

6. Outline Design Drawing

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Substation Facilities

DWG No.	Title
ML-ES-01	Single line Diagram for Malakal Substation
ML-ES-02	Layout Drawing for Malakal Substation
AR-ES-01	Single line Diagram for Airai Substation
AR-ES-02	Layout Drawing for Airai Substation
KK-ES-01	Single line Diagram for Kokusai Substation
KK-ES-02	Layout Drawing for Kokusai Substation

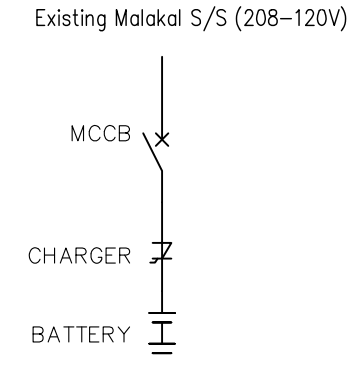
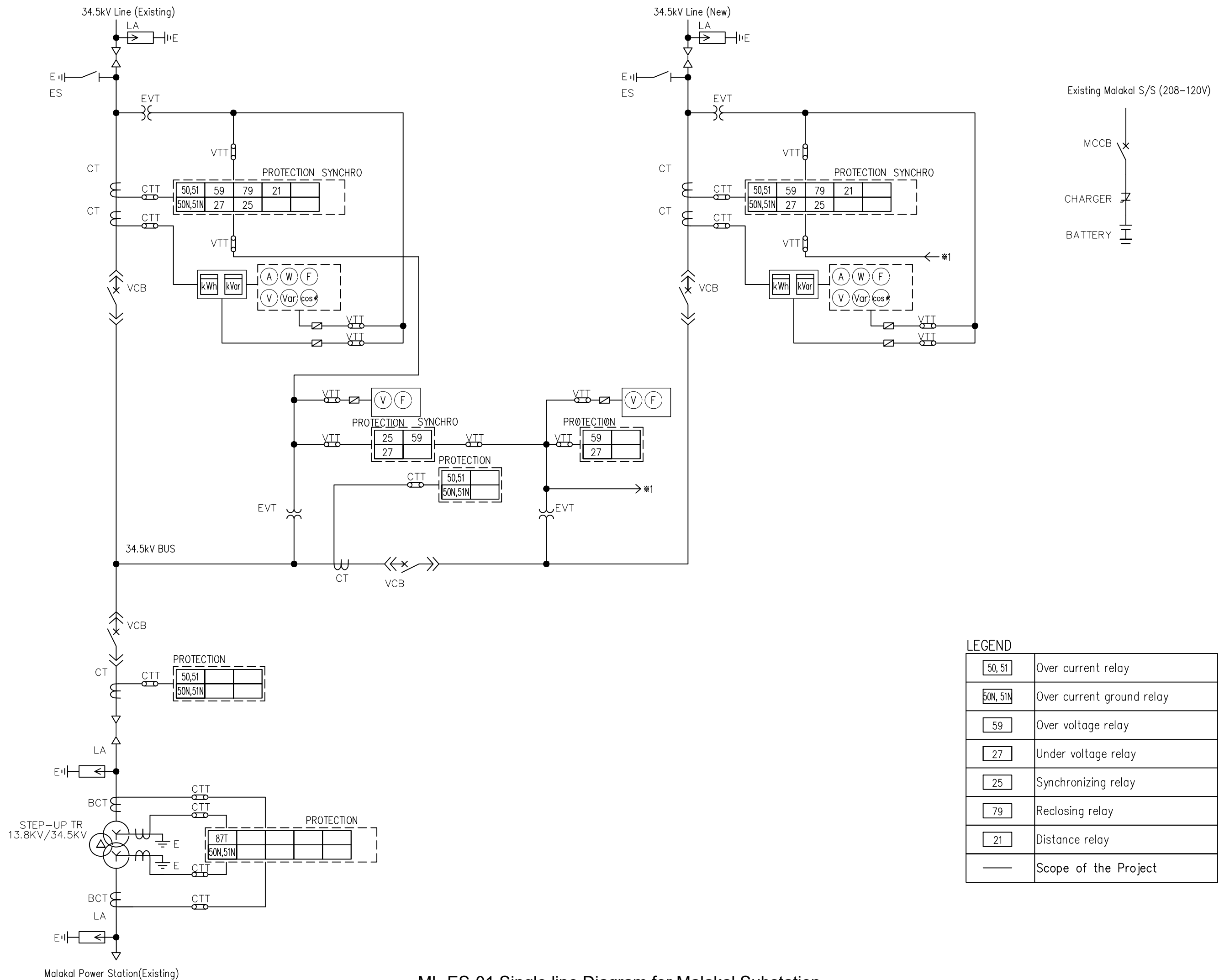
Switchgear Buildings

DWG No.	Title
ML-AA-01	Topographic Drawing, Malakal Power Plant
ML-AA-02	Switchgear Building / Location Plan, Malakal Power Plant
ML-AA-03	Switchgear Building, Malakal Power Plant
AR-AA-01	Topographic Drawing / Site Plan, Airai Substation
AR-AA-02	Switchgear Building, Airai Substation
KK-AA-01	Topographic Drawing, Kokusai Substation
KK-AA-02	Site Plan, Kokusai Substation
KK-AA-03	Switchgear Building, Kokusai Substation

Transmission Line and Distribution Facilities

DWG No.	Title
ET-01	34.5 kV Transmission Line Route (KEY PLAN)
ET-02	34.5 kV Transmission Line Route (Malakal Line, Airai Line, Kokusai Line)
ET-03	Supporting Structure Arrangement per Power Pole Type
ET-04	Installation Method of 35 kV Underground Cable
ET-05	Cabling Plan and Section for JP Bridge
ET-06	34.5 kV and 18 kV Cable Route (Substation pull-in)

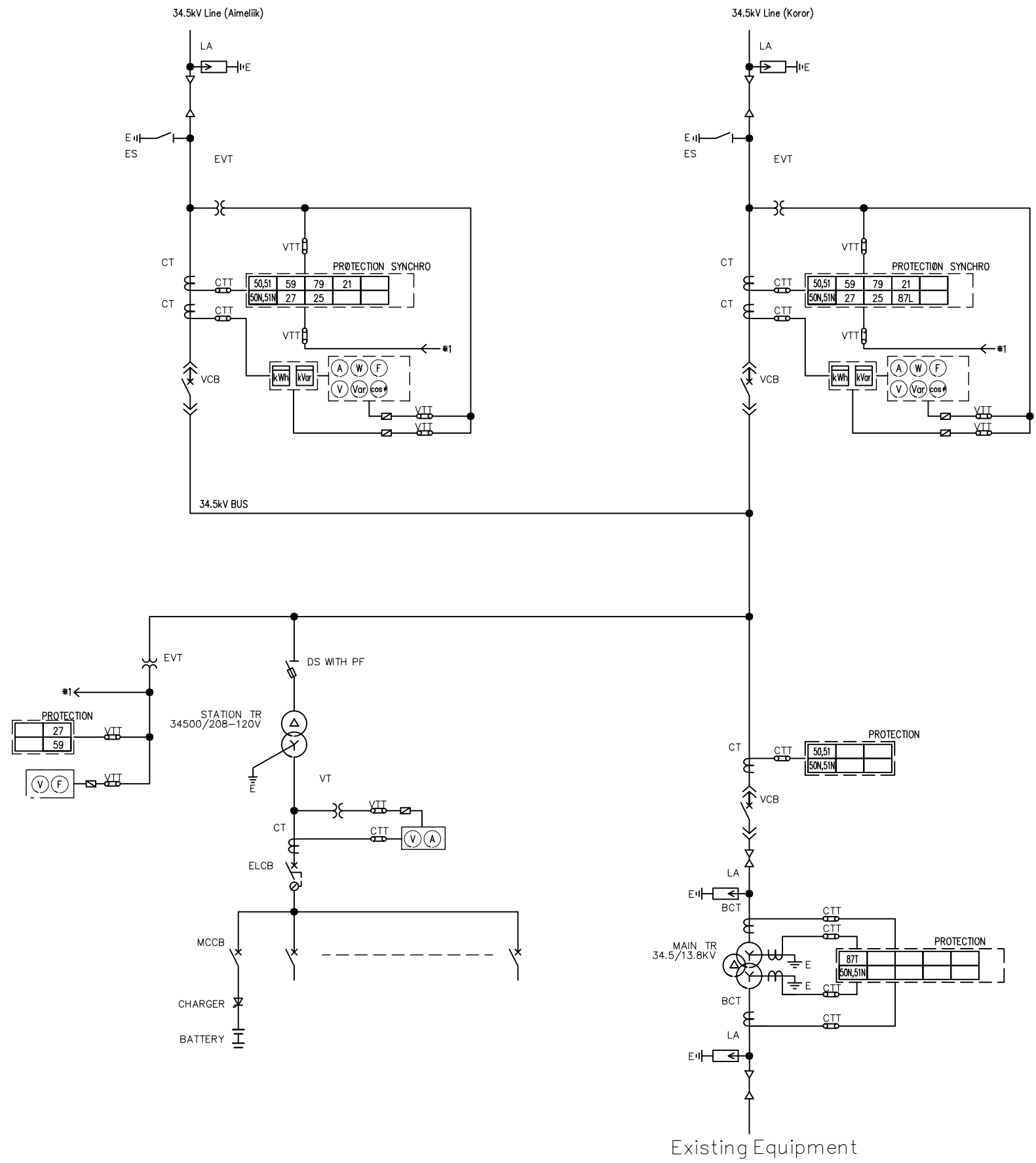
Substation Facilities



LEGEND

50, 51	Over current relay
50N, 51N	Over current ground relay
59	Over voltage relay
27	Under voltage relay
25	Synchronizing relay
79	Reclosing relay
21	Distance relay
—	Scope of the Project

