

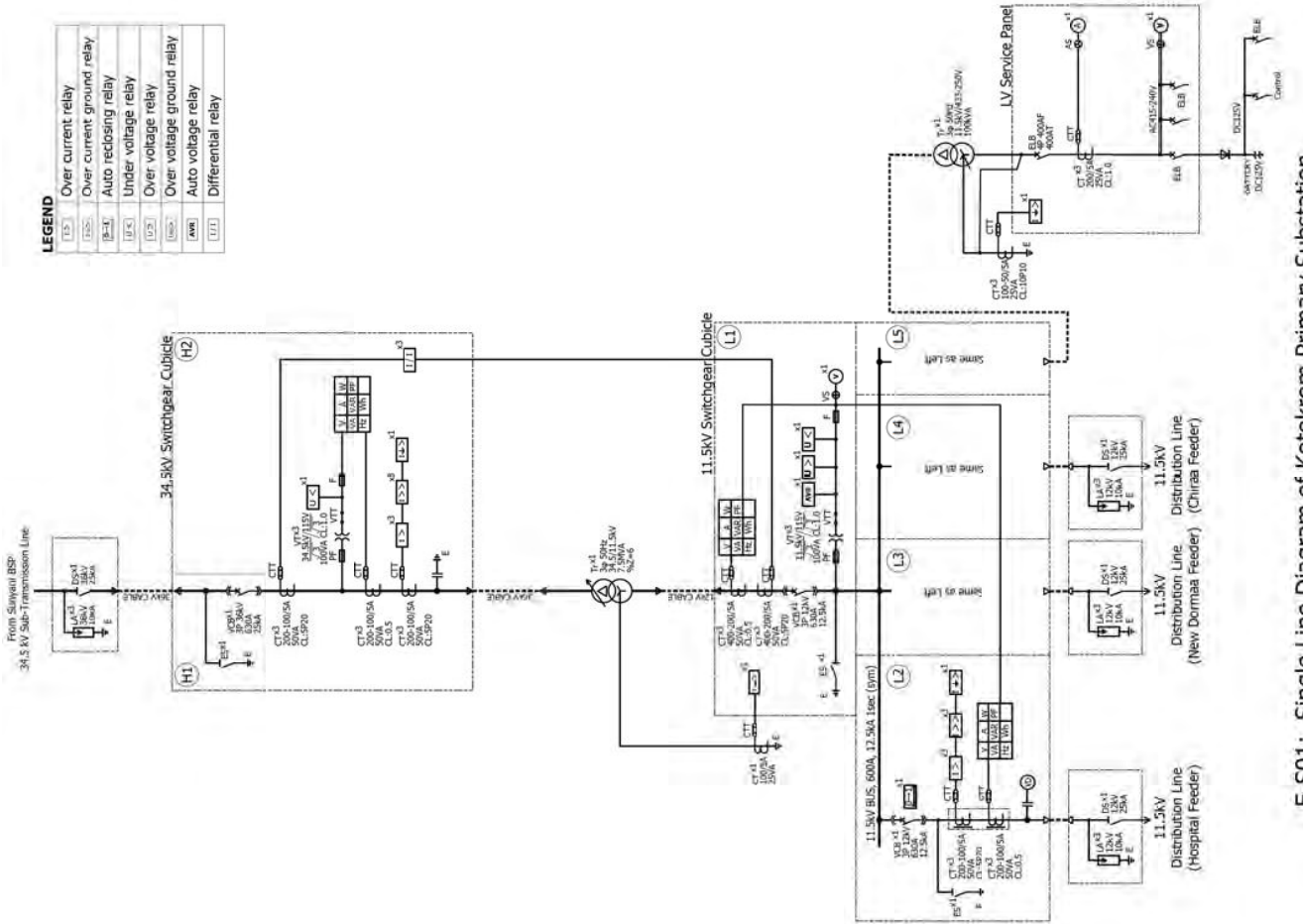
DRAWINGS

PART 2 Improvement of Sunyani Distribution System in Brong-Ahafo Region

1. 34.5/11.5 kV Network Diagram

LEGEND

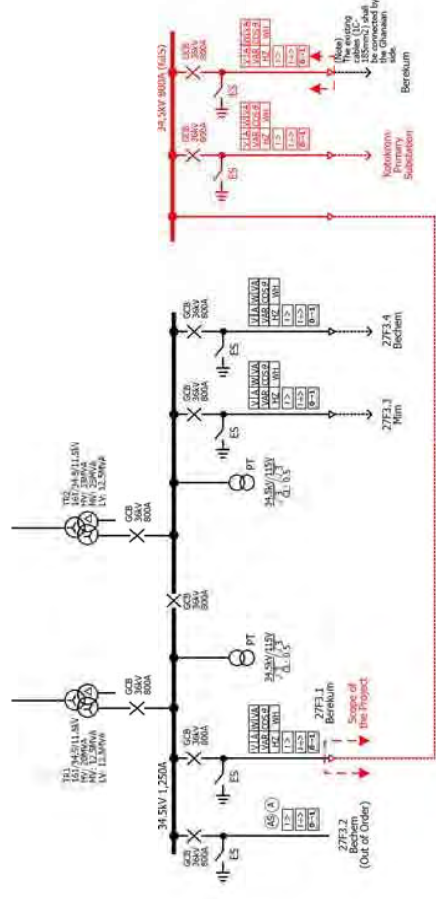
1.2.5	Over current relay
1.2.6	Over current ground relay
8-2.1	Auto reclosing relay
1.2.4	Under voltage relay
1.2.5	Over voltage relay
1.2.6	Over voltage ground relay
1.2.7	Auto voltage relay
1.2.8	Differential relay



