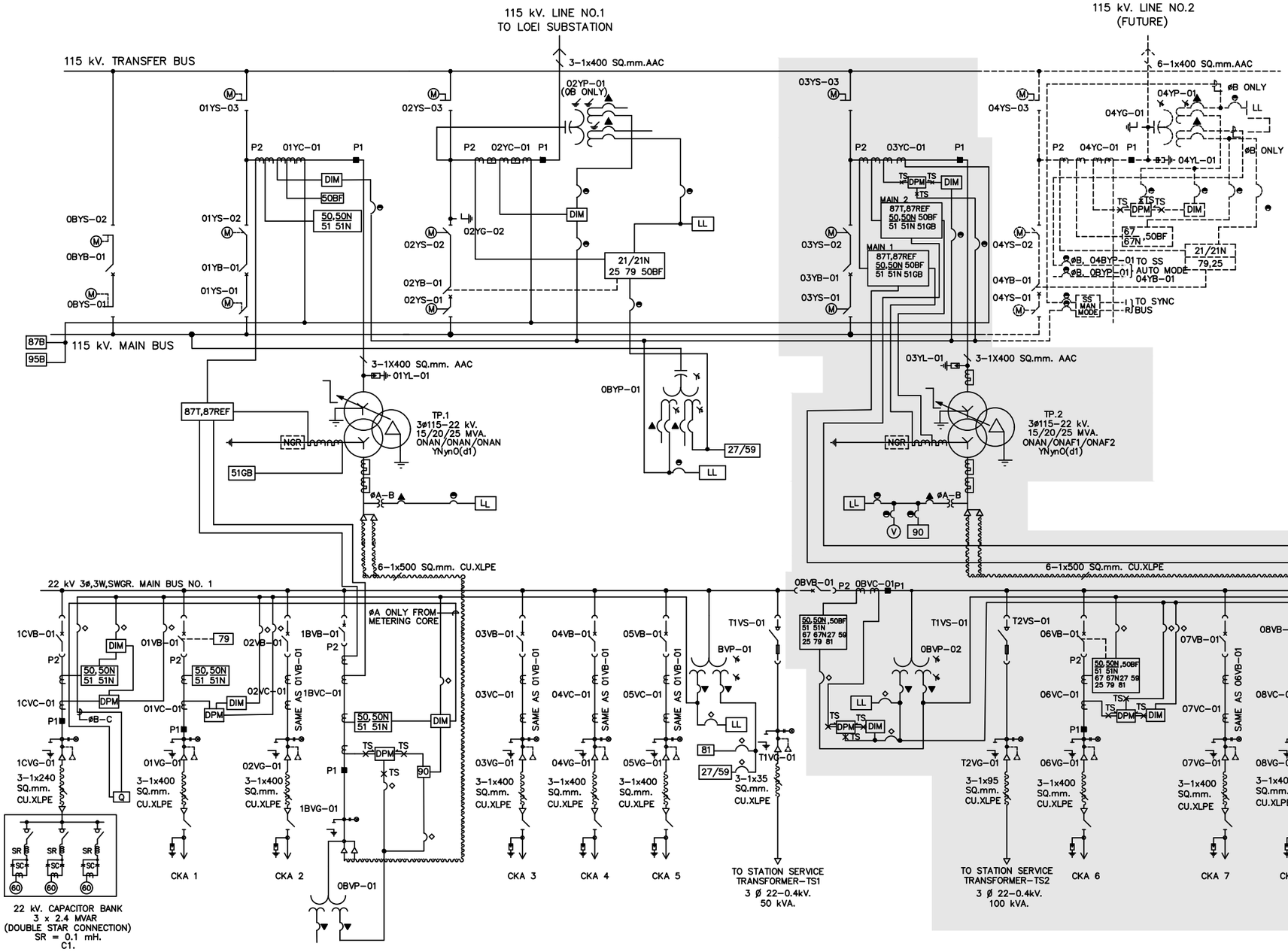
TDDP.1 CKA (ADD)