ML-ES-01 Single line Diagram for Malakal Substation

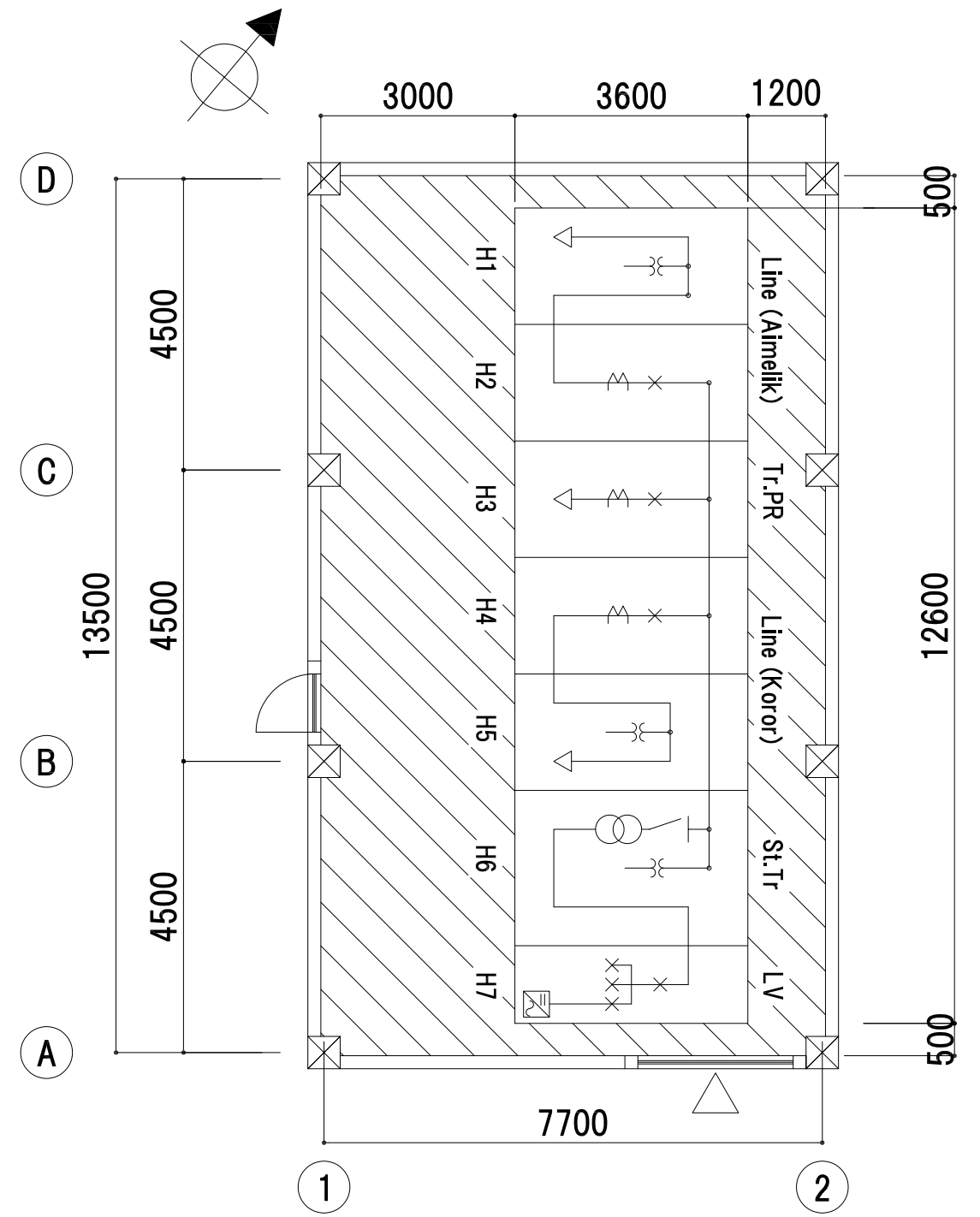
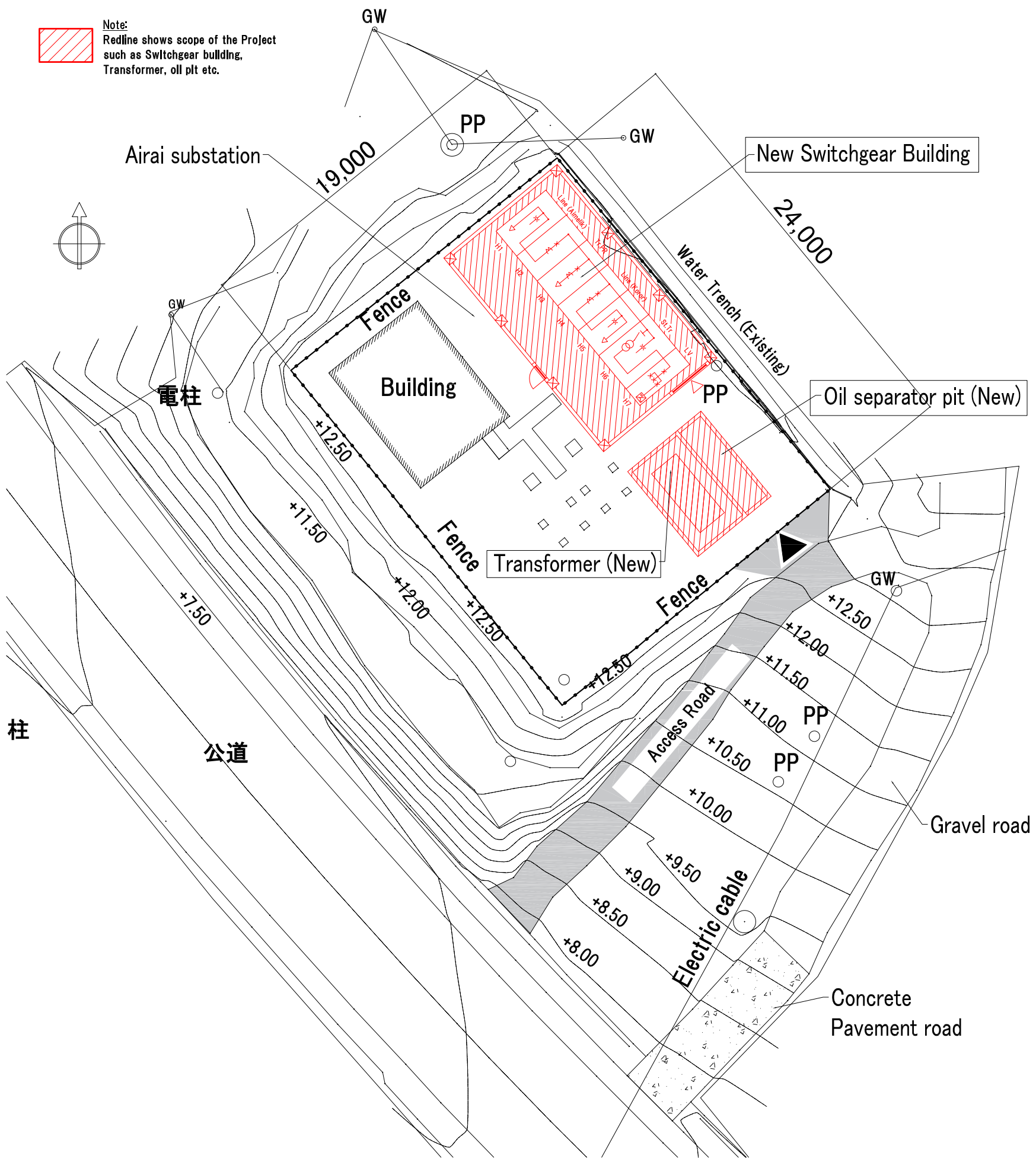


LEGEND

50, 51	Over current relay
50N, 51N	Over current ground relay
59	Over voltage relay
27	Under voltage relay
25	Synchronizing relay
79	Reclosing relay
87L	Line differential relay
21	Distance relay
—	Scope of the Project

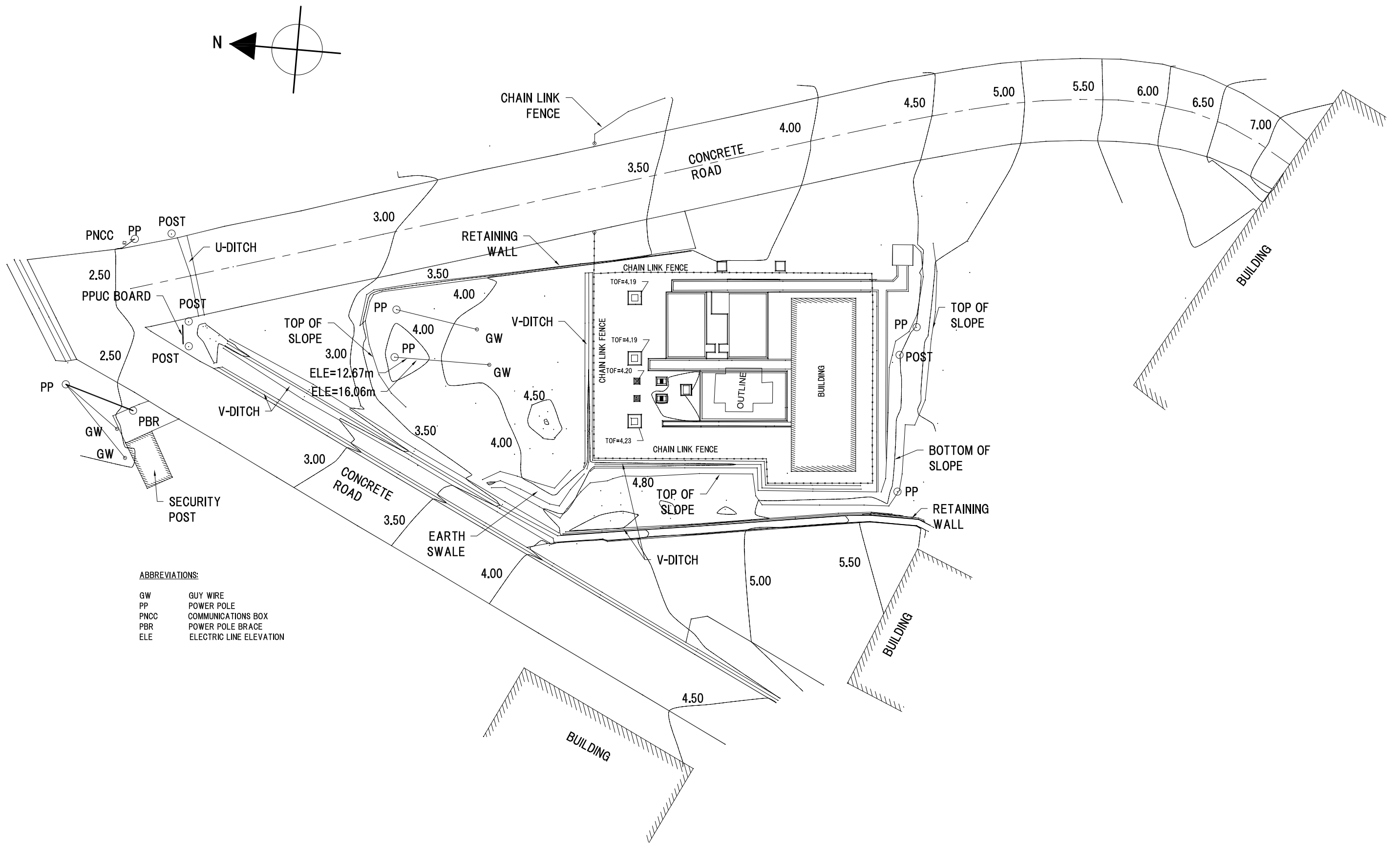
AR-ES-01 Single line Diagram for Airai Substation

Note:
 Redline shows scope of the Project
 such as Switchgear building,
 Transformer, oil pit etc.



Switchgear Building Layout Plan 1/100

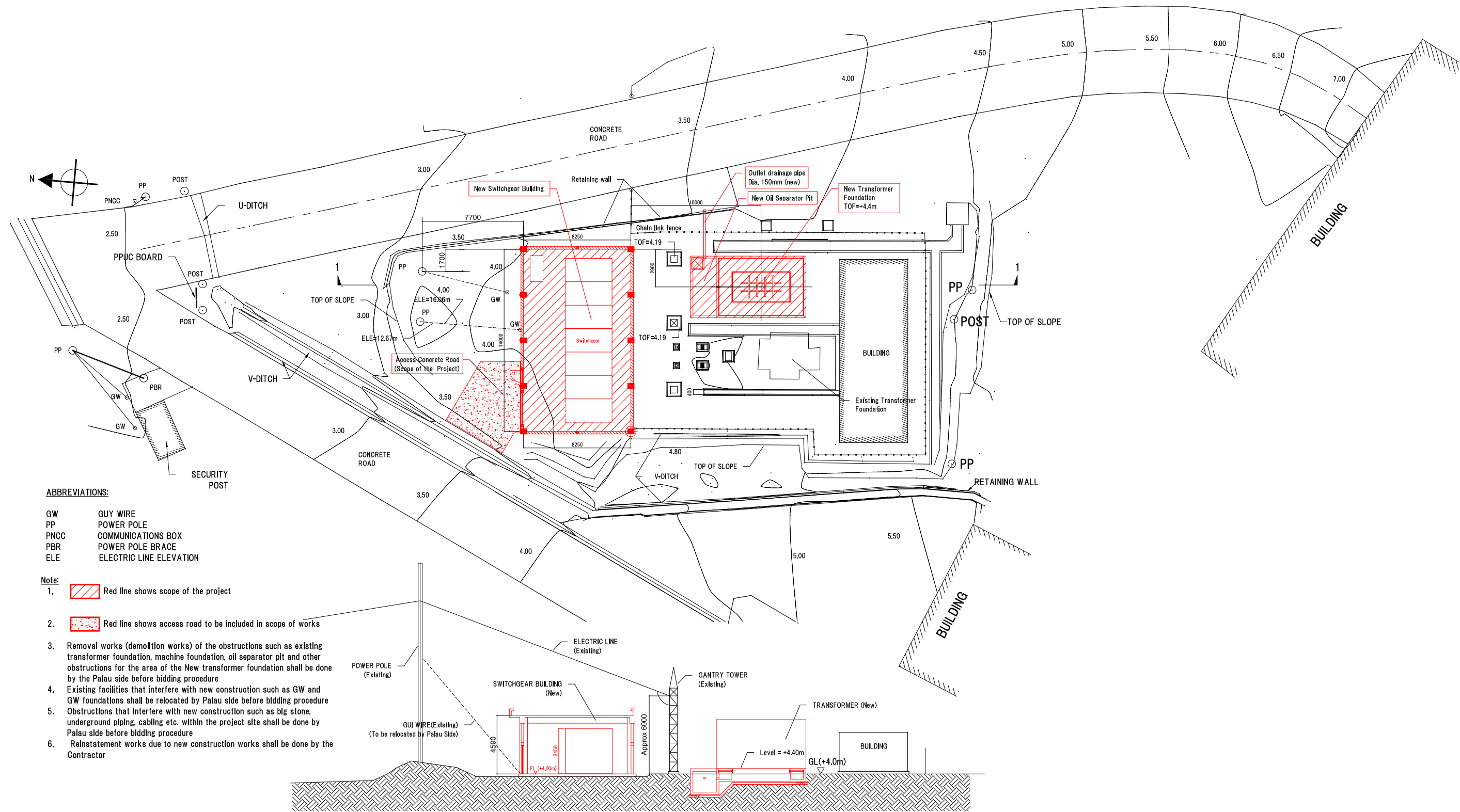
Switchgear Building



ABBREVIATIONS:

