVY ELECTRICALS LIMITED**

TRANSMISSION BUSINESS ENGINEERING MANAGEMENT

Doc.
No.**TB-399-316-162**
Rev-00**400/230-110 kV SUB STATION AT**
VELLALAVIDUTHIPart
No.**SECTION -4**

AIR CONDITIONING SYSTEM

SHEET 1 OF 1**SECTION-4****GUARANTEED TECHNICAL PARTICULARS**

Following to be submitted by the bidders at the time of the bid which are minimum information, however bidder may also furnish the other important technical details.

Air conditioning Units for Control Room Building

1	Make	
2.	Model No. of unit	
3.	Capacity	2 TR
4	Type of AC	High Wall Split Air Conditioner
5	Power Supply	230V AC, Single Phase
6	Evaporator unit	As per system requirement
7	Compressor warranty as per manufacturer	
8	Cooling capacity of 2TR AC units shall not be less than 22000btu/hr	
9	Refrigerant Piping (Liquid line and refrigerant line)	As per system requirement
10	Filters	As per system requirement
11	Remote (Y/N)	
12	Programmable timer (Y/N)	
13	Sleep Mode(Y/N)	
14	Dry mode(Y/N)	
15	BEE star rating (Minimum)	3 star
16	Dimension of unit	
17	Weight of unit	
18	5kVA Voltage Stabiliser (Y/N)	

Signature of the authorized representative of Bidder

Name _____

Designation_____

Place_____

Date_____

	BHARAT HEAVY ELECTRICALS LIMITED TRANSMISSION BUSINESS ENGINEERING MANAGEMENT	Doc. No.	TB-399-316-162 Rev-00
	400/230-110 KV SUB STATION AT VELLALAVIDUTHI	Part No.	SECTION -5
	AIR CONDITIONING SYSTEM		SHEET 1 OF 5

SECTION-5

SCHEDULES TO BE FILLED BY THE BIDDER

Schedule 1 Certificate of No Technical deviation

Schedule 2 Schedule of unpriced BOQ

Schedule 3 Details of contact person both technical and commercial

Schedule 4 Enclosures to Specification
Drawings

	BHARAT HEAVY ELECTRICALS LIMITED TRANSMISSION BUSINESS ENGINEERING MANAGEMENT	Doc. No.	TB-399-316-162 Rev-00
	400/230-110 kV SUB STATION AT VELLALAVIDUTHI	Part No.	SECTION -5
	AIR CONDITIONING SYSTEM		SHEET 2 OF 5

SCHEDULE-1

CERTIFICATE OF NO TECHNICAL DEVIATION

We confirm that there are no deviations whatsoever and our offer is in full compliance with the specification. We also confirm that there are no technical deviations in any other form such as comments, variations/ GTP and/ or exceptions.

Signature of the authorized representative of Bidder

Name : _____

Designation : _____

Place : _____

Date : _____

Company Seal

**BHARAT HEAVY ELECTRICALS LIMITED**

TRANSMISSION BUSINESS ENGINEERING MANAGEMENT

Doc.
No.**TB-399-316-162**
Rev-00**400/230-110 KV SUB STATION AT**
VELLALAVIDUTHIPart
No.**SECTION -5**

AIR CONDITIONING SYSTEM

SHEET 3 OF 5**SCHEDULE-2**Bidders shall attach signed and stamped **unpriced** copy of this BOQ with their technical offer:

Sl. No.	Item Description	Unit	Qty	Whether Unit Rates have been furnished in priced bid?
1A.	Supply of Two Ton capacity High Wall Split air conditioner including all accessories as per specification	Nos.	16	YES
1B.	Supply of 20Amps DP plug and socket in sheet enclosure with 32A DP MCB in flush with wall with earth connection (AC Plug) (Legrand MDS)/Hager (L&T) make	Nos.	16	YES
2	Erection, Testing & Commissioning (ETC) for above mentioned 2TR High Wall type A/C Unit as per specification	Nos.	16	YES

Signature of the authorized representative of Bidder

Name :

Designation :

Place :

Date :

Company Seal

	BHARAT HEAVY ELECTRICALS LIMITED TRANSMISSION BUSINESS ENGINEERING MANAGEMENT	Doc. No.	TB-399-316-162 Rev-00
	400/230-110 KV SUB STATION AT VELLALAVIDUTHI	Part No.	SECTION -5
	AIR CONDITIONING SYSTEM		SHEET 4 OF 5

SCHEDULE-3

DETAILS OF CONTACT PERSON BOTH TECHNICAL AND COMMERCIAL

Name

Address for correspondence

Phone No.