E-S01: Single Line Diagram of Kotokrom Primary Substation

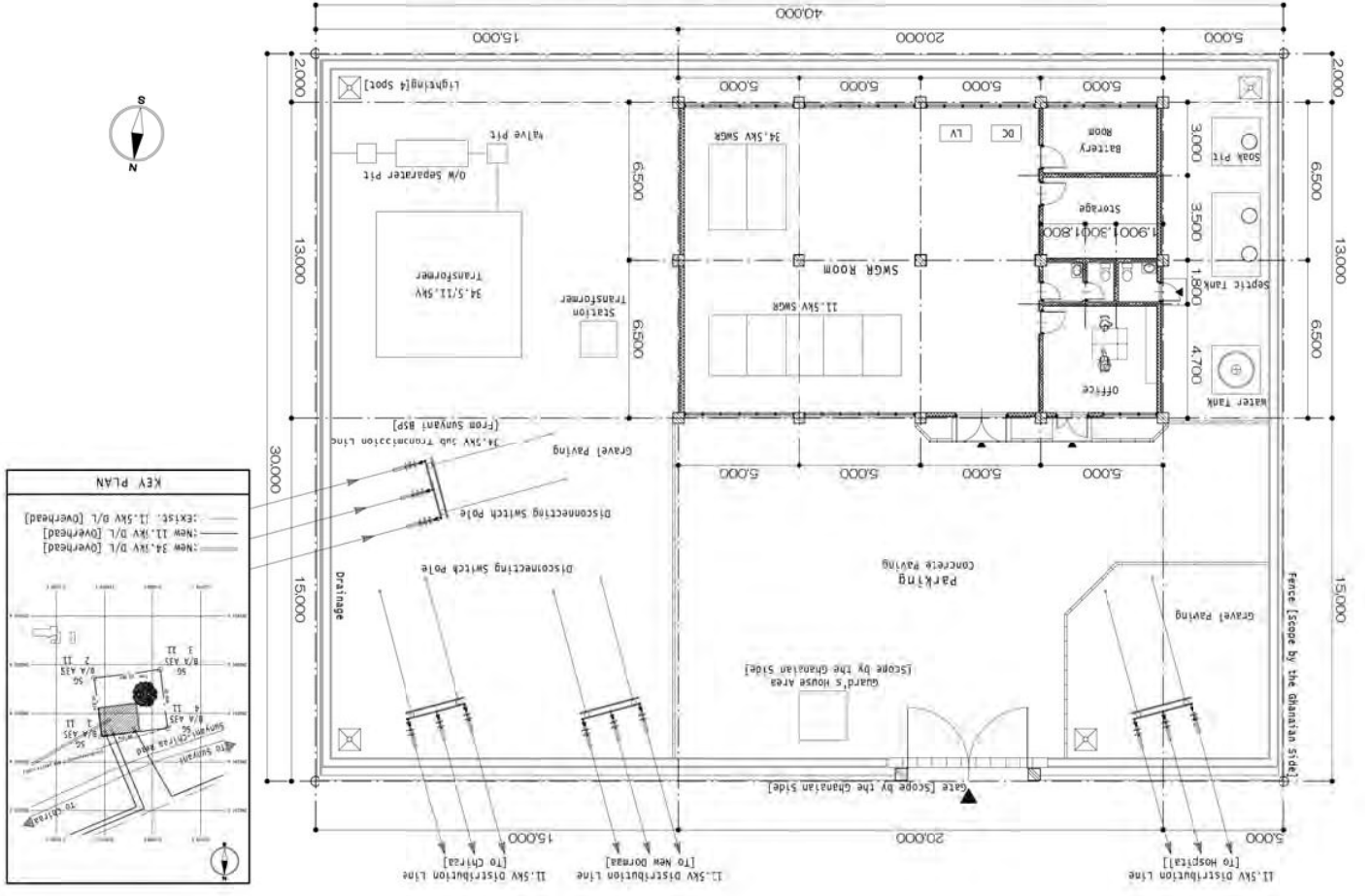
LEGEND

1.2.2	Over current relay
1.2.5	Over current ground relay
9-2.1	Auto reclosing relay



E-S02: Single Line Diagram of Sunyani BSP (Extension of 34.5 kV Feeder)

