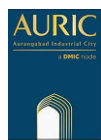


- NOTES:
- CSS-OUTDOOR METAL ENCLOSURE:
- DESIGN PARAMETERS:
 - APPLICATION : OUTDOOR
 - SYSTEM VOLTAGE : 11kV +6%,-9%
 - HIGHEST SYSTEM VOLTAGE : 12kV
 - SYSTEM FREQUENCY : 50Hz +3%,-3%
 - FAULT LEVEL : CB 50kA, 3Sec and ES 20kA/3Sec.
 - AMBIENT TEMPERATURE : 50° C
 - PROTECTION LEVEL : IP4X
 - OUTDOOR METAL ENCLOSED COMPACT SUBSTATION SHALL CONSIST OF 2NOS MOTORIZED LOAD BREAK SWITCH WITH EARTH SWITCH, BUS BAR, VCB AND MANUAL DISCONNECTOR WITH EARTH SWITCH AS HV PORTION OF MULTIPLE OPERATING DEVICES MOUNTED ON SF6 GAS TANK, I.E. PRIMARY INSULATION AND LV PART SUCH AS DRY TYPE TRANSFORMER, LV BUS BAR, INBUILT CAPACITOR BANK AND ADEQUATE NUMBER OF OUTGOING CIRCUIT BREAKERS INCLUDING FRTU.
 - ALL PROTECTIVE RELAY WILL BE NUMERICAL TYPE WITH RS485 COMMUNICATION. NUMERICAL RELAY SHALL BE WITH PROGRAMMABLE LOGIC AND CAPABLE OF COMMUNICATING WITH CSS FRTU AS WELL AS SUBSTATION PLC/SCADA SYSTEM FOR REMOTE CONTROL AND MONITORING.
 - SWITCHGEAR CONTROL SUPPLY FOR PROTECTIVE RELAYS, AUXILIARY RELAYS, BREAKER CLOSING COIL, TRIPPING COIL & INDICATION LAMPS WILL BE OPERATED 110V DC. SPRING CHARGING MOTOR, LAMP & SPACE HEATER WILL BE 230V AC SUPPLY.
 - CSS WILL HAVE INBUILT POWER PACK UNIT 24V DC WITH BATTERY BACKUP TO CATER THE DC LOAD OF FRTU. THE INPUT POWER SUPPLY FOR POWER PACK WILL BE DRIVED FROM LT SIDE BUS OF CSS. BATTERY AUTONOMY TIME WILL BE 8 HOURS.
 - MULTIFUNCTION METER WILL BE MICROPROCESSOR BASED GIVING DETAILS OF VOLTS, AMPS, FREQUENCY, KW, KWH, PF, KVA, KVARH AND MAXIMUM DEMAND. IT SHALL BE COMMUNICABLE TYPE THROUGH RS 485 PORT. ACCURACY WILL BE CLASS 0.5S.
 - THE INTERLOCK SHALL BE PROVIDED BETWEEN BUSBAR ISOLATOR & OUTGOING EARTHING SWITCH AND INTERLOCK BETWEEN BUSBAR ISOLATOR AND CIRCUIT-BREAKER.
 - MECHANICAL INTERLOCK BETWEEN THE SWITCH DISCONNECTOR AND THE OUTGOING EARTHING SWITCH WILL BE PROVIDED.
 - CIRCUIT BREAKER DRIVE MECHANISM SHALL BE DESIGNED FOR BOTH MANUAL AND MOTOR OPERATION AND SHALL ALLOW AUTO RECLOSING.
 - BUS BAR SHALL BE ELECTROLYTIC COPPER. BUS BAR SIZES WILL BE REFLECTED IN THE HT PANEL VENDOR DOCUMENTS. TEMPERATURE RISE WILL BE AS PER IEC 62271.
 - ALL INDICATING LAMPS WILL BE LED TYPE.
 - TO MAINTAIN THE REDUNDANCY AND RELIABILITY IN THE POWER SUPPLY DISTRIBUTION NETWORK, 11 KV INCOMING POWER SUPPLY SHALL BE CONNECTED IN A RING CONFIGURATION. THE HV SUPPLY DISTRIBUTION SYSTEM SHALL BE PLANNED IN RING FORMATION WITH AN OPEN POINT, SO AS TO OPERATE THE SYSTEM AS RADIAL FEEDER AT CSS. EACH RING START & END SHALL BE CONNECTED TO SEPARATE SOURCES THROUGH THE FEEDERS ON THE DIFFERENT BUSES.
 - TRANSFORMER LOADING SHALL BE DESIGNED IN SUCH THAT EACH TRANSFORMER IS NOT LOADED BEYOND APPROXIMATELY 80%. HOWEVER IN CASE OF EMERGENCY 100% CONTINUOUS LOADING SHALL BE PERMITTED.
 - THE CSS ENCLOSURE SHALL BE SUITABLE TO BE INSTALLED ON A BASE FRAME SUPPLIED IN ONE PIECE ALONG WITH FOUNDATION BOLTS. TOP PORTION SHALL BE SLOPED.
 - ALL OPERATING INSTRUMENTS, RESETTNG FLAGS, SWITCHES, SETTING AND ADJUSTMENT POINTS SHALL BE AT A CONVENIENT HEIGHT, EASY TO OPERATE AND READ AND IN NO CASE BEYOND 1700 mm AND LESS THAN 700 MM FROM GROUND. HOWEVER SAME SHALL BE ENSURED BASED ON MANUFACTURER STANDARD.

FOR TENDER

CLIENT



MAHARASHTRA INDUSTRIAL
TOWNSHIP LTD (MITL)

PROJECT

DESIGN, CONSTRUCTION, TESTING, COMMISSIONING
AND OPERATION & MAINTENANCE OF INFRASTRUCTURE
WORKS AT DIGHI PORT INDUSTRIAL AREA (DPIA)- PHASE
1 UNDER DELHI MUMBAI INDUSTRIAL CORRIDOR (DMIC)
ON EPC BASIS

TITLE

TYPICAL SINGLE LINE DIAGRAM FOR
COMPACT SUBSTATIONS (CSS)

PROJECT CODE: DI1628 STATUS: ISSUED FOR TENDER DATE: 18.12.2024

SHEET NO: 01 SCALE: NTS DWG SIZE: A1 REV NO: R0

DRAWING NO:

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