Fax No.

Email

Place

Signature of the authorized representative of Bidder

Date

Name-----

Designation-----

Company seal -----

	BHARAT HEAVY ELECTRICALS LIMITED TRANSMISSION BUSINESS ENGINEERING MANAGEMENT	Doc. No.	TB-399-316-162 Rev-00
	400/230-110 KV SUB STATION AT VELLALAVIDUTHI	Part No.	SECTION -5
	AIR CONDITIONING SYSTEM		SHEET 5 OF 5

SCHEDULE-4

DRAWINGS

- 1) GA drawing of Control Room Building

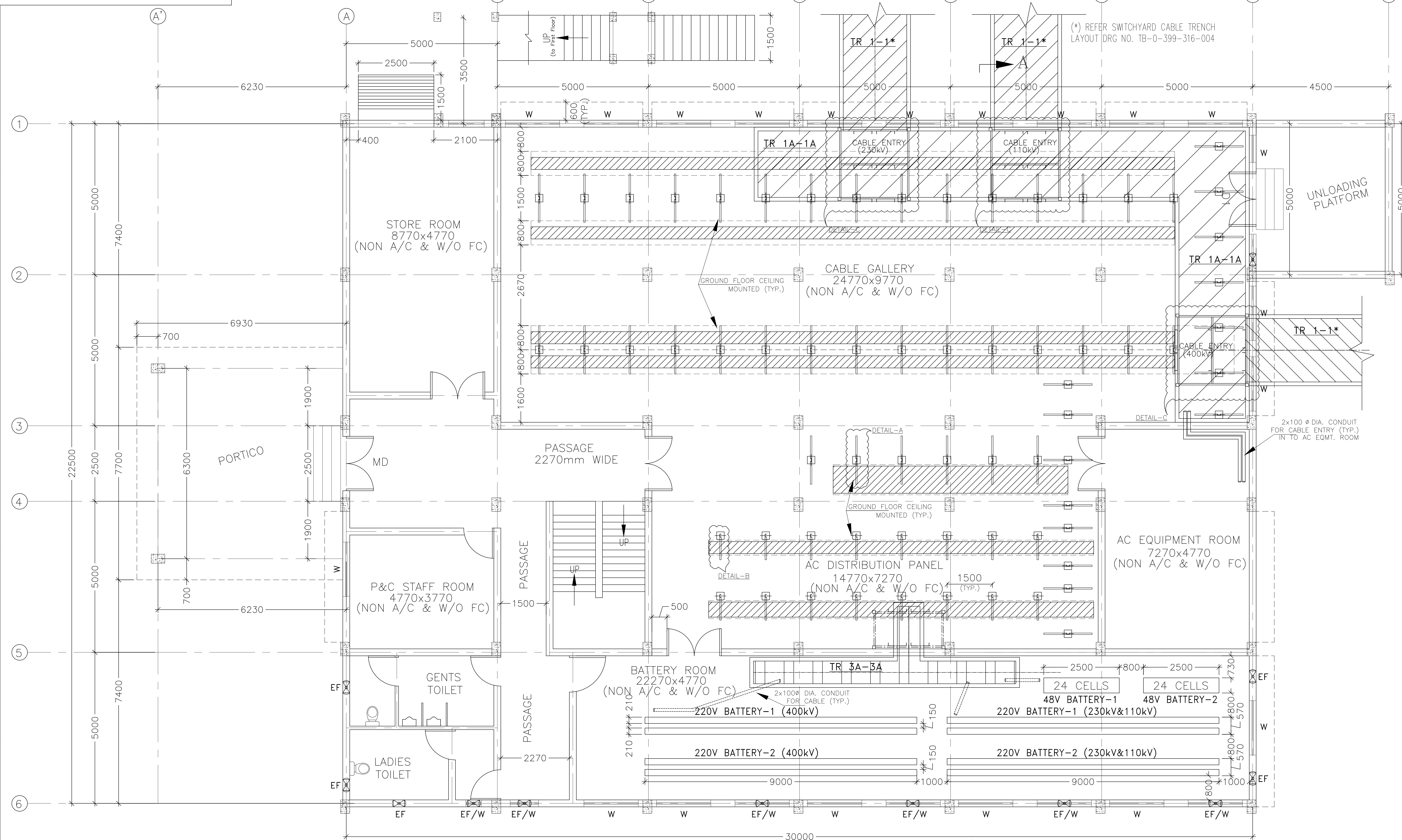
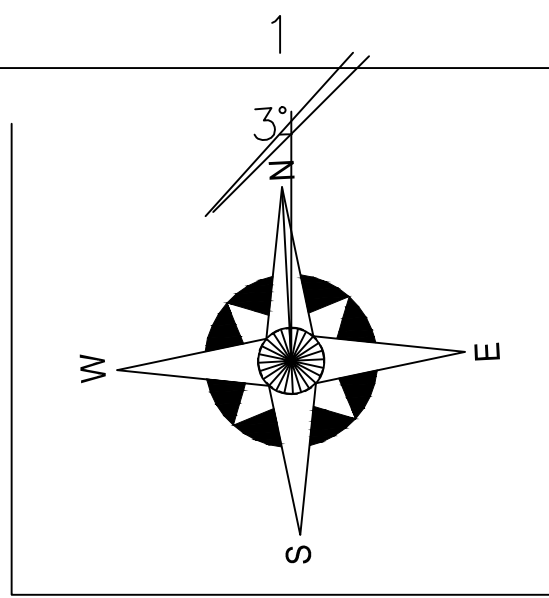
COPY RIGHT AND CONFIDENTIAL
The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED
it must not be used directly or indirectly in anyway detrimental to the interest of the company.