GENERAL LAYOUT OF KOTOKROM PRIMARY SUBSTATION 1/200

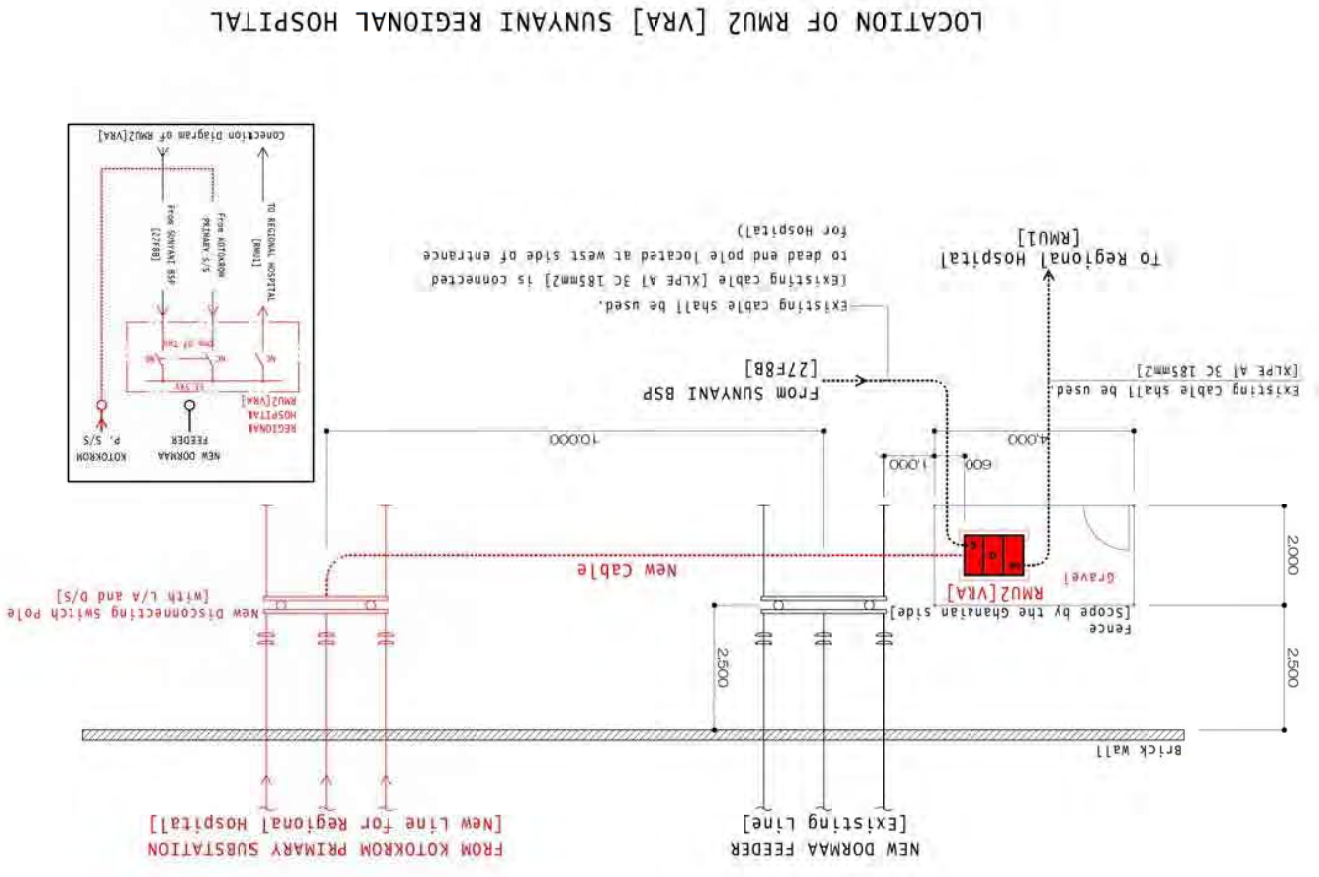


S9

DRAWINGS

PART 2 Improvement of Sunyani Distribution System in Brong-Ahafo Region

3. General Layout

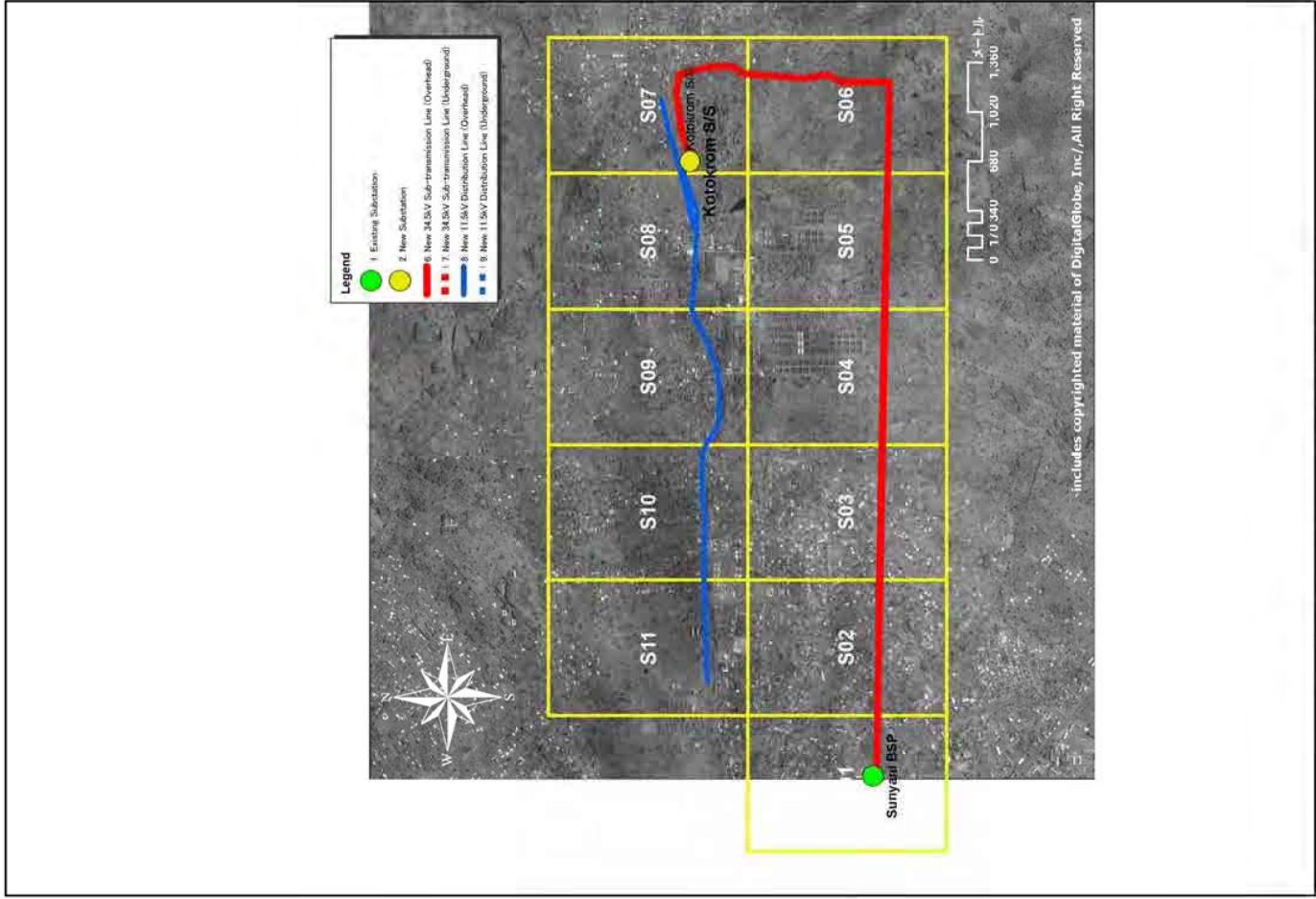


LOCATION OF RMU2 [VRA] SUNYANI REGIONAL HOSPITAL

DRAWINGS

PART 2 Improvement of Sunyani Distribution System in Brong-Ahafo Region

4. Route Map of Distribution System



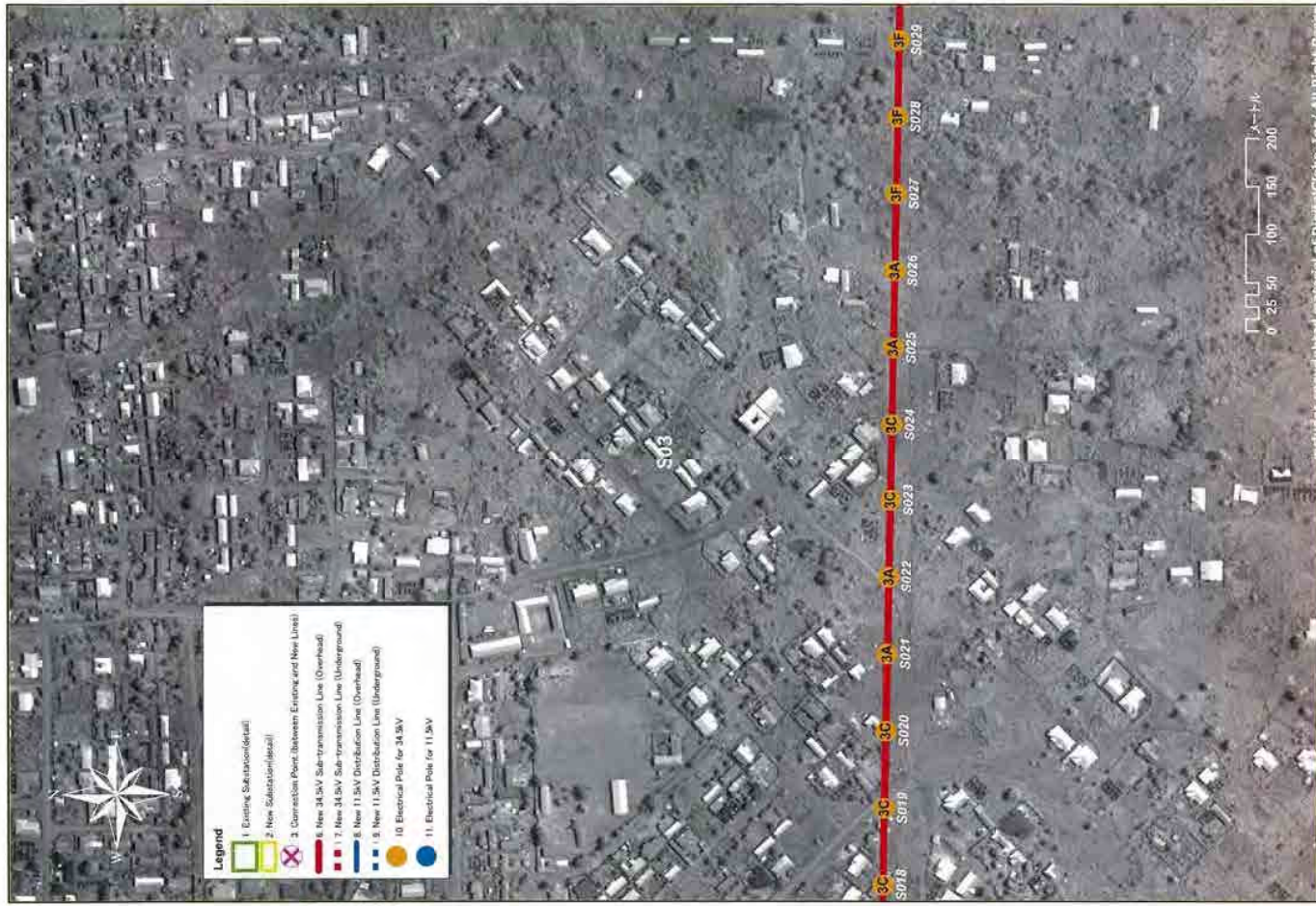
Route Map of Sunyani Distribution System