- | | |
|------|-------------------------|
| GW | GUY WIRE |
| PP | POWER POLE |
| PNCC | COMMUNICATIONS BOX |
| PBR | POWER POLE BRACE |
| ELE | ELECTRIC LINE ELEVATION |

MALAKAL POWER PLANT (ML-AA-01) TOPOGRAPHIC DRAWING 1/300

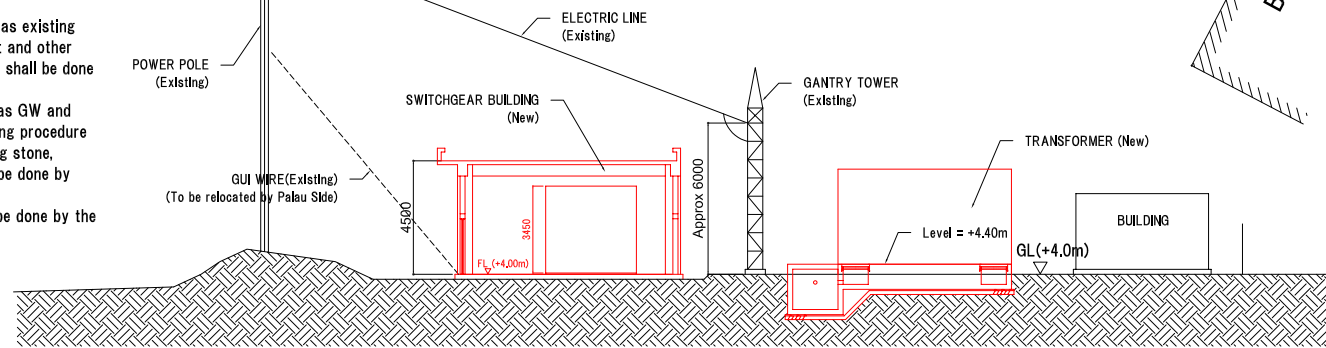


ABBREVIATIONS:

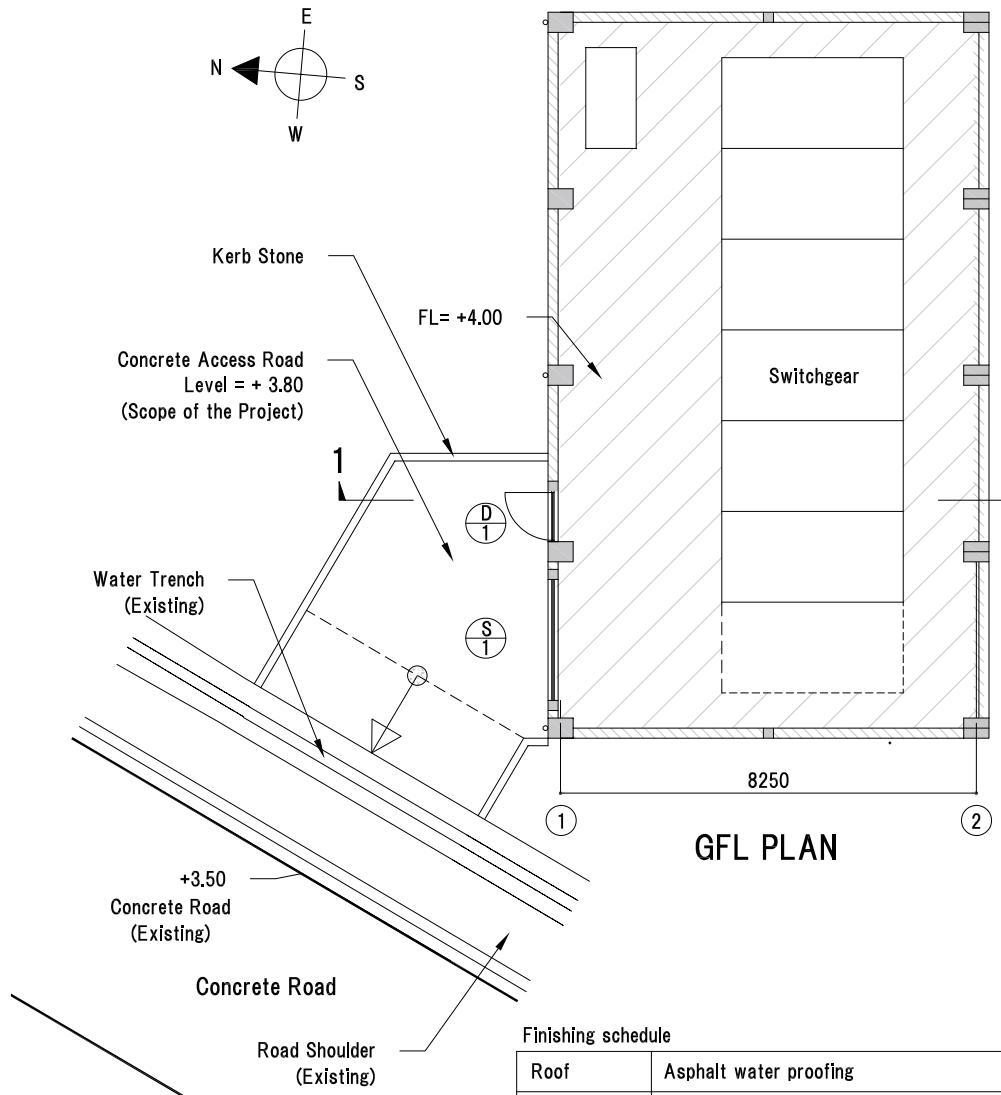
- GW GUY WIRE
- PP POWER POLE
- PNCC COMMUNICATIONS BOX
- PBR POWER POLE BRACE
- ELE ELECTRIC LINE ELEVATION

Note:

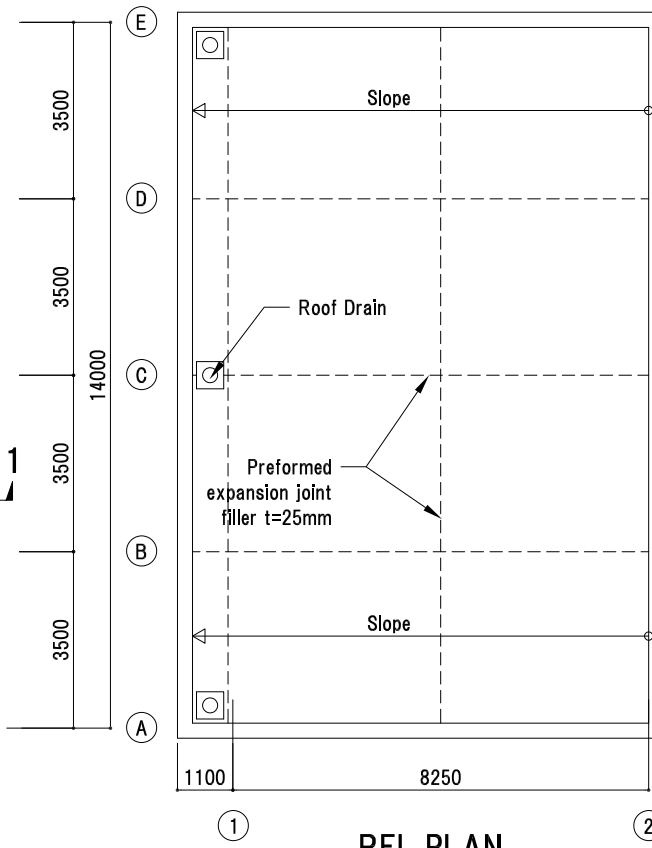
1. Red line shows scope of the project
2. Red line shows access road to be included in scope of works
3. Removal works (demolition works) of the obstructions such as existing transformer foundation, machine foundation, oil separator pit and other obstructions for the area of the New transformer foundation shall be done by the Palau side before bidding procedure
4. Existing facilities that interfere with new construction such as GW and GW foundations shall be relocated by Palau side before bidding procedure
5. Obstructions that interfere with new construction such as big stone, underground piping, cabling etc. within the project site shall be done by Palau side before bidding procedure
6. Reinstatement works due to new construction works shall be done by the Contractor



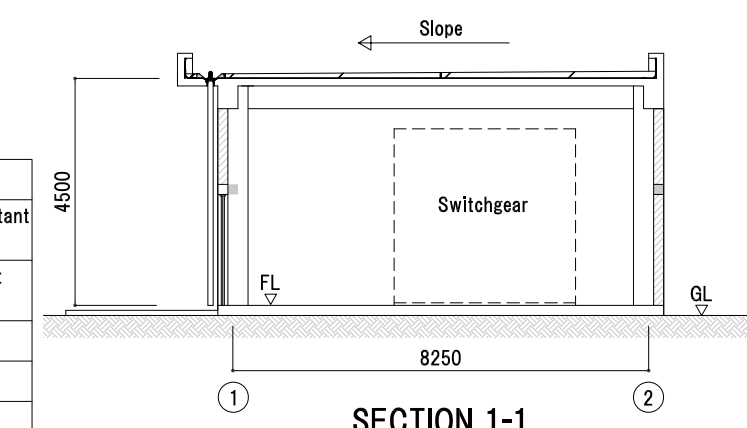
SECTION 1-1



GFL PLAN



RFL PLAN



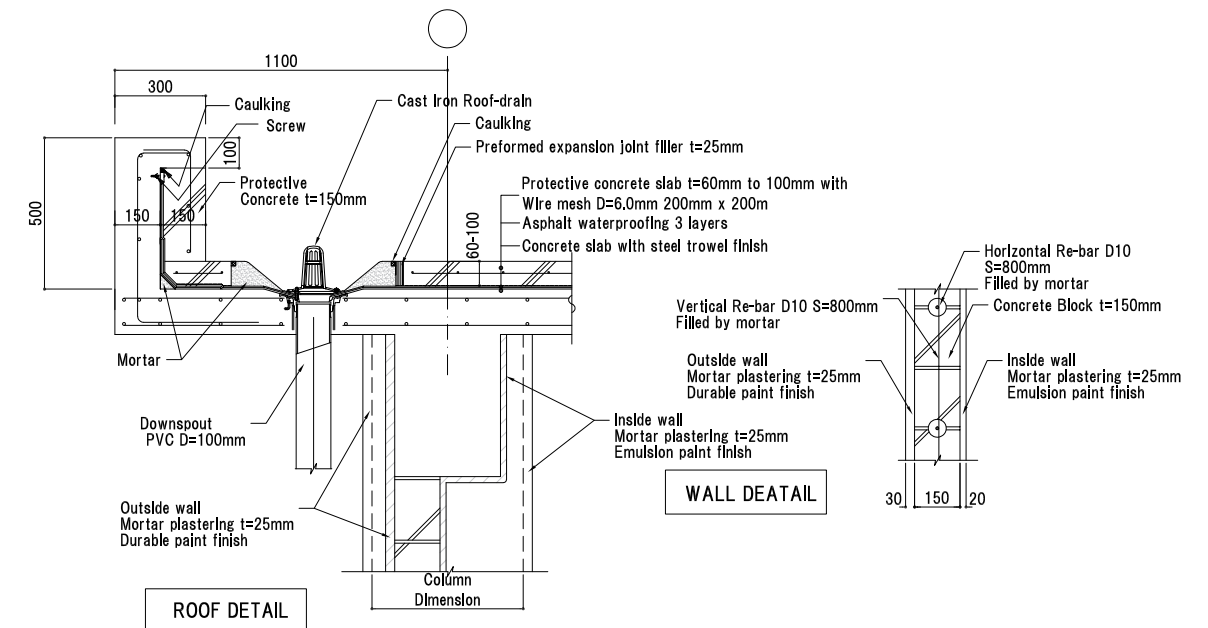
SECTION 1-1

Door and Shutter Schedule

Mark	SD-1	SW-1
Dimension and Elevation		
Type	Steel single swing flash door	Manual Steel shutter door
Finishing paint	DP (Durable Paint finish)	DP (Durable Paint finish)
Door handle	SUS Lever handle, Cylinder lock	
Accessories	SUS hinge 3 pieces, Door closer and other necessary accessories	