COMPUTER DRG. PATH NAME :

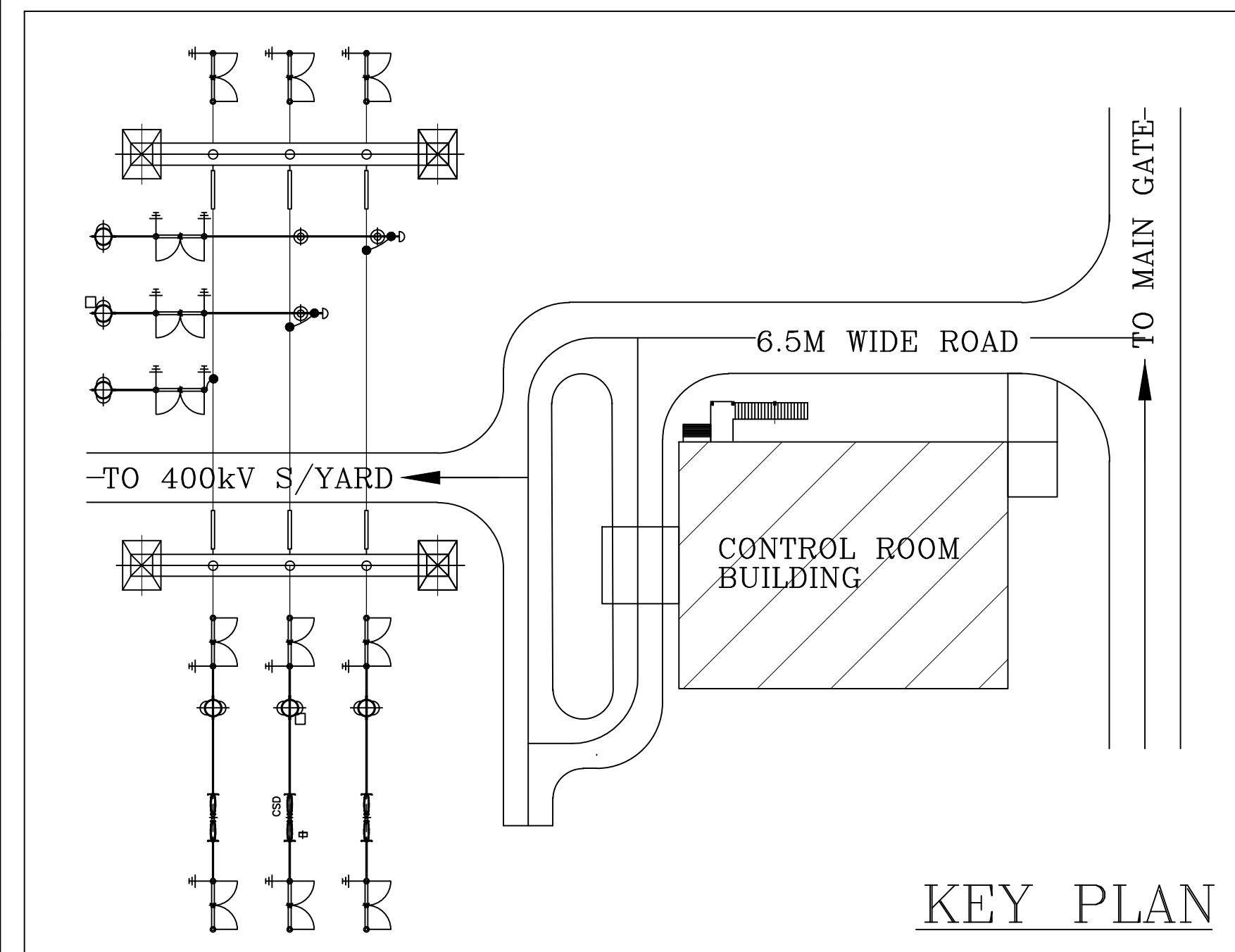
REF. DRG. No.
SIGN. & DATE
INVENTORY No.

