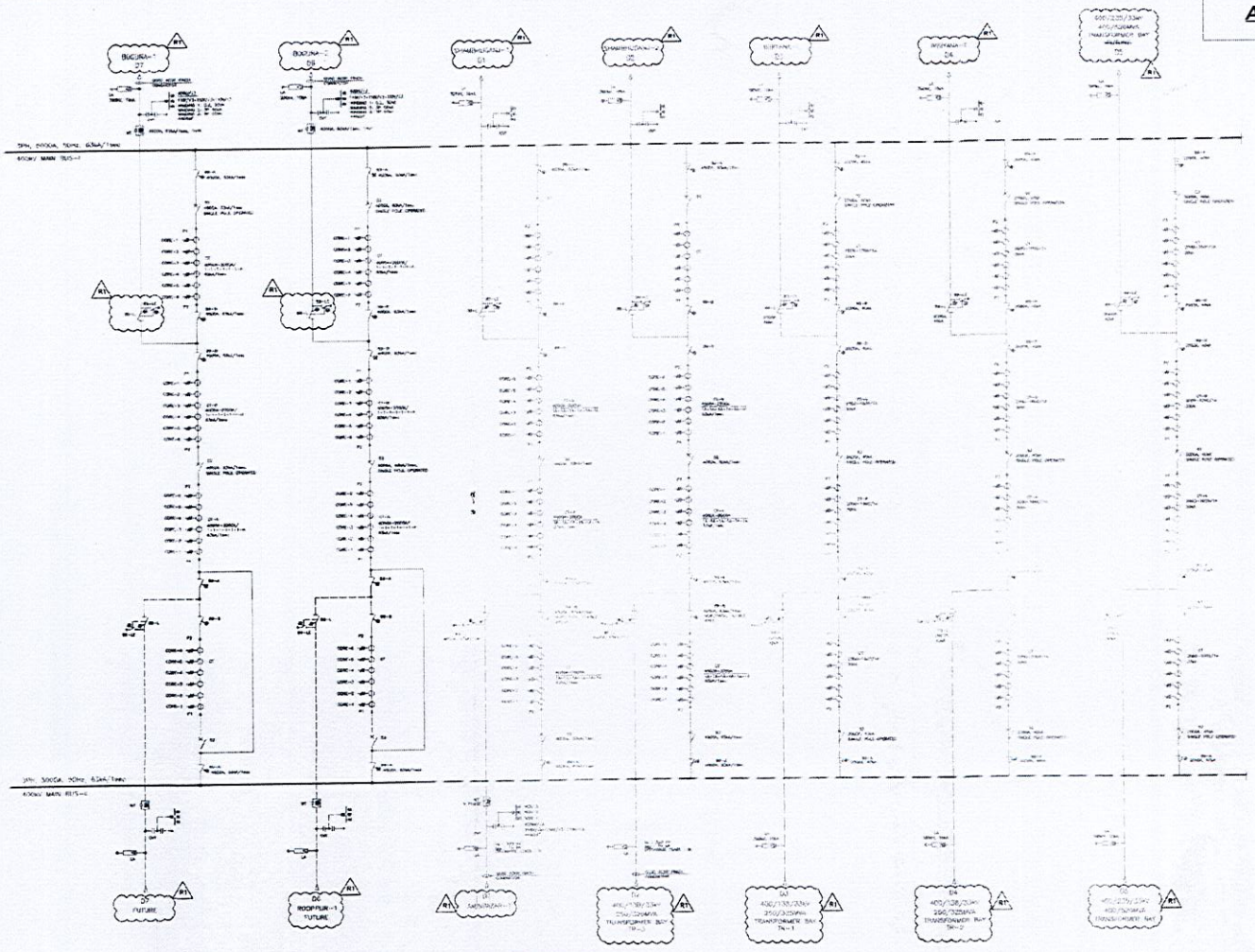
Annexure -6



KALIAKOIR 400kV SS SINGLE LINE DIAGRAM

Tender purpose only.
Existing SLD of Kaliakoir SS.

POWER GRID COMPANY OF BANGLADESH
APPROVED WITH CORRECTIONS/COMMENTS
This approval is given only and does not release the ... from statutory/contractual obligations from compliance of ... specifications and standards for design, performance ... and performances as stipulated in the contract.

Reference for Approval/Approval with comments
27.21.0000.670.03.001.23, 2015
Date: 07.11.2023

(Rafat Bin Sayed)
Executive Engineer (SSD-2)
Substation Design & QC
PGCB Ltd.

(Syed Md. Sahtiar Abdullah)
Superintending Engineer (Addl.ch)
SSD, Design & QC PGCB Ltd.