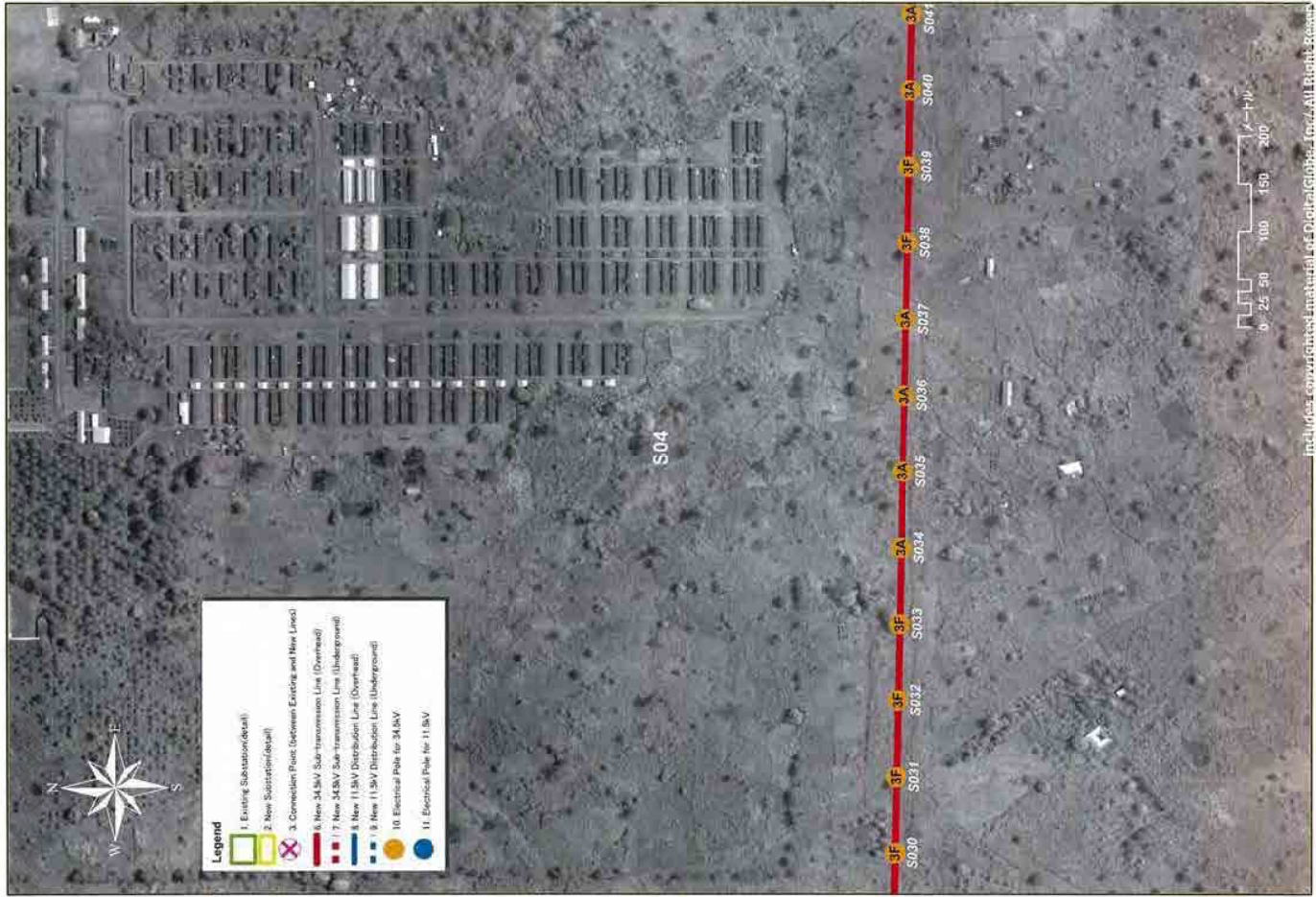
Route Map of Sunyani Distribution System



