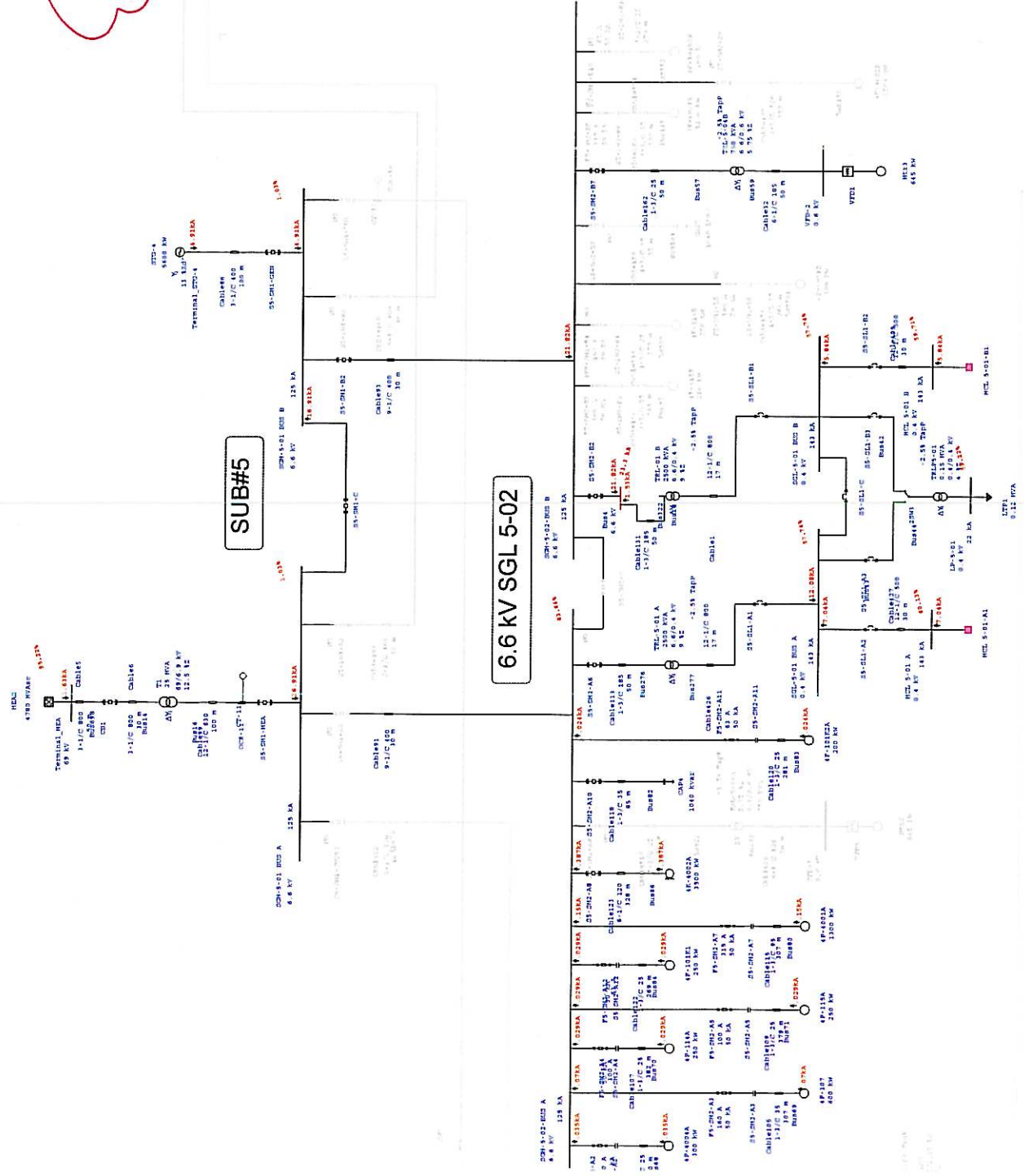


One-Line Diagram - OLV1 (Short-Circuit Analysis)

WITH CONTRIBUTION



0.4 kV SGL 5-02

SUB#2

Project: Bangchak Utility Project
 Location:
 Contract:
 Engineer: SRP
 Filename: BUP_G_23APR09