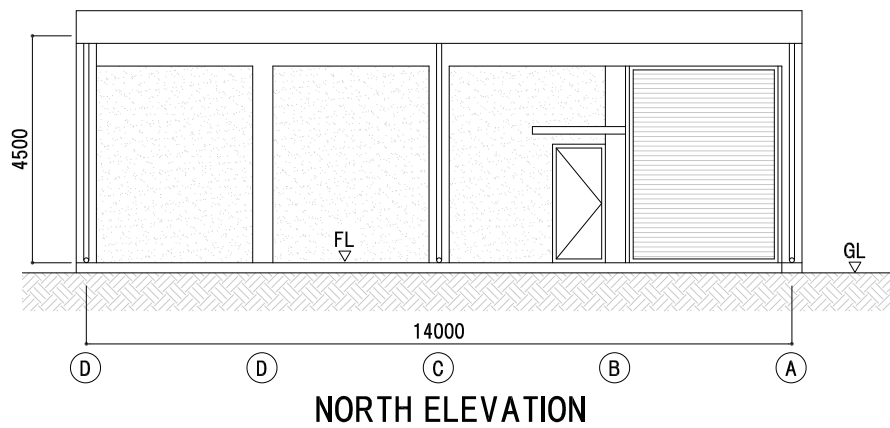
Finishing schedule

Roof	Asphalt water proofing
Exterior wall	Concrete block t=150mm, Weather resistant paint on the mortar plaster t=25mm
Interior wall	Concrete block t=150mm, Emulsion paint on the mortar plaster t=25mm
Floor	Concrete exposed
Ceiling	Concrete exposed

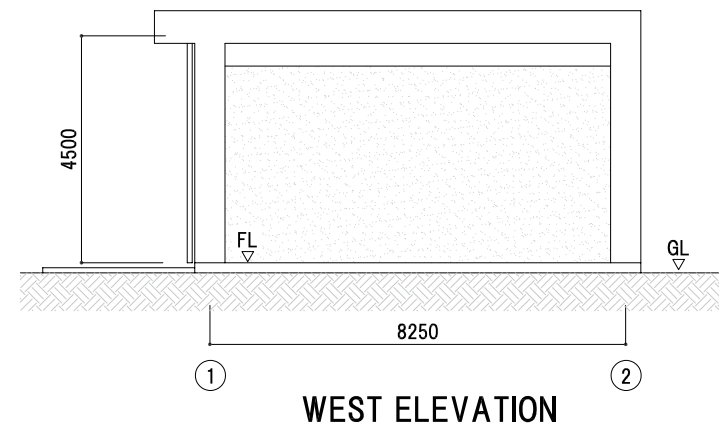


ROOF DETAIL

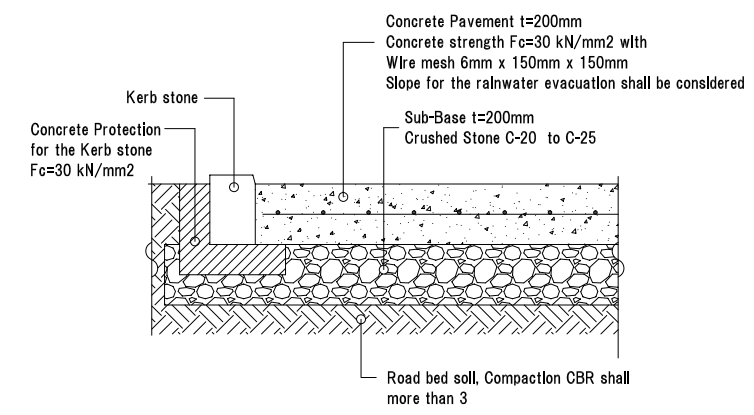
WALL DETAIL



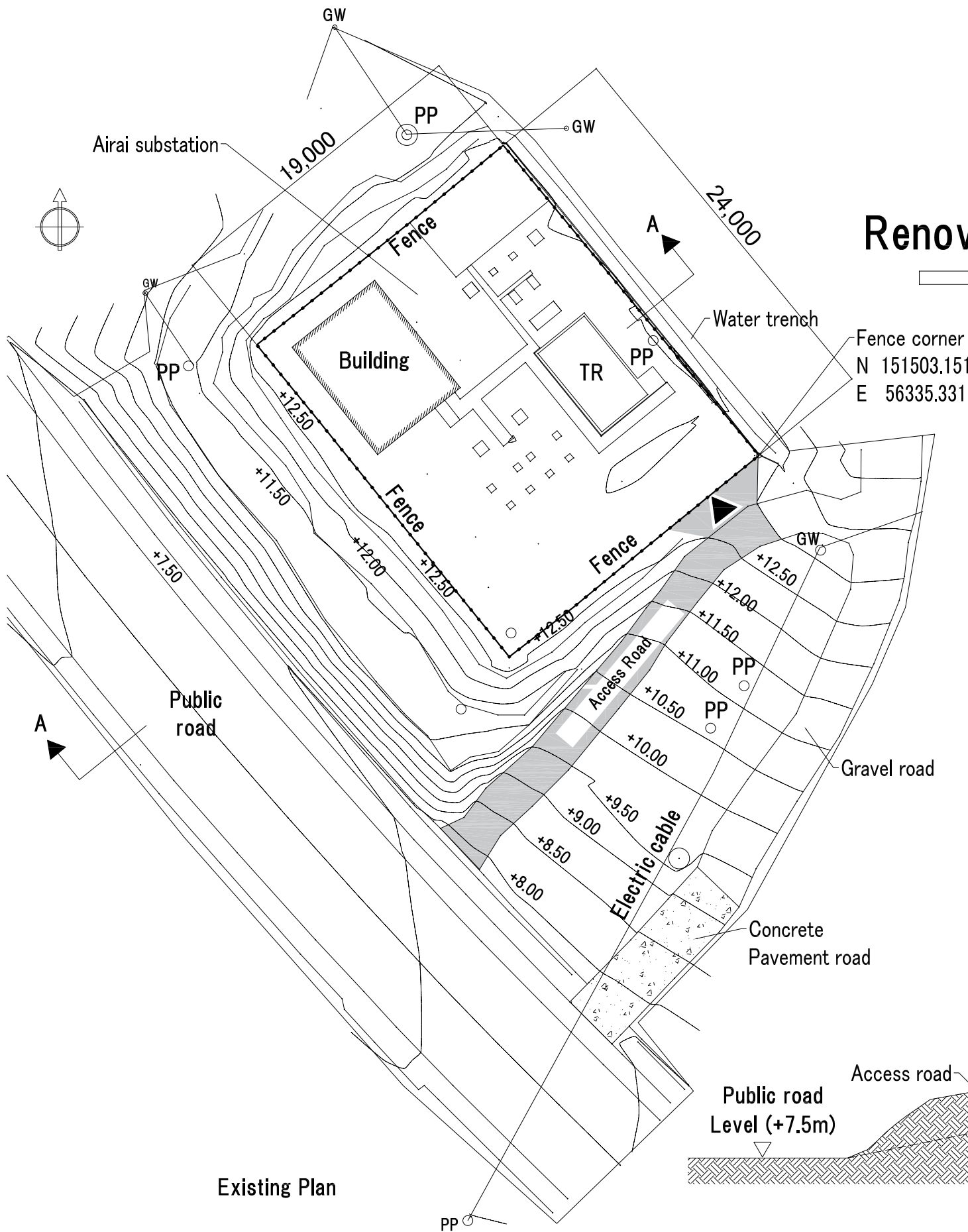
NORTH ELEVATION



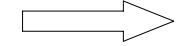
WEST ELEVATION



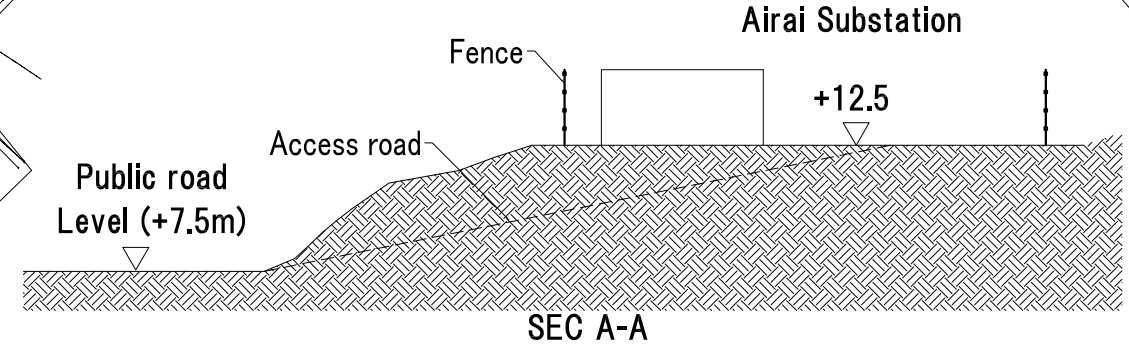
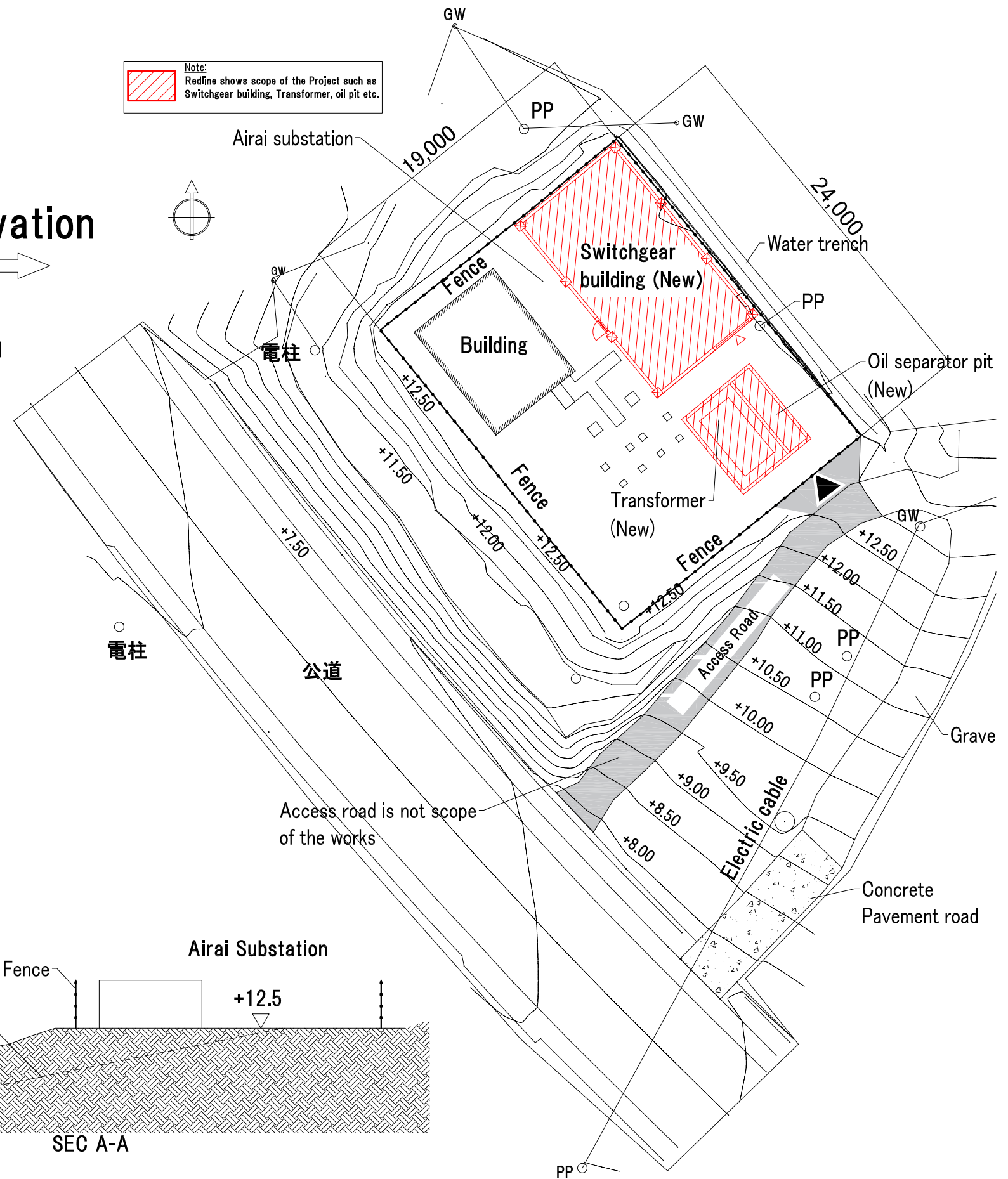
TYPICAL SECTION OF THE INTERNAL ROAD

