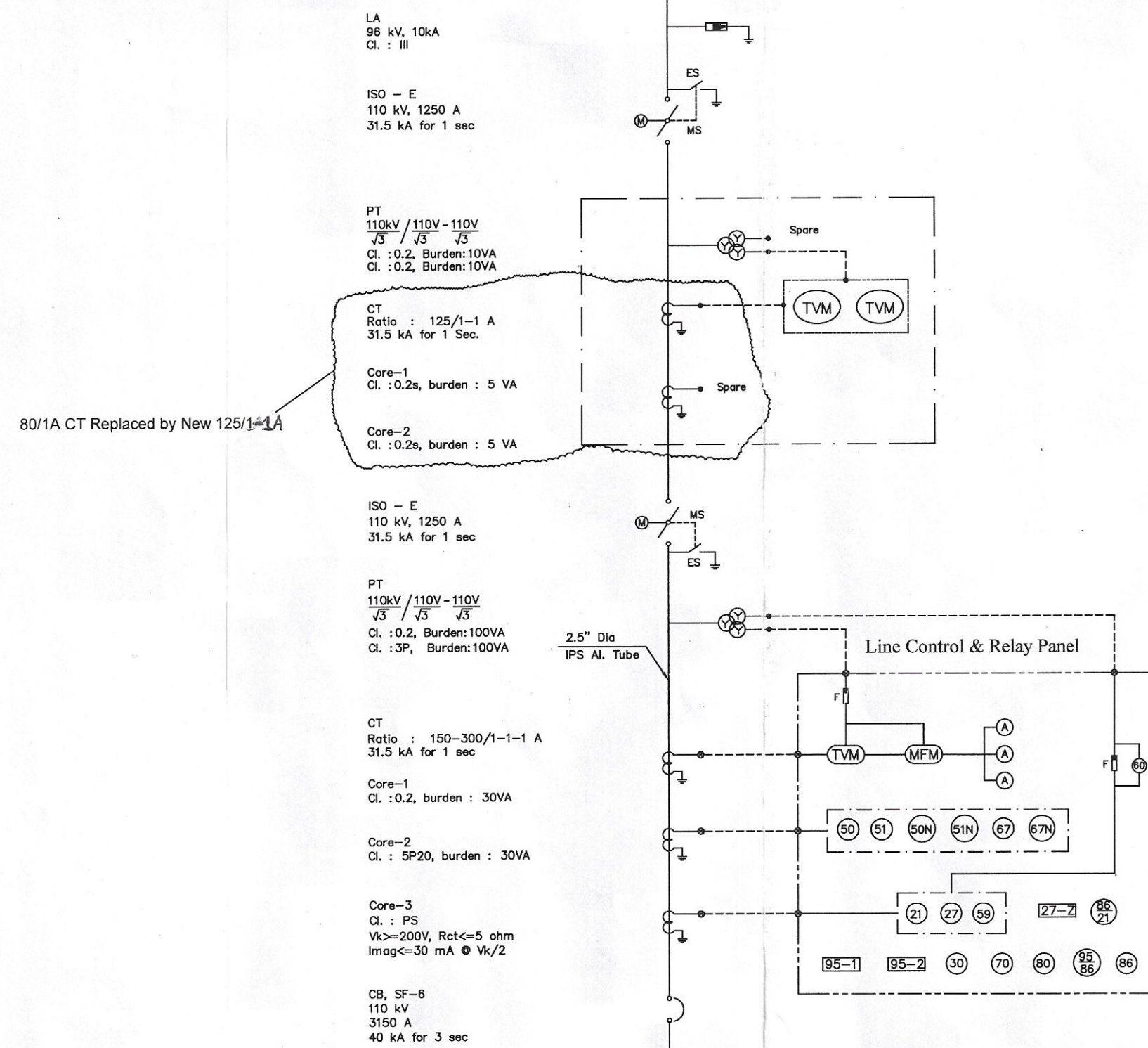


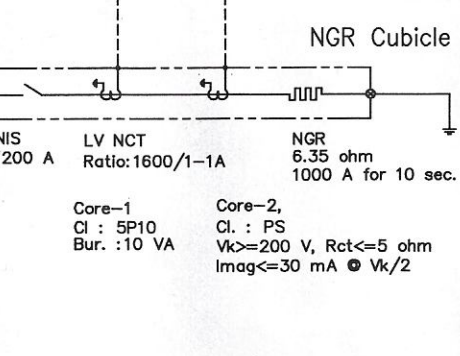
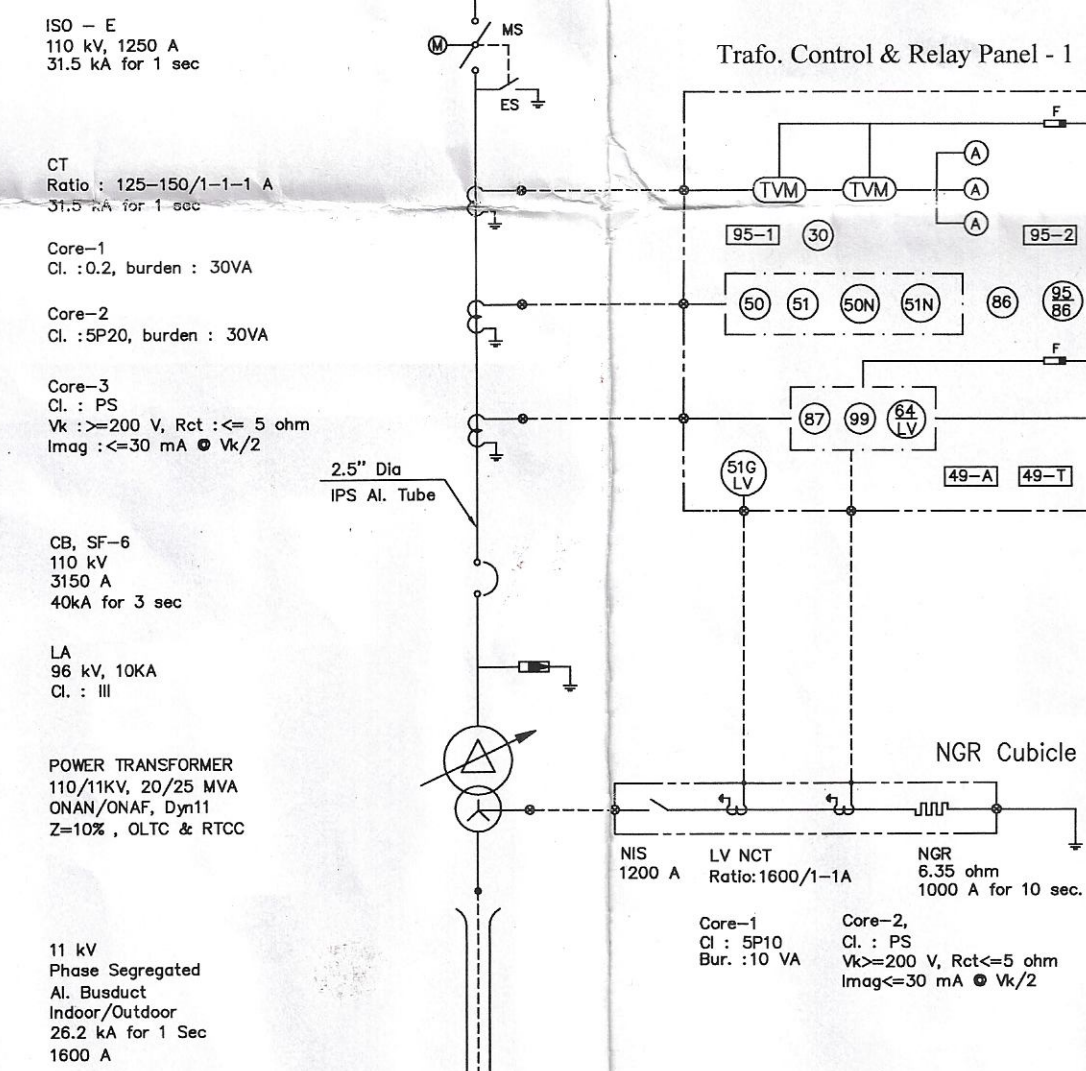
Note :

1. Highest System Voltage 145 kV
2. Lightning Impulse Voltage 550 kVp
3. Power Frequency withstand Voltage 230 kV rms
4. Nominal Creepage 25 kV/mm.
5. System Fault Level 31.5 kA for 1 sec.