TB-3-399-316-005
DRAWING No.

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN MM.)



LEGEND-
FLOOR CUTOUT

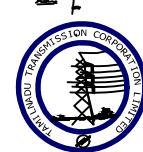
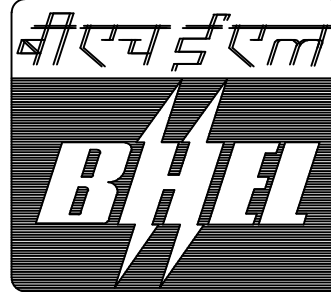
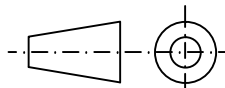


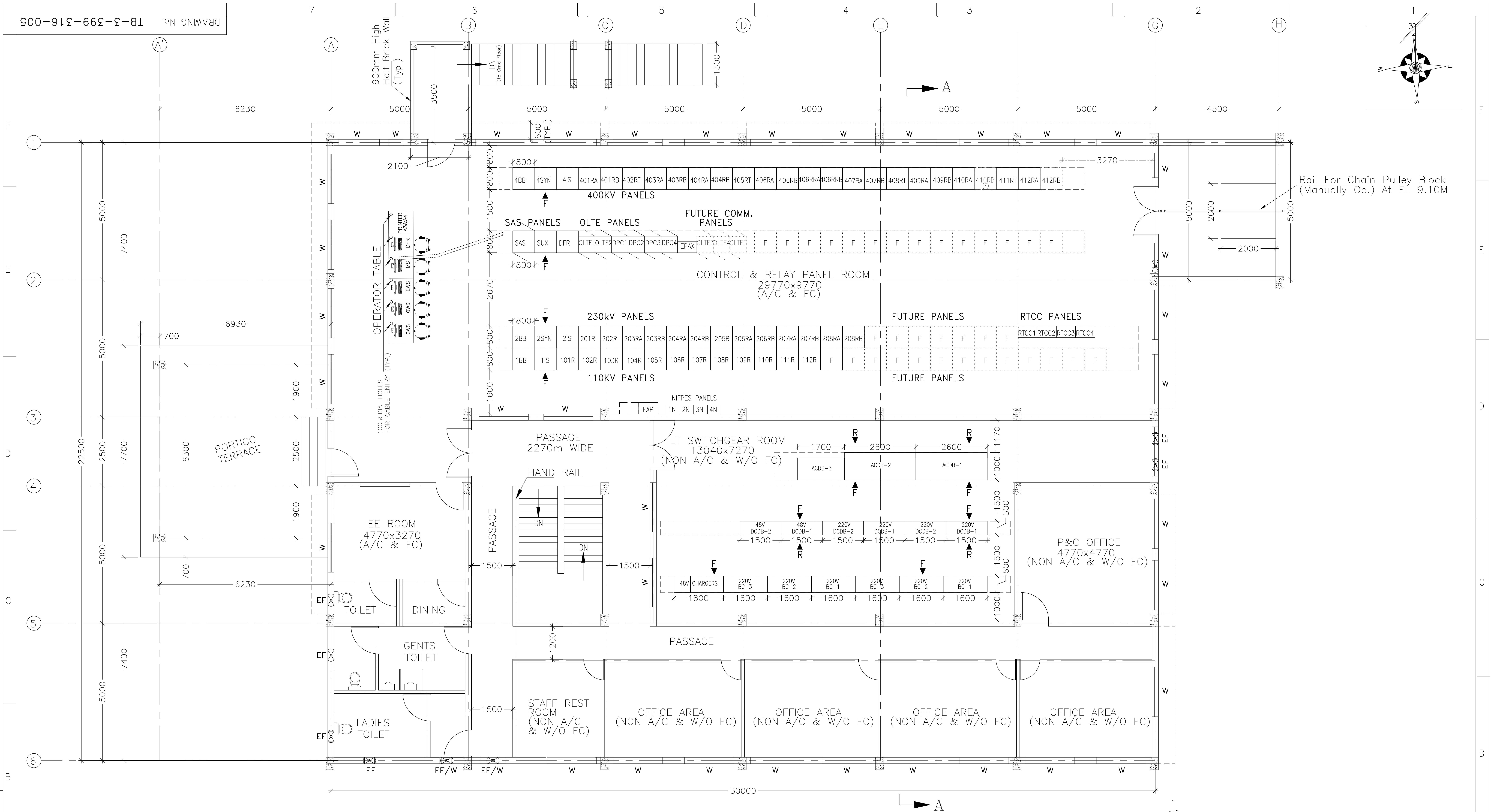
GROUND FLOOR - PLAN @ EL+0.50M LVL

REV.	DATE	ALTERED	MVK
03	28.02.19	CHECKED	MVK
		APPROVED	SKS
ZONE	REVISED AS PER CUSTOMER COMMENTS DT. 07.02.19.		

REV.	DATE	ALTERED	MVK	Sd/-
02	19.01.19	CHECKED	MVK	Sd/-
		APPROVED	SKS	Sd/-
ZONE	REVISED AS PER CUSTOMER COMMENTS DT. 11.01.19.			

ADDITIONAL INFORMATION W.O.No. 87007				
STATUS OF DRAWING DISTRIBUTION OF PRINTS				
REV.	DATE	ALTERED	MVK	Sd/-
01	28.12.18	CHECKED	MVK	Sd/-
		APPROVED	SKS	Sd/-
ZONE	REVISED AS PER CUSTOMER COMMENTS DT. 22.10.18, 30.10.18 & 28.11.18.			

ग्राहक/परियोजना का नाम NAME OF CUSTOMER/PROJECT		 TAMILNADU TRANSMISSION CORPORATION LTD. 400/230-110KV SS AT VELLALAVIDUTHI				
	भारत हेवी इलेक्ट्रिकल्स लिमिटेड द्रांसमिशन परियोजना विभाग BHARAT HEAVY ELECTRICALS LTD. TRANSMISSION BUSINESS GROUP		खर्चा DRAWN	नाम /NAME	हस्ता./SIGN.	दि./DATE
			जेंचा CHECKED	MVK	Sd/-	17.09.18
			स्वीकृत APPROVED	SKS	Sd/-	17.09.18