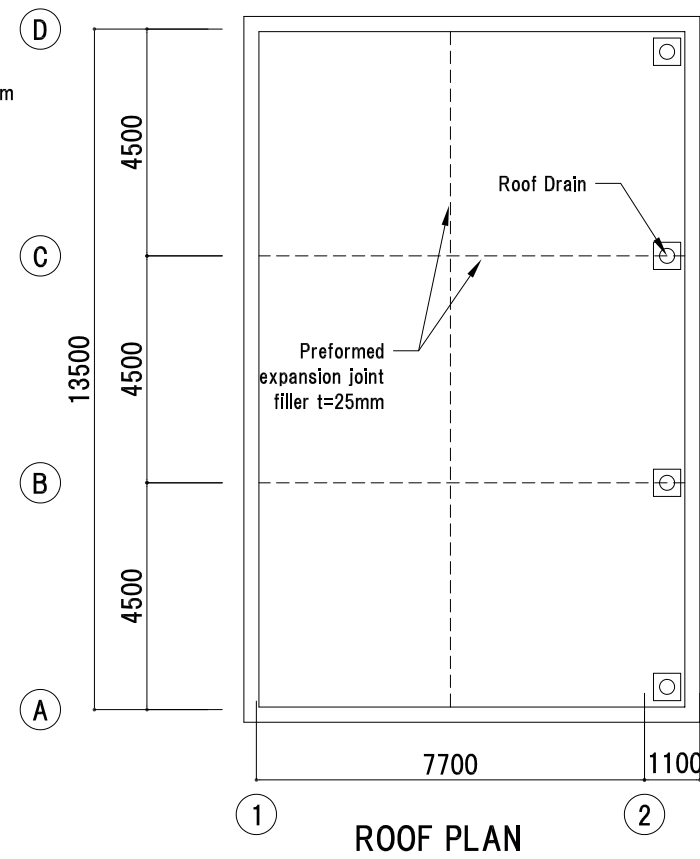
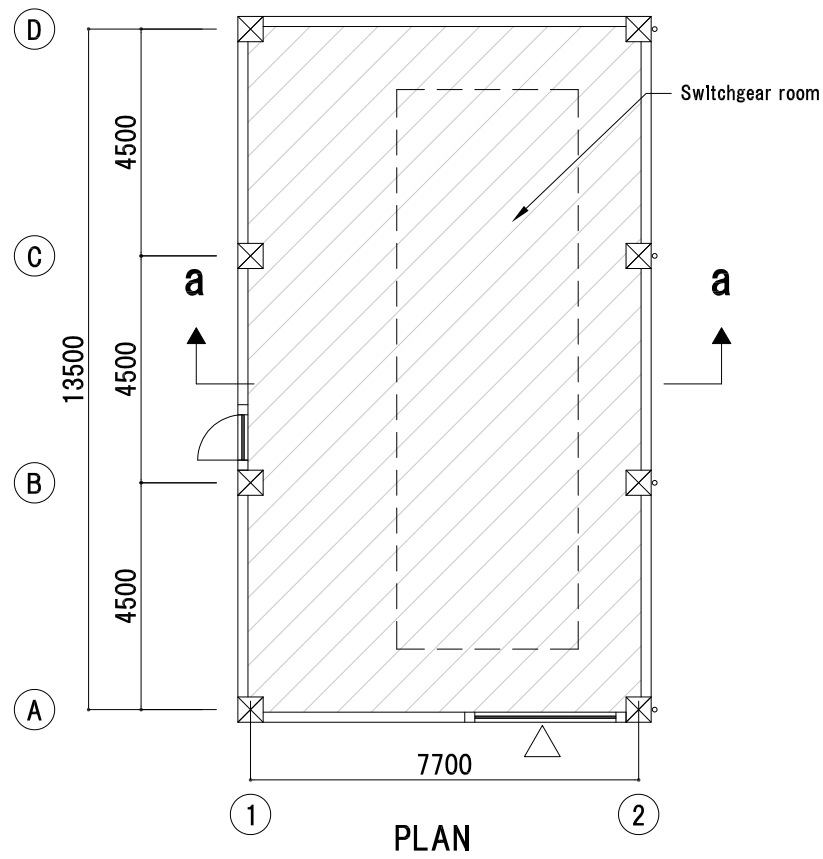


Renovation



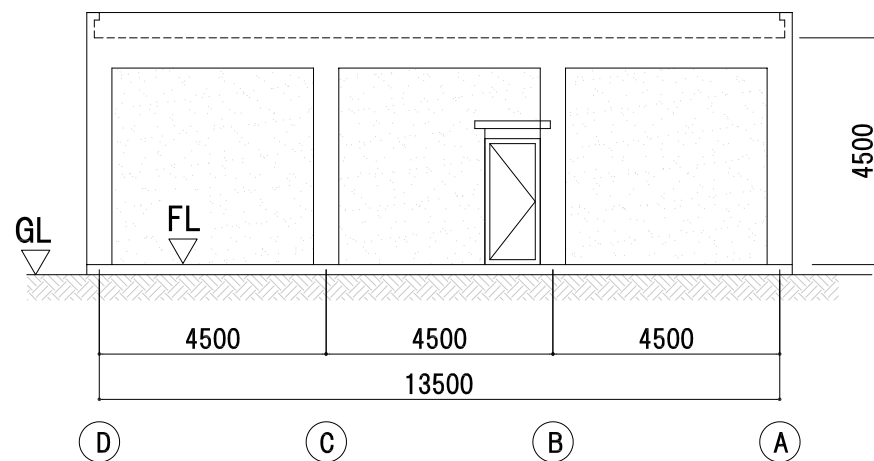
Note:
 Redline shows scope of the Project such as
 Switchgear building, Transformer, oil pit etc.





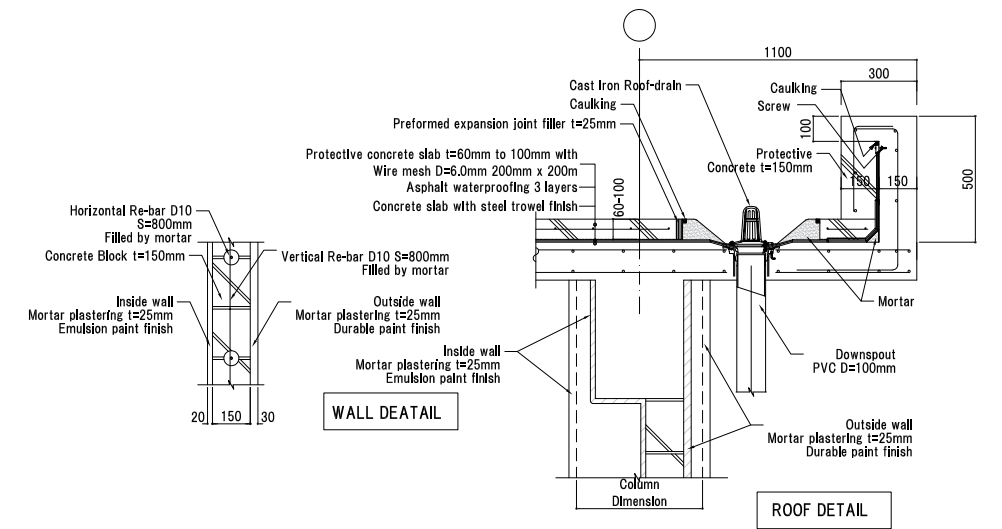
Door and Shutter Schedule

Mark	SD-1	SW-1
Dimension and Elevation		
Type	Steel single swing flash door	Manual Steel shutter door
Finishing paint	DP (Durable Paint finish)	DP (Durable Paint finish)
Door handle	SUS Lever handle, Cylinder lock	
Accessories	SUS hinge 3 pieces, Door closer and other necessary accessories	

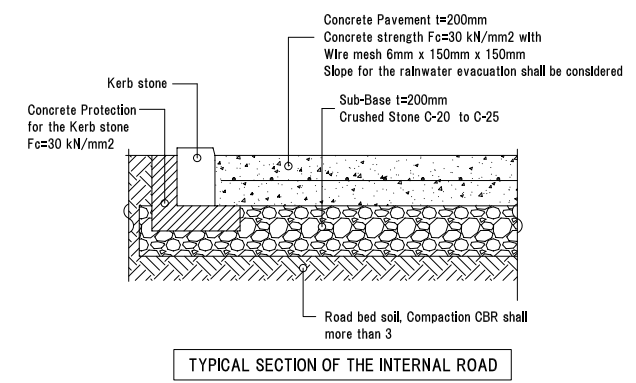
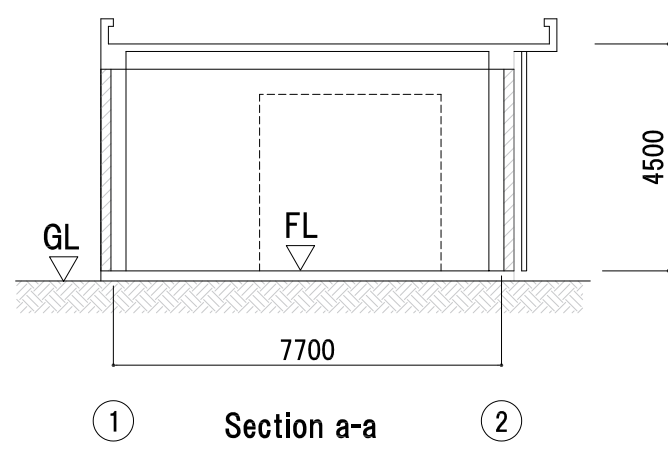
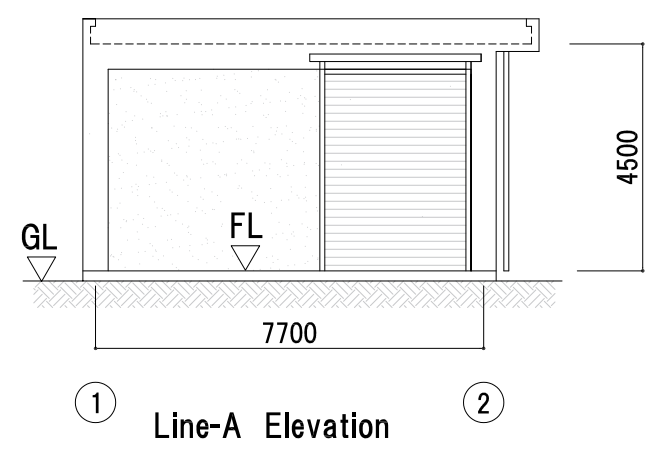


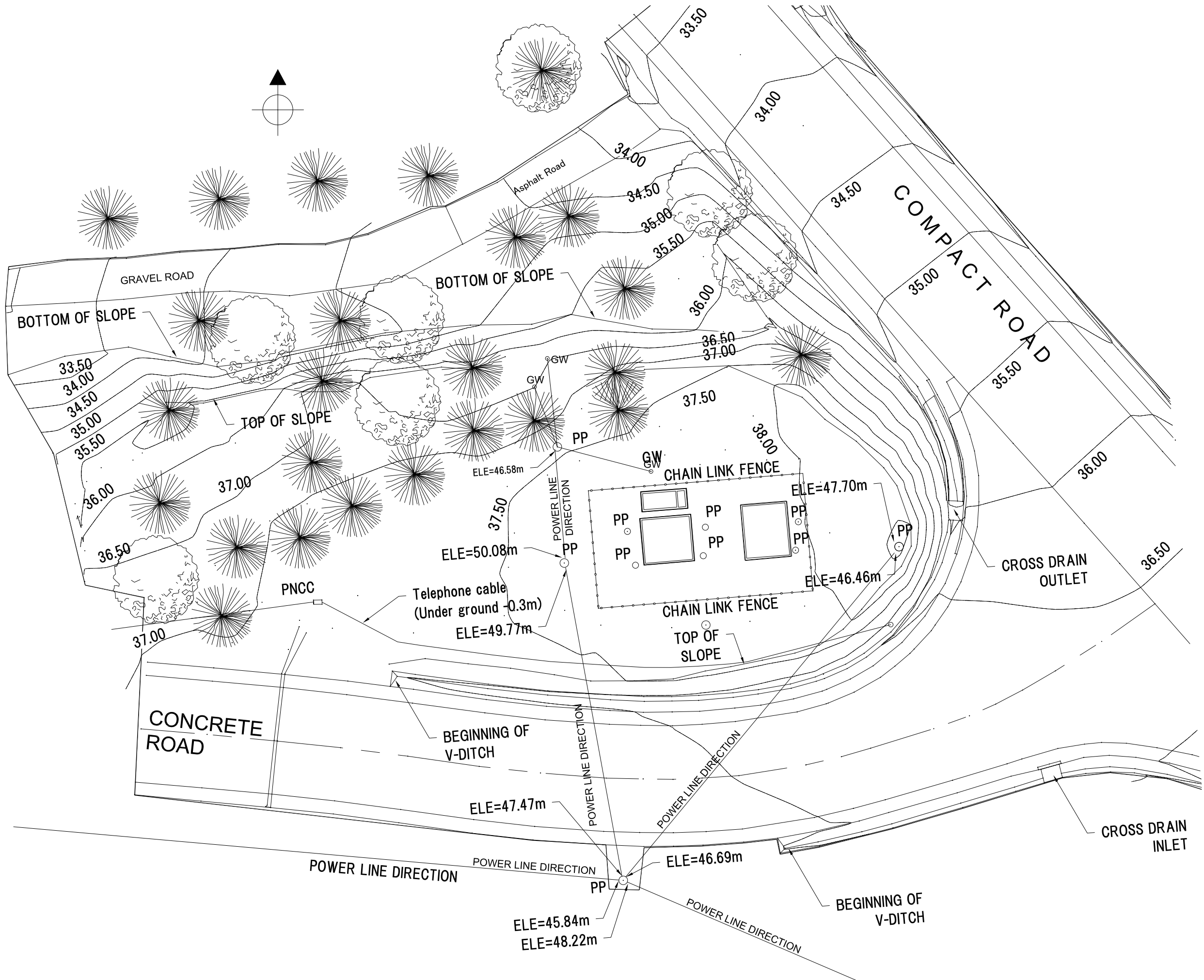
Finishing schedule

Roof	Asphalt water proofing
Exterior wall	Concrete block t=150mm, Weather resistant paint on the mortar plaster t=25mm
Interior wall	Concrete block t=150mm, Emulsion paint on the mortar plaster t=25mm
Floor	Concrete exposed
Celling	Concrete exposed