ETAP
 6.0.0C

Study Case: Bus 4

Page: 25
 Date: 07-14-2009
 SN:
 Revision: Base
 Config.: Case B2

Short-Circuit Summary Report

3-Phase Fault Currents

Bus		Device		Device Capacity (kA)				Short-Circuit Current (kA)					
ID	kV	ID	Type	Making Peak	Ib sym	Ib asym	Idc	I"k	ip	Ib sym	Ib asym	Idc	Ik
Bus4	6.600	Bus4	Bus					23.333	61.790				22.676
	6.600	S5-SM2-B2	CB	125.000	50.000	53.361	18.639	21.815	57.771	20.597	25.108	14.359	

ip is calculated using method C
 Ib does not include decay of non-terminal faulted induction motors
 Ik is the maximum steady state fault current
 Idc is based on X/R from Method C and Ib as specified above

LV CB duty determined based on ultimate rating.
 Maximum through current is used for device duty.

- * Indicates a device with calculated duty exceeding the device capability.
- # Indicates a device with calculated duty exceeding the device marginal limit. (95 % times device capability)

Short-Circuit Summary Report

Bus ID	Device ID	Device Capacity		3-Phase Short-Circuit Current Ith (kA)
		Ithr (kA)	Tkr (sec.)	
Bus4	S5-SM2-B2	50.000	3.00	23.616

Ithr = Rated short-circuit withstand current
 Tkr = Rated short-time
 Ith = Thermal equivalent short-time current

- * Indicates a device with calculated duty exceeding the device capability.
- # Indicates a device with calculated duty exceeding the device marginal limit. (95 % times device capability)

$$X/R = 20.5 \rightarrow T_{dc} = 65.28 \text{ ms}$$

$$I_{k3}'' = 23.33 \text{ kA.}$$

After 60 ms

$$\underline{I_{dc} = 13.15 \text{ kA (Calculated by hand)}}$$

Not accepted.
 Increasing.
 !!

Project: Bangchak Utility Project
 Location:
 Contract:
 Engineer: SRP
 Filename: BUP_G_23APR09

ETAP
 6.0.0C

Study Case: Bus 4

Page: 24
 Date: 07-14-2009
 SN:
 Revision: Base
 Config.: Case B2

SHORT-CIRCUIT REPORT

3-Phase fault at bus: **Bus4**

Nominal kV = 6.600
 Voltage c Factor = 1.10 (User-Defined)
 Peak Value = 61.790 kA Method C
 Steady State = 22.676 kA rms

Contribution		Voltage & Initial Symmetrical Current (rms)				
From Bus ID	To Bus ID	% V From Bus	kA Real	kA Imaginary	X/R Ratio	kA Magnitude
Bus4	Total	0.00	1.139	-23.305	20.5	23.333
Bus322	<u>Bus4</u>	0.29	0.281	-1.507	5.4	1.533
SGM-5-01 BUS B	SGM-5-02-BUS B	1.03	0.858	-21.798	25.4	21.815
Bus57	SGM-5-02-BUS B	0.00	0.000	0.000	999.9	0.000
Bus28	Bus322	53.13	0.281	-1.507	5.4	1.533
Terminal_STG-4	SGM-5-01 BUS B	3.34	0.287	-4.899	17.1	4.908
Bus16	SGM-5-01 BUS A	2.62	0.570	-16.899	29.6	16.909
Bus59	Bus57	0.00	0.000	0.000	999.9	0.000
SGM-5-02-BUS B	<u>Bus4</u>	0.00	0.858	-21.798	25.4	21.815
SGM-5-01 BUS A	SGM-5-01 BUS B	1.03	0.570	-16.899	29.6	16.909

Breaking and DC Fault Current (kA)

Based on Total Bus Fault Current

TD (S)	Ib sym	Ib asym	Idc
0.01	22.805	36.629	28.663
0.02	22.618	33.924	25.283
0.03	22.423	31.506	22.132
0.04	22.221	29.480	19.373
0.05	22.013	28.088	17.446
0.06	21.929	26.772	15.358
0.07	21.844	25.690	13.520
0.08	21.758	24.801	11.902
0.09	21.672	24.072	10.478
0.10	21.585	23.675	9.725
0.15	21.459	22.099	5.280
0.20	21.332	21.523	2.866
0.25	21.205	21.262	1.556
0.30	21.095	21.112	0.845

$$X/R = 20.5$$

$$I_{k3}'' = 23.33 \text{ kA}$$