विभाग DEPT.	TBEM		अनुपात / SCALE N/A	कार्ड कोड CARD CODE		
कोड CODE	422					
शीर्षक/TITLE				ड्राईंग.क्र./DRAWING NO.		पुनः/REV.
CONTROL ROOM BUILDING LAYOUT FOR 400/230-110kV VELLALAVIDUTHI S/S				TB-3-399-316-005		03
				पृष्ठ क्र./SHEET No. 1	अगला पृष्ठ/NEXT SHEET 2	



FIRST FLOOR – PLAN @ EL+4.50M LVL

REV.	DATE	ALTERED	MVK
03	28.02.19	CHECKED	MVK
		APPROVED	SKS
ZONE	REVISED AS PER CUSTOMER COMMENTS DT. 07.02.19.		

REV.	DATE	ALTERED	MVK	Sd/—
02	19.01.19	CHECKED	MVK	Sd/—
		APPROVED	SKS	Sd/—
ZONE	REVISED AS PER CUSTOMER COMMENTS DT. 11.01.19.			

REV.	DATE	ALTERED	MVK	Sd/-
01	28.12.18	CHECKED	MVK	Sd/-
		APPROVED	SKS	Sd/-
ZONE	REVISED AS PER CUSTOMER COMMENTS DT. 22.10.18, 30.10.18 & 28.11.18.			

		भारत हेवी इलेक्ट्रिकल्स लिमिटेड द्वारांमिशन परियोजना विभाग BHARAT HEAVY ELECTRICALS LTD. TRANSMISSION BUSINESS GROUP		खजाना DRAWN	नाम /NAME MVK	हस्ता./SIGN. Sd/-	दि./DATE 17.09.18
विभाग DEPT.		कोड CODE	अनुपात / SCALE N/A	कार्ड कोड CARD CODE	चेक CHECKED	स्वीकृत APPROVED	दि./DATE 17.09.18
शीर्षक/TITLE CONTROL ROOM BUILDING LAYOUT FOR 400/230-110kV VELLALAVIDUTHI S/S				ड्राइंग.कं./DRAWING NO. TB-3-399-316-005		पुनः/REV. 03	
				पृष्ठ कं./SHEET No. 2	अगला पृष्ठ/NEXT SHEET 3		