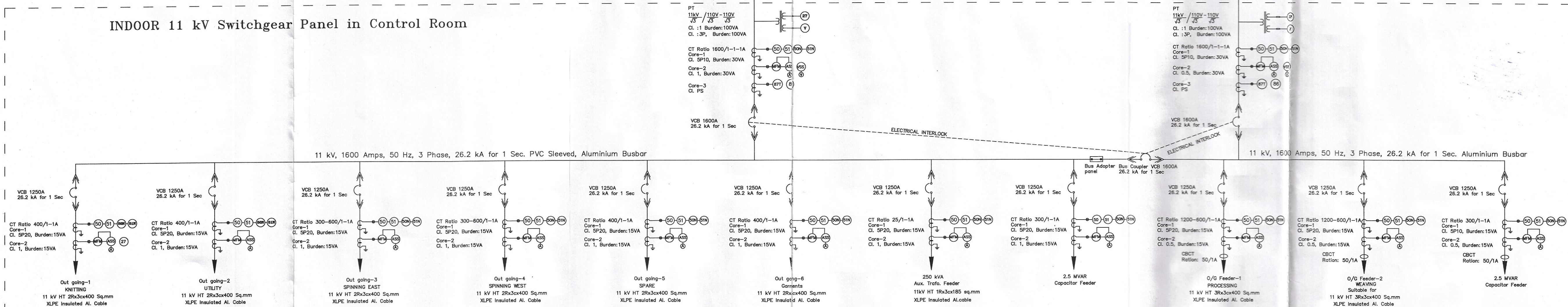
110 kV Incoming Supply
from KPTCL



110 kV, 3 Ph., 3 Wire, 50 Hz, ACSR Drake Conductor



INDOOR 11 kV Switchgear Panel in Control Room



EQUIPMENTS

LA	Lightning Arrester, 96 kV, 10 kA, Cl. II, glassless Metal Oxide type, with surge counter & Monitor
ISO-E	Motorized Isolator (MS), double break, horizontal, centre rotating type, with manual operated Earth switch 110 kV, 1250 amps, 31.5 kA, for 1 Sec.
ISO	Motorized Isolator (MS), double break, horizontal, centre rotating type, with out earth switch 110 kV, 1250 amps, 31.5 kA for 1 sec.
MS	Main switch for Isolator
ES	Earth switch for Isolator
CT	Current Transformer
PT	Potential Transformer
CB	110 kV, SF-6 Circuit breaker, outdoor, mechanically gang operated Spring Charged 2000 amps, 40 kA for 3 Sec.
Trafo.	Power Transformer, 20/25 MVA, ONAN/ONAF, 110/11 kV, 50 Hz, Dyn11, Z=10% with OLTC Tappings +10% to -15% in steps of 1.25% & RTCC with AVR
NGR	Neutral Grounding Resistor
NIS	Neutral Isolating switch, manual operated type.
LV NCT	Neutral Current transformer - LV side
VCB	Vacuum Circuit Breaker, 11 kV, draw out type

RELAYS

50/51	Numerical non directional IDMT & INST., 3 Phase over current relay with single element earth 50A/51N Fault relay (IDMT & INST.)
21/27/59	Numerical distance protection relay comprising of directional overcurrent & earth fault relay broken Conductor operation, negative sequence, local breaker back up, zonal protection, Under & over Voltage relay etc.
67/67N	Master trip relay for distance protection relay
86/21	Master trip relay for distance protection relay
95/86	Trip Coil supervision relay for Master trip relay (86)
95-1 & 95-2	Trip Coil supervision relay for 110 kV SF-6 Bkr.
67/64LV/99	Numerical relay comprising of restricted earth fault relay, transformer differential current relay & over fluxing relay
51G/LV	Single element, IDMT, non-directional back up earth fault relay
48-A	Auxiliary relay for transformer faults oil & winding temperature, bicholz, MOG, PRV - Alarm
48-T	Auxiliary relay for transformer faults oil & winding temperature, bicholz - Trip
27 Z	Dead bus relay
60	Fuse Failure relay
30	Static Annunciator unit
80	DC Supply Supervision relay
70	AC Supply Supervision relay
86	Master trip relay

METERS

A	Ammeter
F	Fuse
FM	Frequency Meter
MFM	Multifunction Meter
TVM	Digital Trivector Meter

APPROVED
DRS. NO. 105, KADDA Industrial Area,
Nidige, MCHennahalli
in the Control Room
9/1/2023

SHAH EXPORTS PVT. LTD.
Sy. No. 105, KADDA Industrial Area,
Nidige, MCHennahalli
SHIVAMOGGA-577222



CUSTOMER :	RAJESHKUMAR G
DESIGN :	SHRINATH K N
CHECKED :	SHRINATH K N
APPROVED :	SHRINATH K N
DATE :	11/01/2022
TITLE :	SINGLE LINE DIAGRAM OF 1 x 20/25 MVA, 110/11 KV SWITCHGEAR