DEVICES	EXPLANATION
21, 21N	DISTANCE TIME-STEP PHASE AND GROUND DISTANCE RELAY
67	DIRECTIONAL PHASE OVERCURRENT RELAY
67N	DIRECTIONAL GROUND OVERCURRENT RELAY
25	SYNCHROCHECK RELAY
79	AUTOMATIC RECLOSING RELAY
50 BF	BREAKER FAILURE RELAYING
50/51	NON-DIRECTIONAL INSTANTANEOUS AND TIME PHASE OVERCURRENT RELAY
50N/51N	NON-DIRECTIONAL INSTANTANEOUS AND TIME GROUND OVERCURRENT RELAY
51GB	NON-DIRECTIONAL TIME GROUND BACKUP OVERCURRENT RELAY
87T	TRANSFORMER DIFFERENTIAL RELAY
87 REF	TRANSFORMER RESTRICTED EARTH FAULT RELAY THIS RELAY SHALL BE INCORPORATED IN THE TRANSFORMER DIFFERENTIAL RELAY (87T)
27,59	UNDER/OVER VOLTAGE RELAY
90	AUTOMATIC VOLTAGE REGULATOR
87B	BUS DIFFERENTIAL RELAY-HIGH IMPEDANCE TYPE
95B	BUSBAR SUPERVISION RELAY FOR BUSWIRE SUPERVISION FOR 87B
50/ARC	ARC DETECTOR RELAY FOR ARC PROTECTION SYSTEM
81	UNDER FREQUENCY RELAY
60	CAPACITOR CURRENT UNBALANCE SENSING RELAY
Q	POWER FACTOR CONTROLLER
DPM	DIGITAL POWER METER
DIM	DISTRIBUTED I/O MODULE (PROVIDED IN CSCS)
V METER	DIGITAL VOLTMETER
SS	SYNCHRONIZING SWITCH,3-POSITION,AUTO-OFF-MAN
L	SYNCHRONIZING LAMP
V	VOLTMETER
F	FREQUENCY METER
S	SYNCHROSCOPE
LL	LINE INDICATING LAMP
TS	CURRENT TEST SWITCH
TS	POTENTIAL TEST SWITCH
▲	LOCATED IN THE SWITCHYARD JUNCTION BOX
◓	LOCATED IN THE CONTROL AND RELAY BOARD
▼	LOCATED IN THE 22 kV SWITCHGEAR JUNCTION BOX
◇	FOR 22 kV SWITCHGEAR CONTROL & PROTECTIVE CIRCUITS
	WYE CONNECTED CT OF SECONDARY WINDING
	DELTA CONNECTED CT OF SECONDARY WINDING (IF ANY)
	TRANSFORMER BUSHING CT OF SECONDARY WINDING, WYE CONNECTED FOR PHASE OR NEUTRAL

SCOPE OF ADDITIONAL WORK

NOTES

1. 115 kV. CVT RATIO (0BYP-01, 02YP-01) $\frac{115,000}{\sqrt{3}} : \frac{115}{\sqrt{3}} / 115 // \frac{115}{\sqrt{3}} / 115$ V — 200VA/0.5/1.5VF , 200VA/3P/1.5VF
2. 115 kV. CT RATIO (01YC-01, 02YC-01) 1800/1500/1200/900/600/300 : 1/1/1/1/1 A. — 20VA/5P20 , 20VA/5P20 , 20VA/0.5FS5 , 20VA/5P20 , 20VA/5P20
3. 115 kV. CT RATIO (03YC-01) 1800/1500/1200/900/600/300 : 1 A. — FOR TRANSFORMER BAY (CORE 1) — 20VA(@300/1)/5P20
   400/300/200: 1/1/1 A — FOR TRANSFORMER BAY (CORE 2-4) — 20VA/0.5FS5 , 30VA/5P20 , 30VA/5P20
   200/100 — FOR HIGH SIDE TRANSFORMER BUSHING CT — 20VA/5P20
4. 22kV VT RATIO (0BVP-02) $\frac{22,000}{\sqrt{3}} : \frac{110}{\sqrt{3}} / \frac{110}{\sqrt{3}}$ V — 50VA/0.5/1.9VF, 50VA/3P/1.9VF
5. 22kV CT RATIO (FOR NEW INSTALLATION)
   1800/1500/900 : 1/1/1/1 A — FOR INCOMING BREAKER — 20VA/5P20 , 20VA/0.5FS5, 20VA/5P20, 20VA/5P20
   1800/1500/900 : 1/1 A — FOR TIE BREAKER — 20VA/0.5FS5, 20VA/5P20
   1000/500 : 1/1 A — FOR LOW SIDE TRANSFORMER BUSHING CT — 20VA/5P20, 20VA/0.5FS5
   1800/900 : 1/1 A — FOR NEUTRAL TRANSFORMER BUSHING CT — 20VA/5P20, 20VA/5P20
   600/300 : 1/1 A — FOR OUTGOING — 20VA/0.5FS5, 20VA/5P20
   600/300 : 1/1 A — FOR CAPACITOR BANK — 20VA/0.5FS5, 20VA/5P20