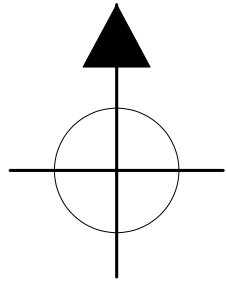


Line-1 Elevation

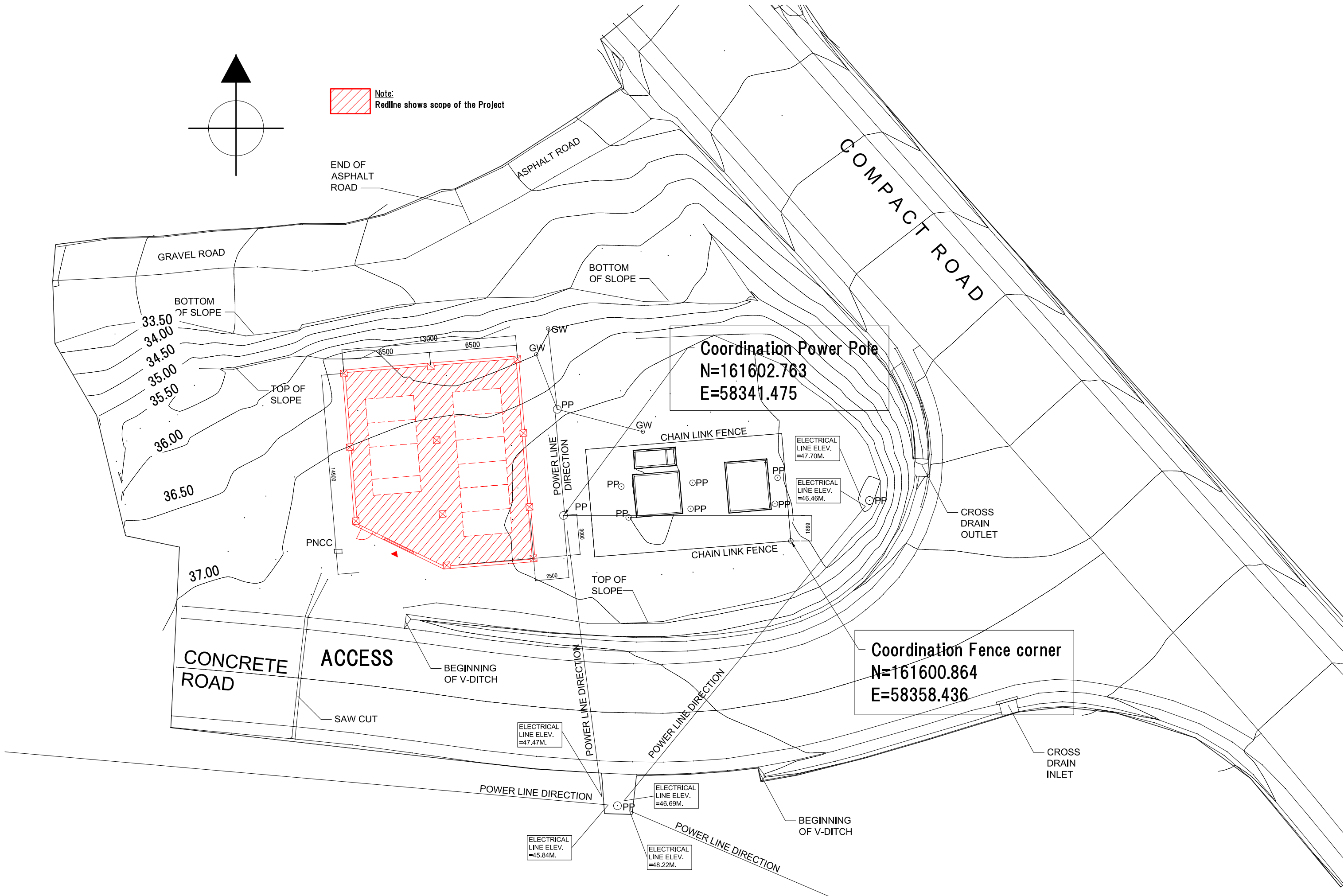




KOKUSAI SUBSTATION (KK-AA-01) TOPOGRAPHIC DRAWING 1/250

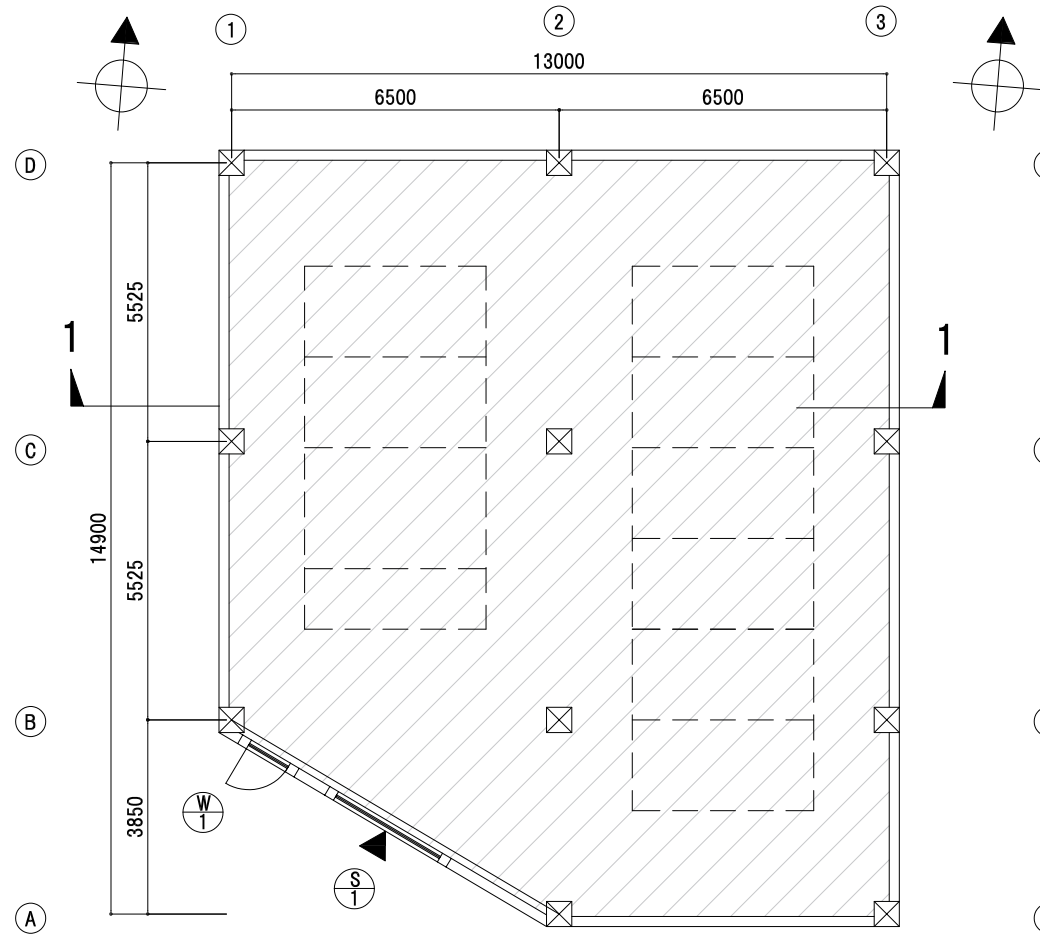


Note:
Redline shows scope of the Project

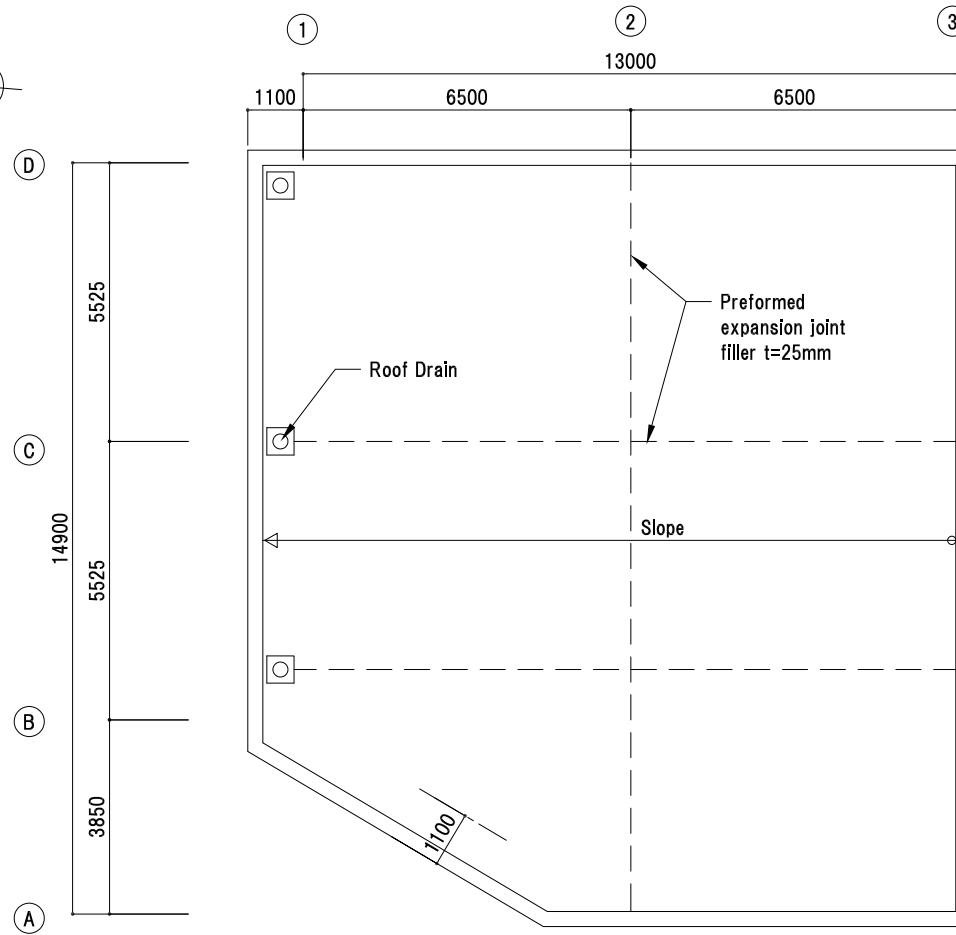


Coordination Power Pole
N=161602.763
E=58341.475

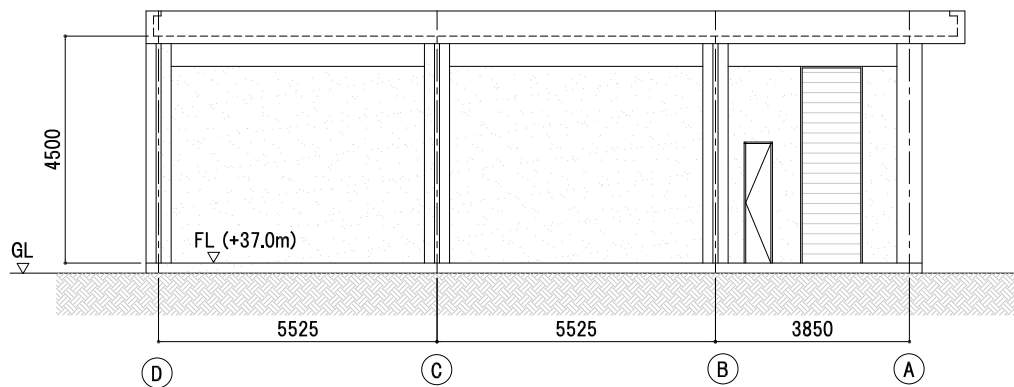
Coordination Fence corner
N=161600.864
E=58358.436