07-NOV 2023

SYSTEM PARAMETERS

SYSTEM PARAMETER	400 kV SYSTEM
No. OF PHASES	3 PHASE
FREQUENCY	50 Hz
SYSTEM GROUNDING	SOLIDLY EARTHED
MAXIMUM OPERATING VOLTAGE OF SYSTEM	420 kV
FULL WAVE LIGHTNING IMPULSE WITHSTAND VOLTAGE (1.2/50μS)	1425 kVp
SWITCHING IMPULSE WITHSTAND VOLTAGE (250/2500μS)	1050 kVp
ONE MINUTE POWER FREQUENCY DRY AND WET WITHSTAND VOLTAGE (RMS)	520 kV
RATED SHORT CIRCUIT CURRENT AND ITS DURATION	63 kA, 1 Sec
CREEPING DISTANCE	25 MM / KV
MINIMUM CLEARANCE BETWEEN LIVE METAL	4000 mm
MINIMUM CLEARANCE BETWEEN LIVE METAL PARTS AND EARTH	3500 mm
SAFETY CLEARANCE/SECTION CLEARANCE	5400mm
BAY WIDTH	35 m

SITE SPECIFICATION

LOCATION	KALIAKOIR
NEAREST TOWN	KALIAKOIR
COUNTRY	BANGLADESH
ALTITUDE	<1000M
MAXIMUM AMBIENT TEMPERATURE	40° C
EQUIPMENT DESIGN TEMPERATURE	50° C
MINIMUM AMBIENT TEMPERATURE	4° C
MAXIMUM RELATIVE HUMIDITY	100% RH
AVERAGE RELATIVE HUMIDITY	95% RH
SEISMIC CONDITIONS	0.1g
CONTAMINATION TREATMENT	TO minimum 31MM CREEPAGE

SYMBOLS, LEGENDS, ABBREVIATION, SYSTEM DEVICE FUNCTION NUMBERS AND LIST OF EQUIPMENT

SYMBOL	DESCRIPTION	ABBREVIATION/ DEVICE FUNCTION NUMBER	BRIEF SPECIFICATION	QTY.
	LIGHTNING ARRESTER	LA	3ph, 50Hz, 420kV rms, 10kA, 4 pole, Polymer housed, Station class, Gapless metal oxide type, Complete with surge monitor, Insulating base, Earthing clamp, Line terminal connector, Mounting structure, Rated for 63kA, 1 sec short circuit current	6 NOS.
	CAPACITIVE VOLTAGE TRANSFORMER	CVT	420kV, 3ph, 50Hz, Single phase, Oil immersed, Hermetically sealed, Outdoor type, Porcelain housed, Double secondary winding, Accuracy class 0.2/3P, Rated burden 100VA/100VA, Rated voltage factor 1.2 continuous, 1.5 for 30 sec, Complete with mounting structure, Earthing clamp, Line terminal connector	3 NOS.
	CIRCUIT BREAKER	CB	420kV, 3150A, 50kA, 3ph, 50Hz, Single pressure SF6 gas insulated, Live tank type, Three pole operated, Complete with SF6 gas density monitor, Operating mechanism, Auxiliary switch, Control cabinet, Rated for 50kA, 1 sec short circuit current, Rated for 125V DC control voltage	4 SETS
	CURRENT TRANSFORMER	CT	420kV, 3000/1A, 50Hz, Single phase, Oil immersed, Hermetically sealed, Outdoor type, Porcelain housed, Double secondary winding, Core 1: 0.2s, Metering class, 15VA/3000A/3000-1000A, Core 2: 0.2s, Metering class, 15VA/3000A/3000-1000A, Core 3: 5P20, Protection class, 30VA/3000A/3000-1000A, Core 4: 5P20, Protection class, 30VA/3000A/3000-1000A, Core 5: 5P20, Protection class, 30VA/3000A/3000-1000A, Core 6: 5P20, Protection class, 30VA/3000A/3000-1000A	18 NOS.

SYMBOL	DESCRIPTION	ABBREVIATION/ DEVICE FUNCTION NUMBER	BRIEF SPECIFICATION	QTY.
	EARTHING DISCONNECTOR WITH ONE MOVEMENT EARTH SWITCH	99	420kV, 1600A, 63kA/1sec, 50Hz, Horizontal, Double break, Post type, Motor operated disconnectors with motor, manual, Operated earthing switch	9 SETS
	DISCONNECTOR WITHOUT EARTH SWITCH	89	420kV, 1600A, 63kA/1sec, 50Hz, Horizontal, Double break, Post type, Motor operated disconnectors with out earthing switch	8 SETS
	WAVE TRAP	WT	420kV, 600A, 63kA/1sec, 0.1mH	3 NOS.

CONTRACTOR :
TRANSRAIL LIGHTING LIMITED, INDIA

PROJECT :
DESIGN, SUPPLY, INSTALLATION, TESTING & COMMISSIONING OF 400kV AIS BAY EXTENSION AT KALIAKOIR 400/230kV SUBSTATION

CONTRACT No. : PGCB/DSB/BANK/LOC-2/400kV/SS-KAL

TITLE :
KALIAKOIR 400/230kV SUBSTATION EXTENSION
400kV SINGLE LINE DIAGRAM

STATUS :	FOR INFORMATION ☐	FOR APPROVAL ☒	FOR EXECUTION ☐	AS BUILT ☐
DRAWING No.		FORMAT	SHEET No.	SCALE	DATE	REV
GED-TLL-KDMELE-DRG-001		A0	01 OF 01	N.T.S.	03.10.23	1

REV	DATE	SUBJECT OF REVISION	CHECKED	REVIEWED	APPROVED
1	07.11.23	REVISED AS PER PGCB COMMENTS	KSC	SUJ	SC
0	03.10.23	FIRST SUBMISSION	KSC	SUJ	SC