6. SYNCHRONIZING SCHEMATIC
   6.1 0-YP-0- SHOWN THUS, REFER TO INCOMING IVT DESIGNATIONS.
   6.2 0BYP-0- SHOWN THUS REFERS TO RUNNING BUS IVT
   6.3 ØB ONLY ↙ SHOWN THUS, REFERS TO THE SECONDARY WINDING OF IVT FOR PHASE"B" AND USING FULL TAP WINDING 115V FOR SYNCHRONIZING SYSTEM WITH ONE END OF THE WINDING CONNECTED WITH COMMON GROUND BUS.
   6.4 MANUAL SYNCHRONIZING BY SYNCHROSCOPE SHALL UTILIZE INCOMING AND RUNNING SECONDARY VOLTAGES OF METERING CORES FROM"PHASE B" FOR BOTH IVT"S.
   6.5 AUTOMATIC SYCHRONISM VERIFICATION BY SYNCHRO CHECK RELAY (25) SHALL UTILIZE INCOMING AND RUNNING SECONDARY VOLTAGES OF RELAYING CORES FROM"PHASE B" FOR BOTH IVT"S.
7. EACH DIGTAL POWER METER (DPM) SHALL BE COMMUNICATED WITH AUTOMATIC METER READING (AMR) APPLICATION SERVER VIA SWITCH NETWORK.
8. THE MAIN-1 PROTECTION RELAY AND THE MAIN-2 PROTECTION RELAY WHICH ARE REFERRED ON THIS DRAWING SHALL BE FROM DIFFERENT MANUFACTURER.
9. FOR NEW INSTALLATION THE DEDICATED PROTECTIVE RELAY FOR 22 kV. SWITCHGEAR SHALL BE STANDARDIZED WHICH CAN BE EITHER USED FOR INCOMING, BUS COUPLER, OUTGOING OR CAPACITOR BANKS FEEDERS.
10. THE NEUTRAL GROUNDING RESISTORS (NGR) ARE INDICATED FOR FUTURE INSTALLATION.

REFERENCE DRAWING

SINGLE LINE DIAGRAM.....DWG NO. FA1-011/61091

CKA-M

กองออกแบบสถานีไฟฟ้า ฝ่ายงานสถานีไฟฟ้า	การไฟฟ้าส่วนภูมิภาค	ใช้แทนแบบ — ถูกแทนโดยแบบ — เขียนเสร็จวันที่ 1 พ.ย. 2561 แก้แบบวันที่ — มิติเป็น — มาตราส่วน —
ผู้เขียน ศุภชัย ผู้สำรวจ ภราดรศุภชัย วิศวกร ภราดร หัวหน้าแผนก วรวุช ผู้อำนวยการกอง ผู้อำนวยการฝ่าย (แทน)	ผู้ว่าการ (แทน)	
รองผู้ว่าการวิศวกรรม	สถานีไฟฟ้าเชียงคาน ฉเลย (เพิ่มเติม) มิเตอร์ และ รีเลย์โดอะแกรม	
	CHIANG KHAN SUBSTATION (ADD) METERING AND RELAYING DIAGRAM	แบบเลขที่ FA4-011/61081 แผ่นที่ 1 ของจำนวน 1 แผ่น