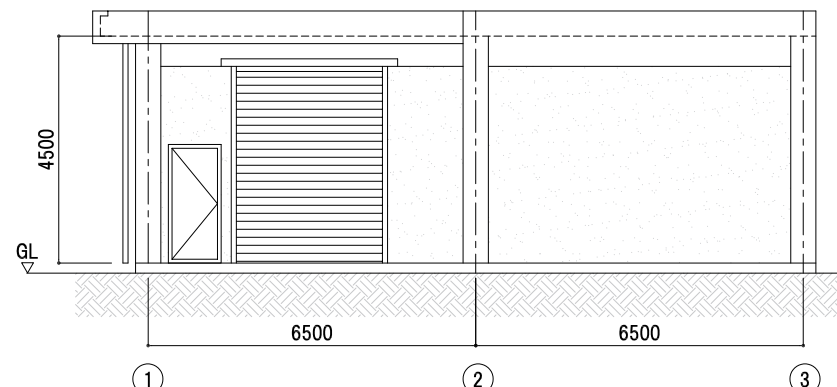
BASEMENT PLAN



ROOF PLAN



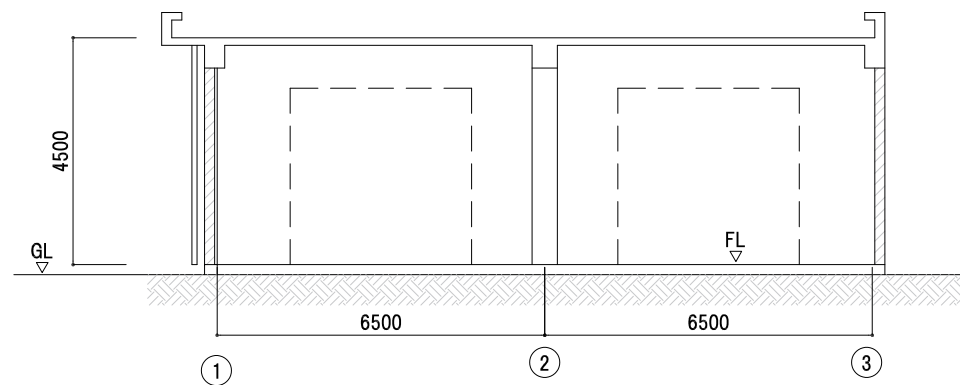
ELEVATION LINE-1



ELEVATION LINE-A

Finishing schedule

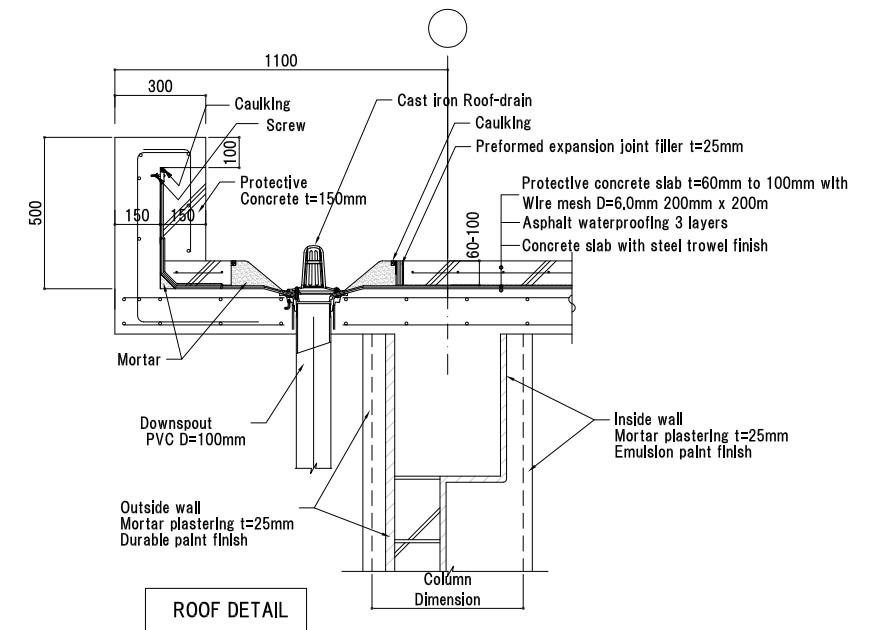
Roof	Asphalt water proofing
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Floor	Concrete exposed
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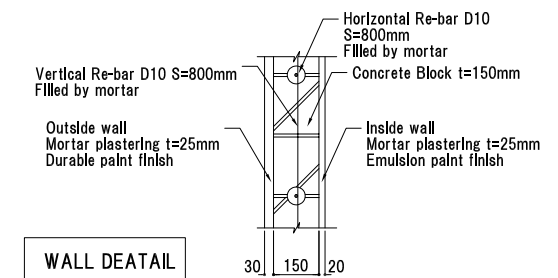
SECTION 1-1

Door and Shutter Schedule

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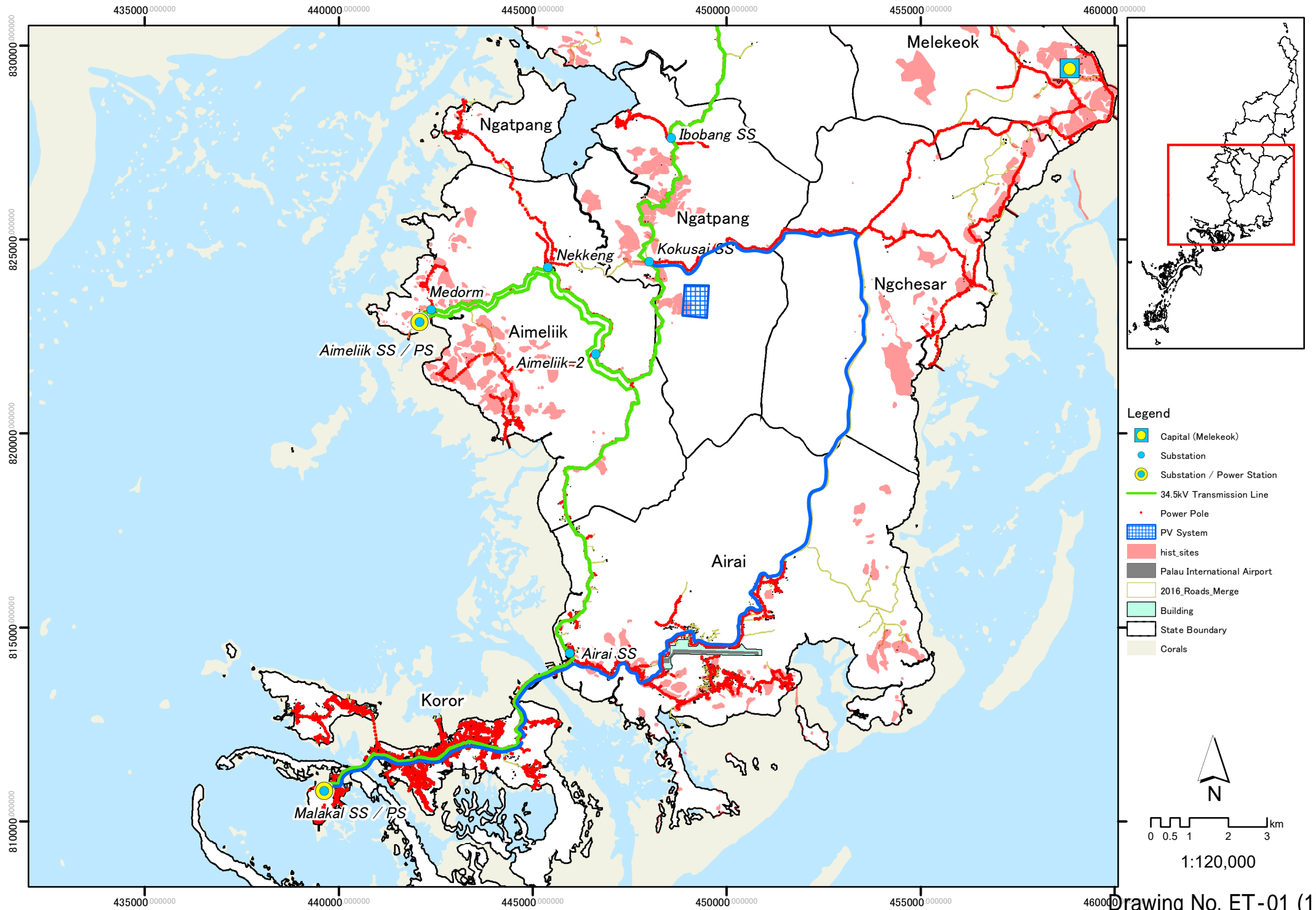