Route Map of Sunyani Distribution System

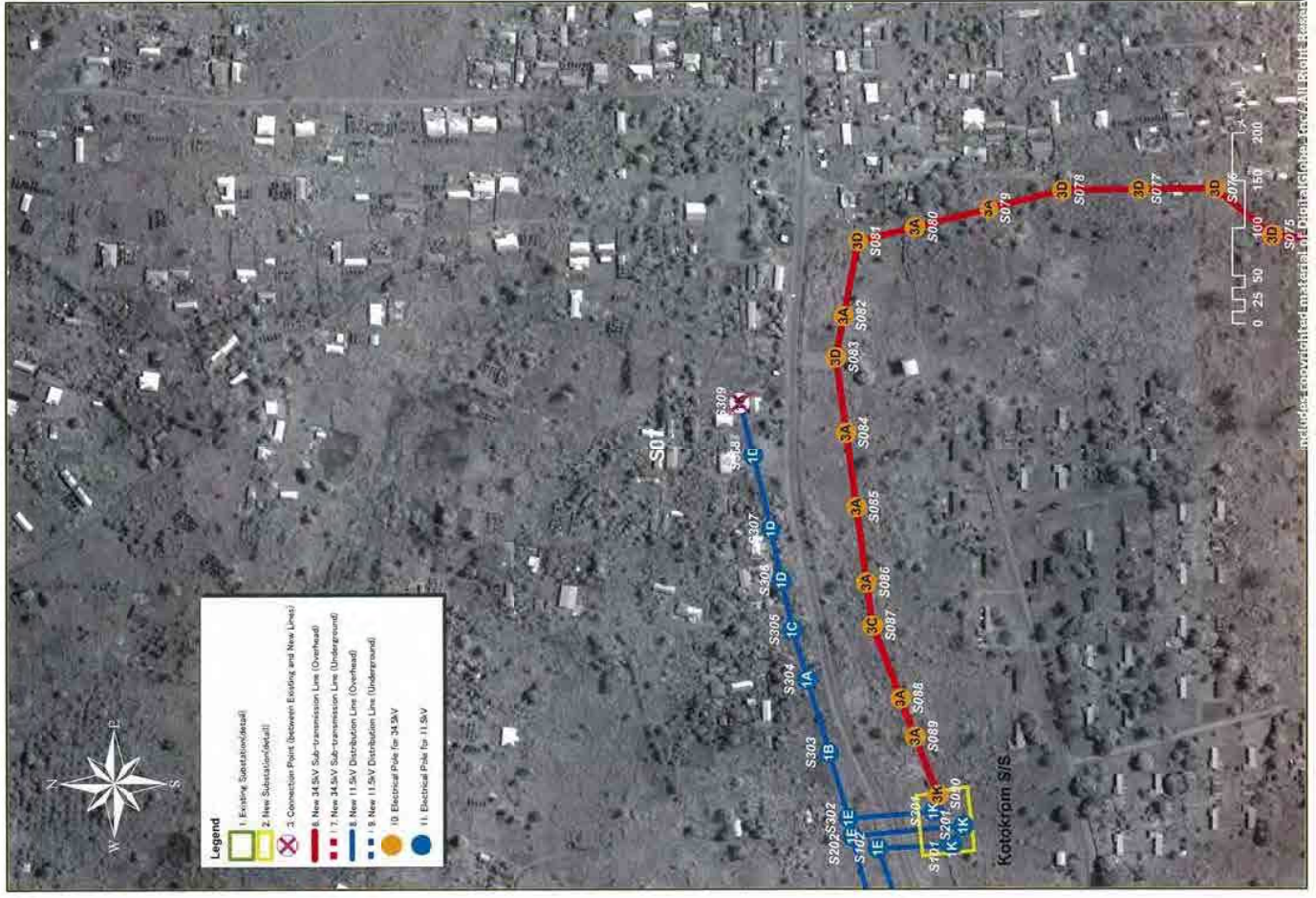


Route Map of Sunyani Distribution System

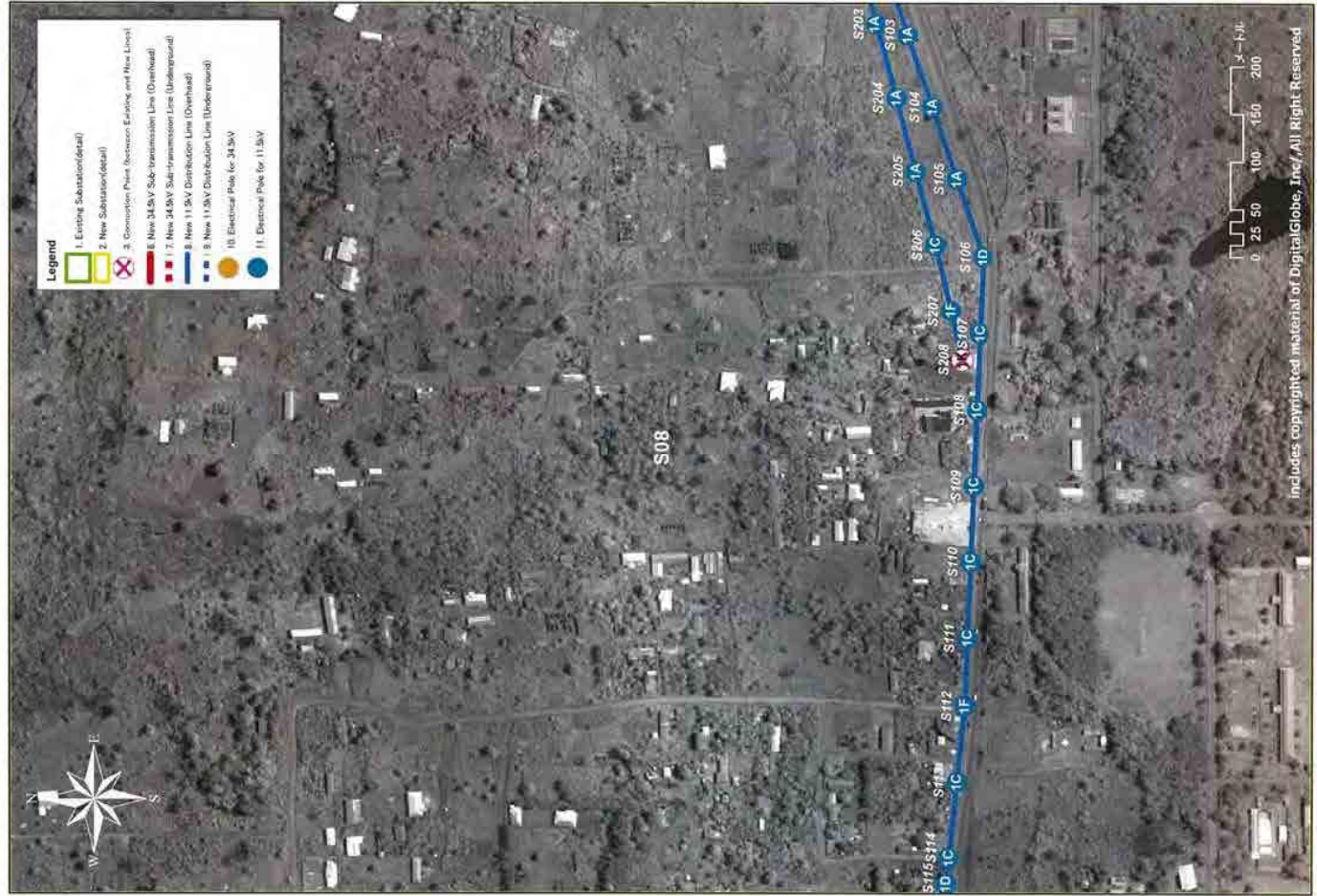




Route Map of Sunyani Distribution System

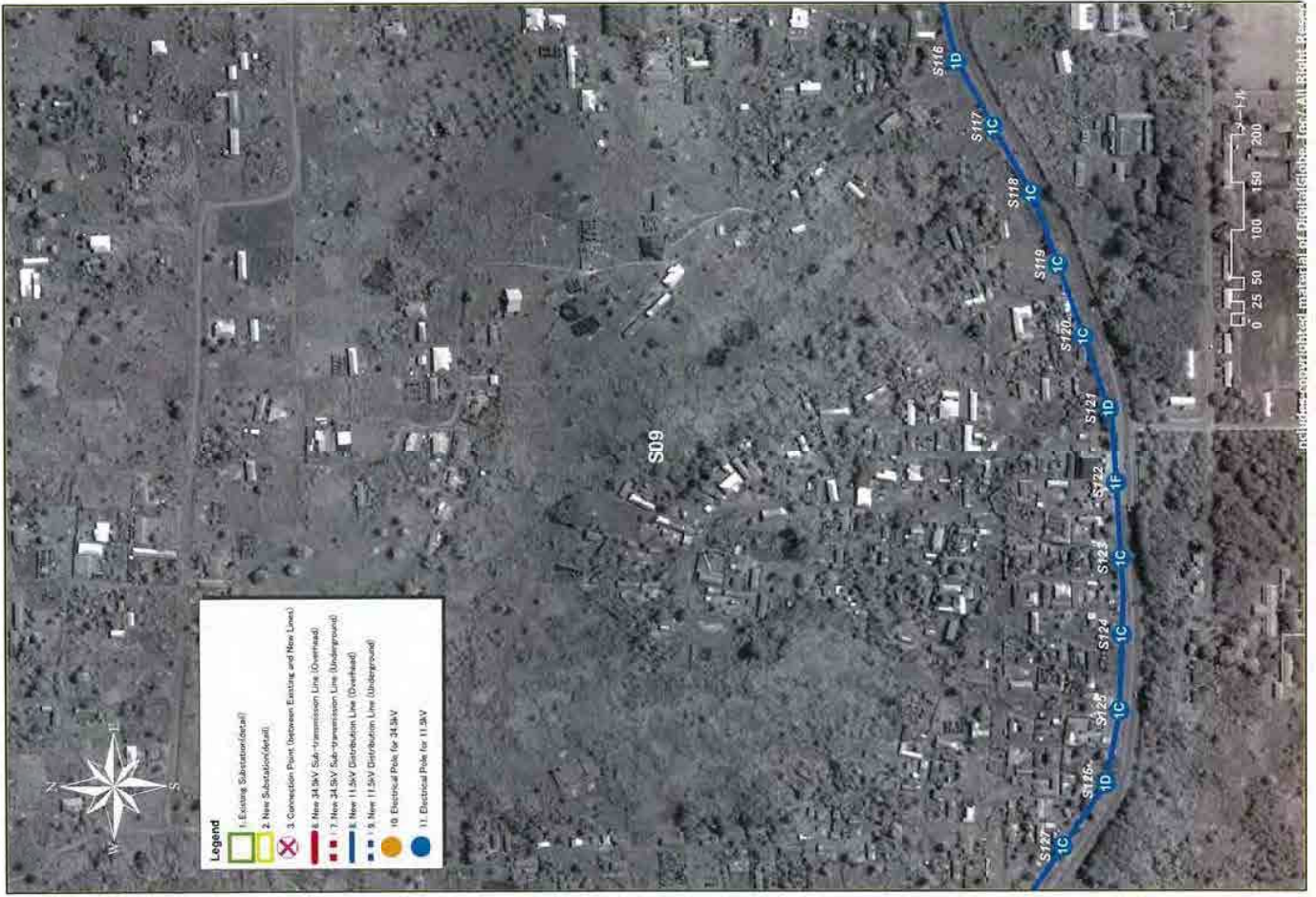


Route Map of Sunyani Distribution System



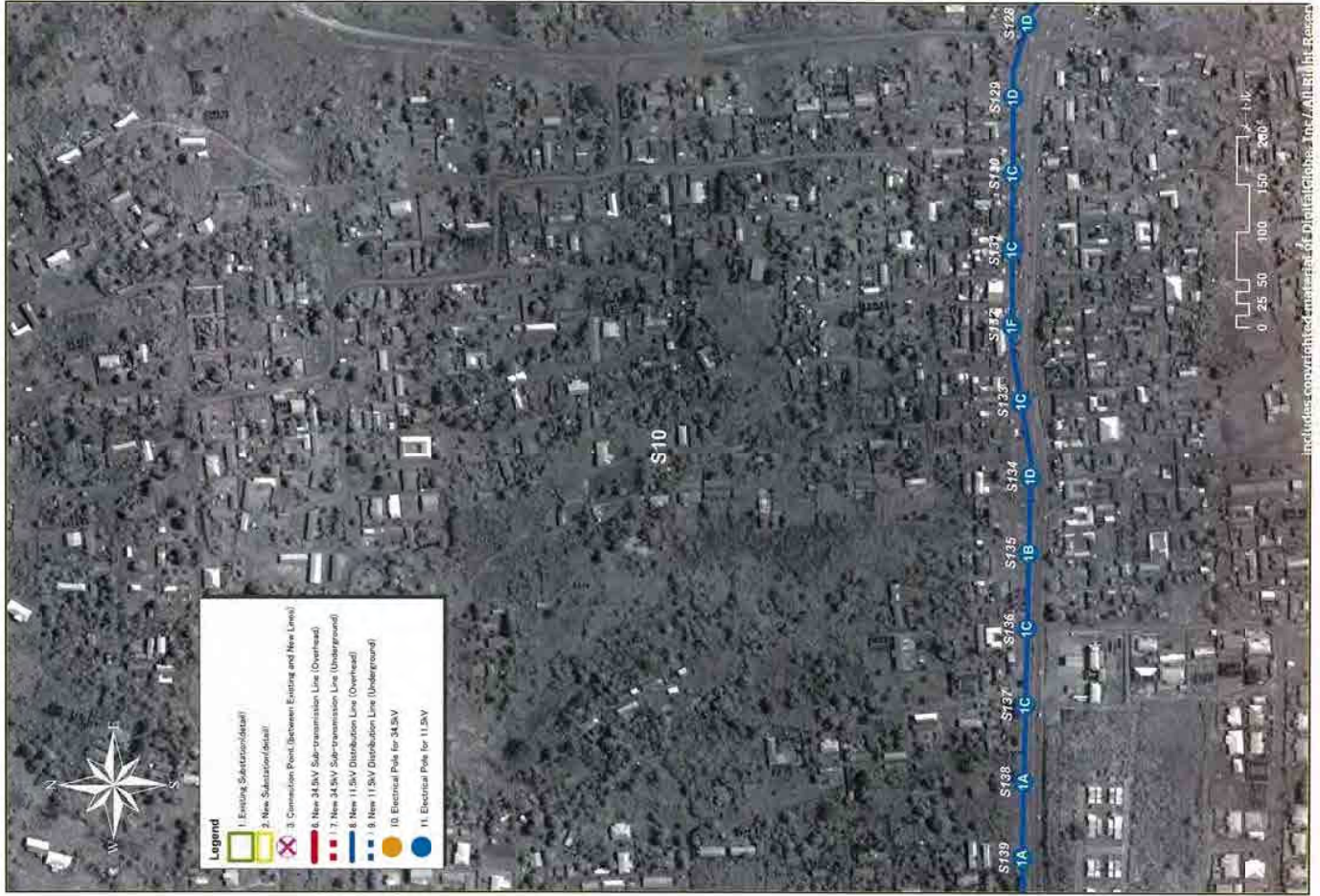
Route Map of Sunyani Distribution System

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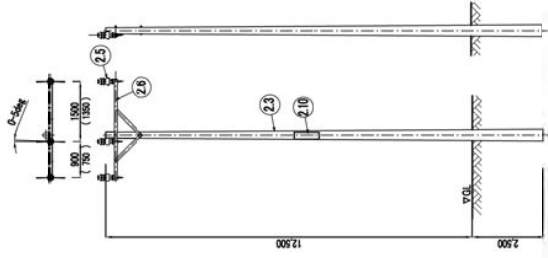


Route Map of Sunyani Distribution System

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DRAWINGS

PART 3 Pole Assembly Drawing for Distribution Line

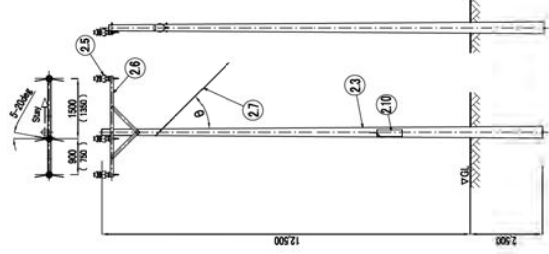


Values in () are for 11.5kV

P/NO	DESCRIPTION	QTY
1.1	Distribution Transformer (DT)	0
1.2	Auto Recloser	0
1.3	Load Isolator	0
1.4	Cutout Switch with Fuse	0
1.5	Lightning Arrester	0
1.6	Main Distribution Board(MDB)	0
2.1	Conductor (m)	0
2.2	Connector	0
2.3	Steel Pole (15m)	1
2.4	Stram Insulator Set	0
2.5	Pin Insulator set	3
2.6	Grossarm set	1
2.7	Stay Wire Set	0
2.8	Earth Wire Set	0
2.9	LV Cabling Materials	0
2.10	Plate set	1

Remarks : Pole Type "1A" is for 11.5kV and then type 3A is for 34.5kV.
 11.5/34.5kV 引渡し柱 (0度~5度) [型番 1A/3A]
 11.5/34.5kV Intermediate Pole (Line Angle 0~5deg.) [Type 1A/3A]

Dwg.No.TPA-A



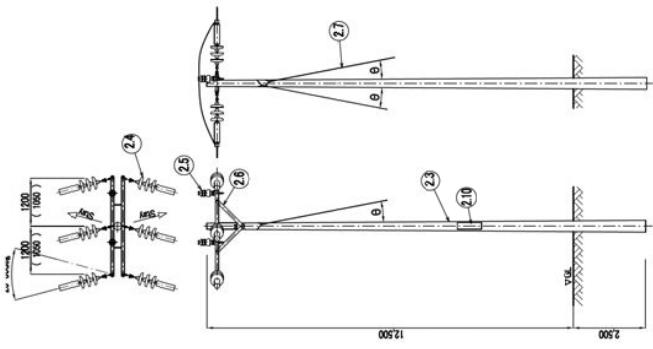
Values in () are for 11.5kV

P/NO	DESCRIPTION	QTY
1.1	Distribution Transformer (DT)	0
1.2	Auto Recloser	0
1.3	Load Isolator	0
1.4	Cutout Switch with Fuse	0
1.5	Lightning Arrester	0
1.6	Main Distribution Board(MDB)	0
2.1	Conductor (m)	0
2.2	Connector	0
2.3	Steel Pole (15m)	1
2.4	Stram Insulator Set	0
2.5	Pin Insulator set	3
2.6	Grossarm set	1
2.7	Stay Wire Set	1
2.8	Earth Wire Set	0
2.9	LV Cabling Materials	0
2.10	Plate set	1

Preferable Stay Angle : 30° ≤ B ≤ 45°

11.5/34.5kV 軽荷役柱 (5度~20度) [型番 1B/3B]
 11.5/34.5kV Light Pole (Line Angle 5~20deg.) [Type 1B/3B]

Dwg.No.TPA-B

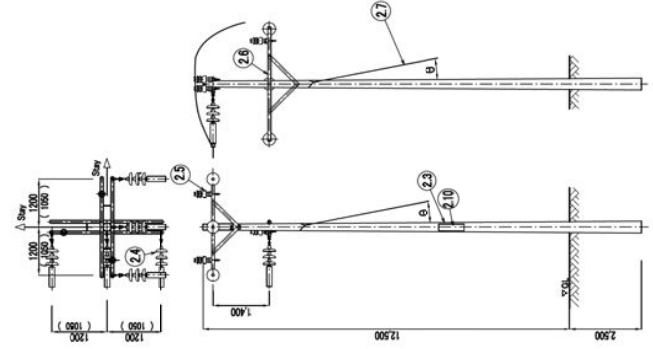


Dwg.No.TPA-C
Values in () are for 11.5kV

11.5/34.5kV 中角支柱(20度~60度) [型番 IC/3C]
11.5/34.5kV Medium Angle Pole (Line Angle 20-60deg.) [Type IC/3C]

Preferable Stay Angle : $30^\circ \leq \theta \leq 45^\circ$

P/NO	DESCRIPTION	QTY
1.1	Distribution Transformer (DT)*	0
1.2	Auto Recloser	0
1.3	Load Isolator	0
1.4	Circuit Switch with Fuse	0
1.5	Lightning Arrester	0
1.6	Main Distribution Board(MDB)	0
2.1	Conductor (m)	0
2.2	Connector	0
2.3	Steel Pole (15m)	1
2.4	Strain Insulator Set	6
2.5	Pin Insulator set	2
2.6	Crossarm set	2
2.7	Stay Wire Set	2
2.8	Earth Wire Set	0
2.9	LV Cabling Materials	0
2.10	Plate set	1

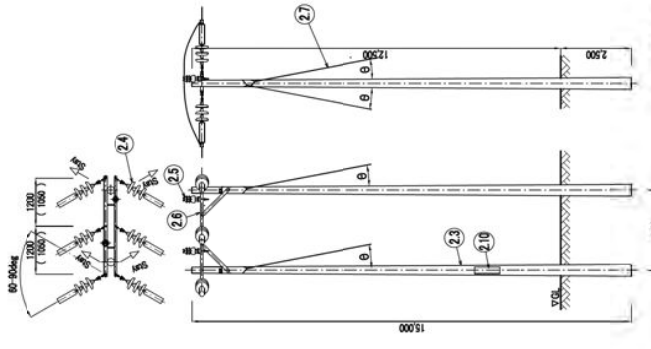


Dwg.No.TPA-E
Values in () are for 11.5kV

11.5/34.5kV 直交柱(90度) [型番 IE/3E]
11.5/34.5kV Cross Pole (Line Angle 90deg.) [Type IE/3E]

Preferable Stay Angle : $30^\circ \leq \theta \leq 45^\circ$

P/NO	DESCRIPTION	QTY
1.1	Distribution Transformer (DT)*	0
1.2	Auto Recloser	0
1.3	Load Isolator	0
1.4	Circuit Switch with Fuse	0
1.5	Lightning Arrester	0
1.6	Main Distribution Board(MDB)	0
2.1	Conductor (m)	0
2.2	Connector	0
2.3	Steel Pole (15m)	1
2.4	Strain Insulator Set	6
2.5	Pin Insulator set	3
2.6	Crossarm set	4
2.7	Stay Wire Set	2
2.8	Earth Wire Set	0
2.9	LV Cabling Materials	0
2.10	Plate set	1

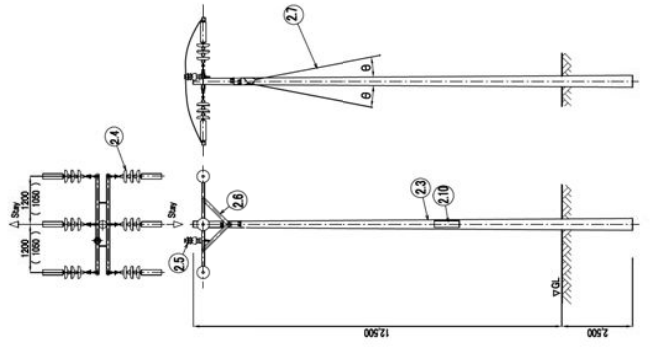


Dwg.No.TPA-D
Values in () are for 11.5kV

11.5/34.5kV 強角支柱(60度~90度未満) [型番 ID/3D]
11.5/34.5kV Heavy Angle Pole (Line Angle 60-90deg.) [Type ID/3D]

Preferable Stay Angle : $30^\circ \leq \theta \leq 45^\circ$

P/NO	DESCRIPTION	QTY
1.1	Distribution Transformer (DT)*	0
1.2	Auto Recloser	0
1.3	Load Isolator	0
1.4	Circuit Switch with Fuse	0
1.5	Lightning Arrester	0
1.6	Main Distribution Board(MDB)	0
2.1	Conductor (m)	0
2.2	Connector	0
2.3	Steel Pole (15m)	2
2.4	Strain Insulator Set	6
2.5	Pin Insulator set	2
2.6	Crossarm set	2
2.7	Stay Wire Set	4
2.8	Earth Wire Set	0
2.9	LV Cabling Materials	0
2.10	Plate set	1

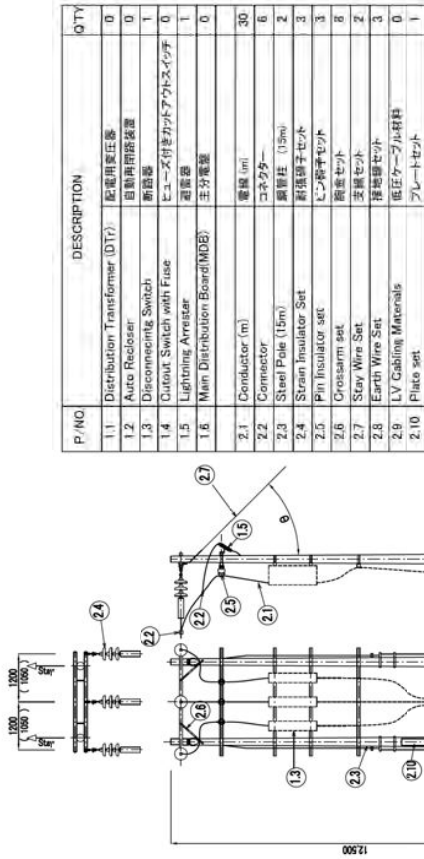


Dwg.No.TPA-F
Values in () are for 11.5kV

11.5/34.5kV 面引留め柱 [型番 IF/3F]
11.5/34.5kV Section Pole [Type IF/3F]

Preferable Stay Angle : $30^\circ \leq \theta \leq 45^\circ$

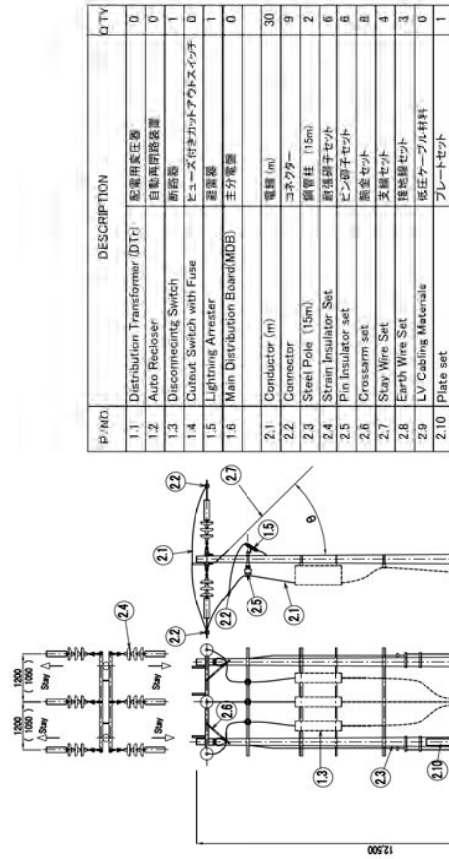
P/NO	DESCRIPTION	QTY
1.1	Distribution Transformer (DT)*	0
1.2	Auto Recloser	0
1.3	Load Isolator	0
1.4	Circuit Switch with Fuse	0
1.5	Lightning Arrester	0
1.6	Main Distribution Board(MDB)	0
2.1	Conductor (m)	0
2.2	Connector	0
2.3	Steel Pole (15m)	1
2.4	Strain Insulator Set	6
2.5	Pin Insulator set	1
2.6	Crossarm set	2
2.7	Stay Wire Set	2
2.8	Earth Wire Set	0
2.9	LV Cabling Materials	0
2.10	Plate set	1



Preferable Stay Angle : $30^\circ \leq \theta \leq 45^\circ$

Dwg.No.TPA-K
11.5/34.5kV 断路器柱(垂直引留型) [型番 1K/3K]
11.5/34.5kV Disconnecting Switch Pole (Vertical Dead End Type) [Type 1K/3K]

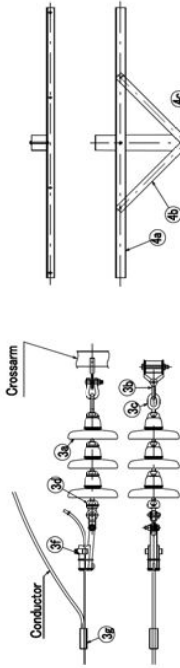
Values in () are for 11.5kV



Preferable Stay Angle : $30^\circ \leq \theta \leq 45^\circ$

Dwg.No.TPA-M
11.5/34.5kV 断路器柱(垂直引留型) [型番 1M/3M]
11.5/34.5kV Disconnecting Switch Pole (Vertical Section Type) [Type 1M/3M]

Values in () are for 11.5kV



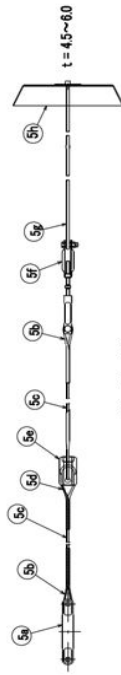
Strain Insulator Set

No.	Description	QTY per set
3a	Disc Insulator	3(2)
3b	Anchor Shackle	1
3c	Ball Eye	1
3d	Socket Eye	1
3f	Dead End Clamp	1
3g	Compression Connector	1

Values in () are for 11.5kV

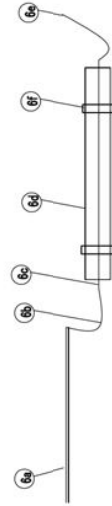
Crossarm Set

No.	Description	QTY per set
4a	Crossarm	1
4b	Crossarm Brace	2
4c	Bolt&Nut Set	4



Stay Wire Set

No.	Description	QTY per set	No.	Description	QTY per set
5a	Stay Band	1	5c	34.5kV(11.5kV)Stay Insulator	1
5b	Dead End Grip for Thimble	2	5f	Turbuckle	1
5c	Stay Wire	1	5g	Stay Rod	1
5d	Dead End Grip for Insulator	2	5h	Stay Anchor	1



Earthing Wire Set

No.	Description	QTY per set	No.	Description	QTY per set
6a	Grounding Rod	2	6e	Terminal Lug	1
6b	Earthing Terminal	1	6f	Band	1
6c	IV Wire (35sqmm)	12m			
6d	PVC (1inch)	23m			