ROOF DETAIL



WALL DETAIL

Transmission and Distribution Line Facilities

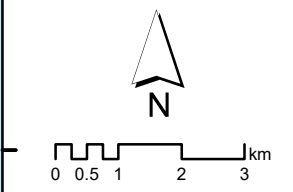


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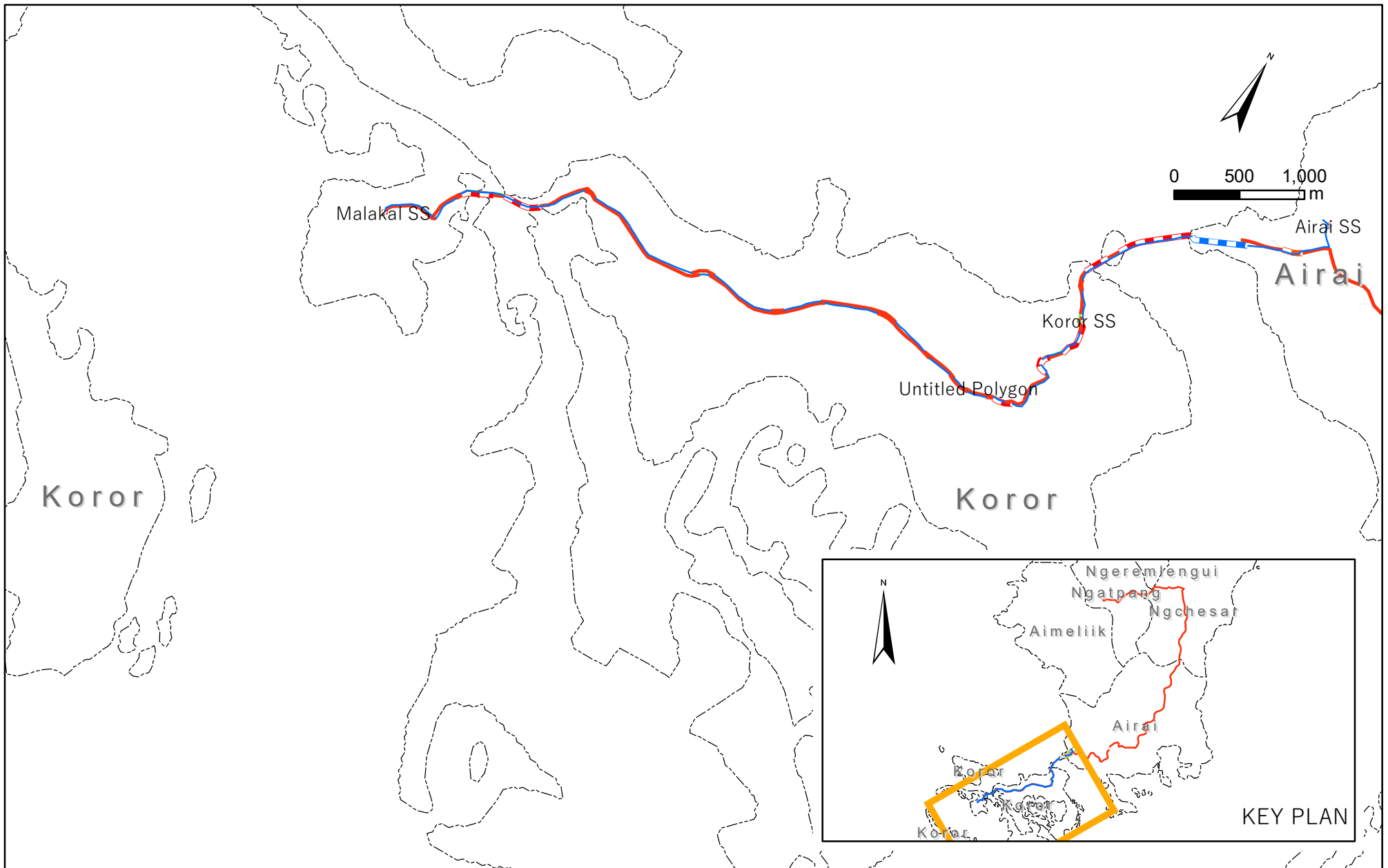
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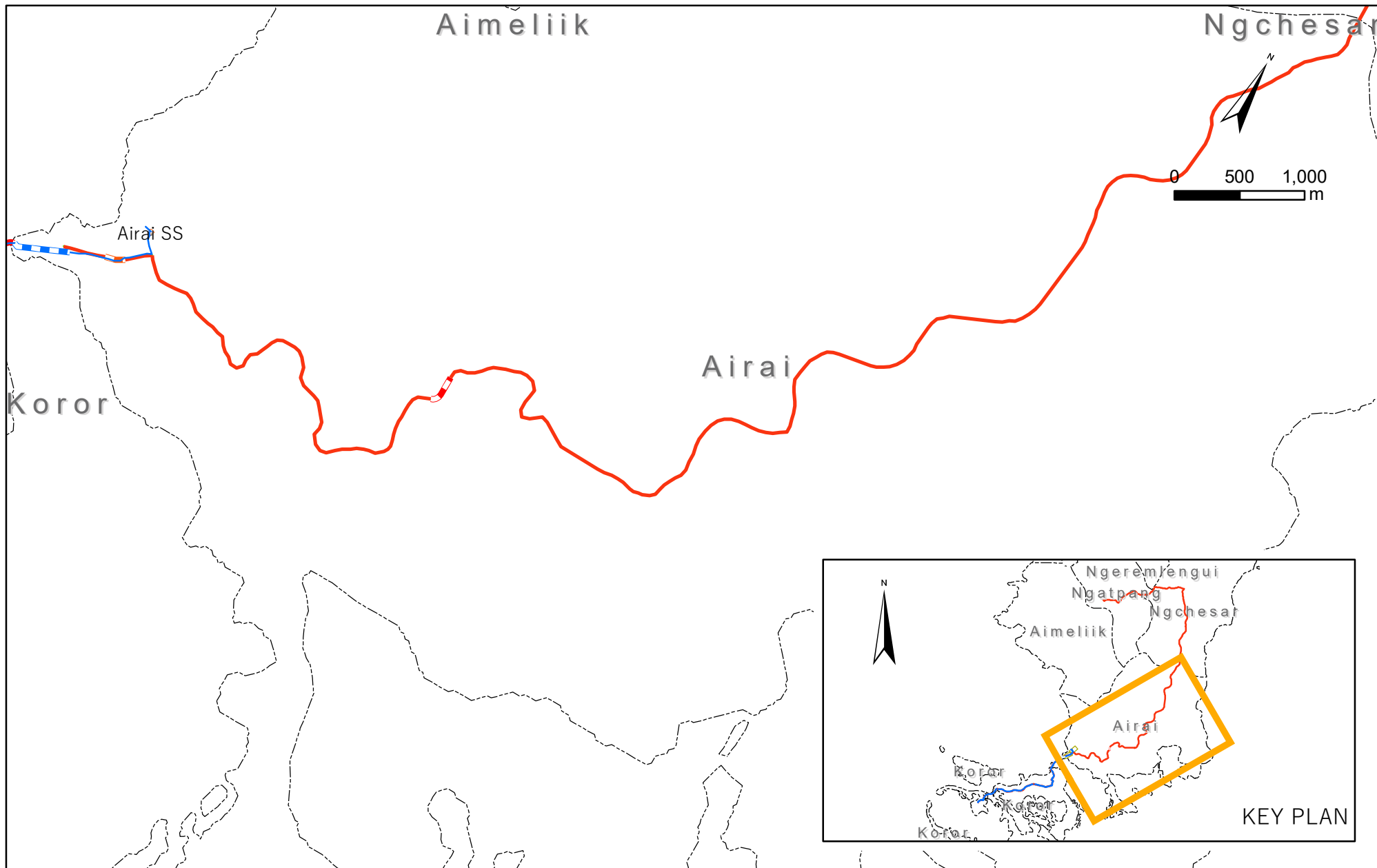
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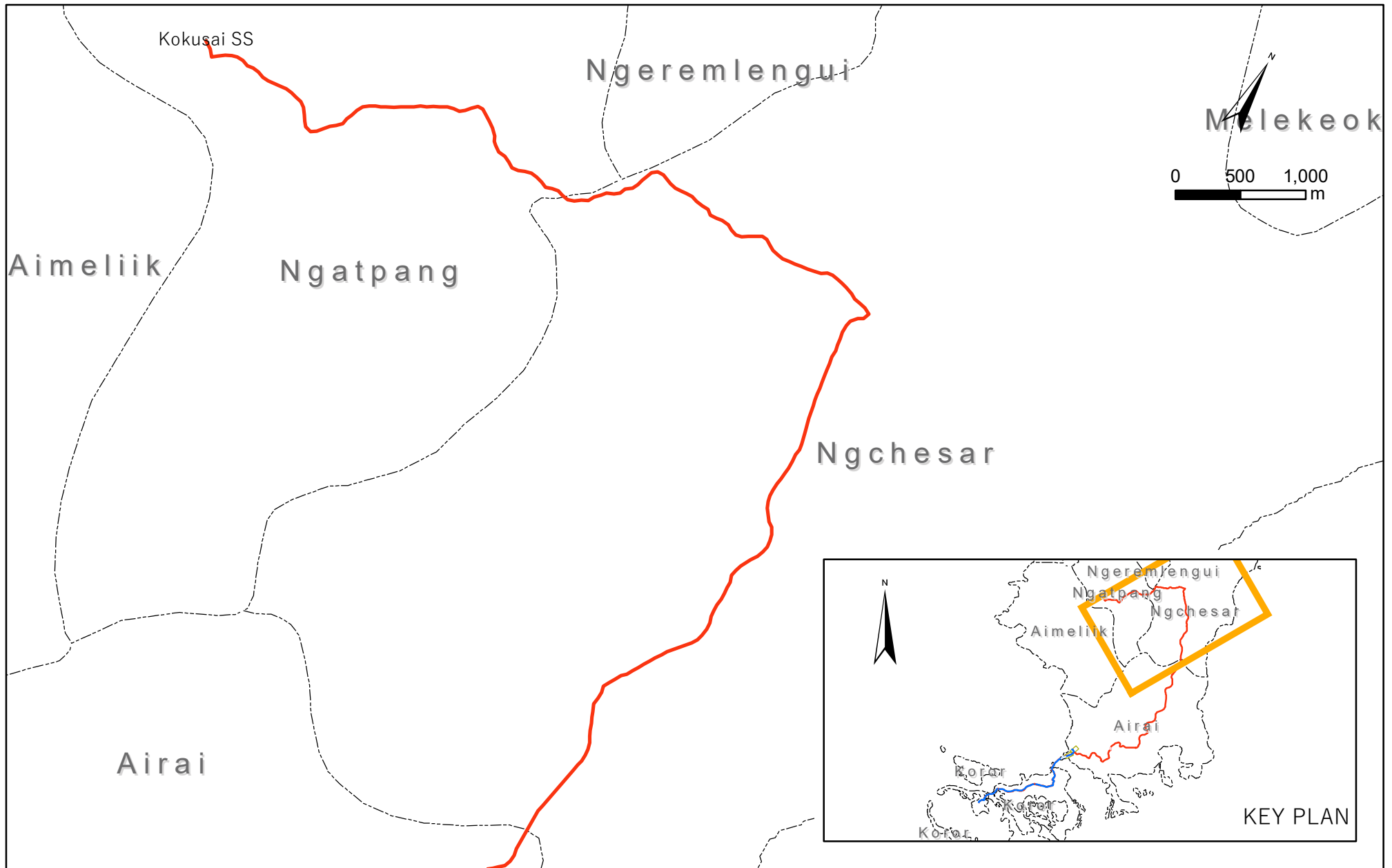
- Legend**
- Capital (Melekeok)
 - Substation
 - Substation / Power Station
 - 34.5kV Transmission Line
 - Power Pole
 - PV System
 - hist_sites
 - Palau International Airport
 - 2016_Roads_Merge
 - Building
 - State Boundary
 - Corals



1:120,000
















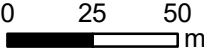




LEGEND

 Pole (New)	 Line (New)
 Pole (Replaced)	 Line (Existing)
 Pole (Rearranged)	 Cable (New)
 Pole (Existing)	 Cable (Existing)
 Manhole	 Communication Line







LEGEND

● Pole (New)	— Line (New)
● Pole (Replaced)	— Line (Existing)
● Pole (Rearranged)	- - - Cable (New)
○ Pole (Existing)	- - - Cable (Existing)
MH Manhole	— Communication Line



LEGEND

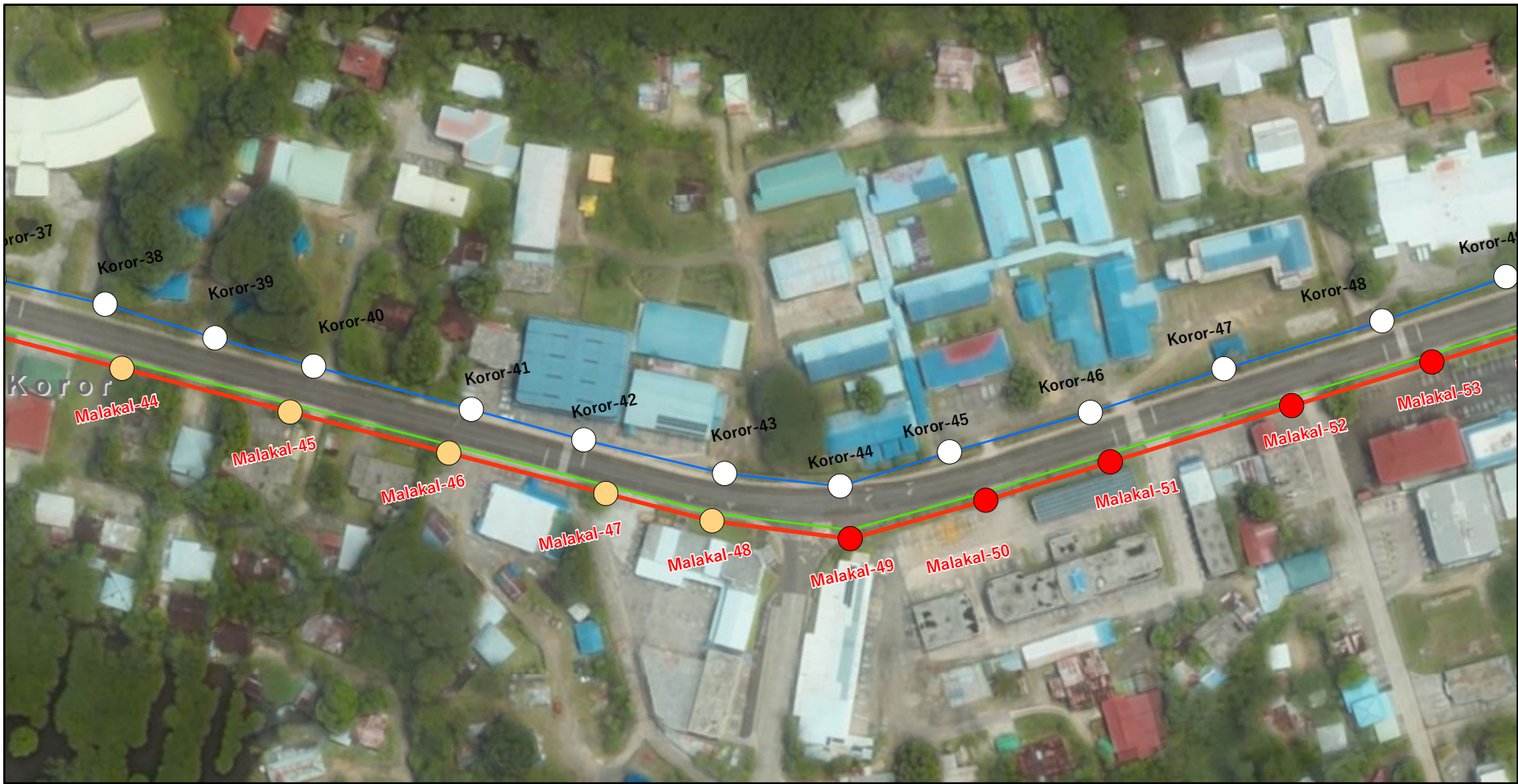
● Pole (New)	— Line (New)
● Pole (Replaced)	— Line (Existing)
● Pole (Rearranged)	— Cable (New)
 Pole (Existing)	— Cable (Existing)
MH Manhole	— Communication Line



LEGEND

● Pole (New)	— Line (New)
● Pole (Replaced)	— Line (Existing)
● Pole (Rearranged)	- - - Cable (New)
○ Pole (Existing)	- - - Cable (Existing)
MH Manhole	— Communication Line

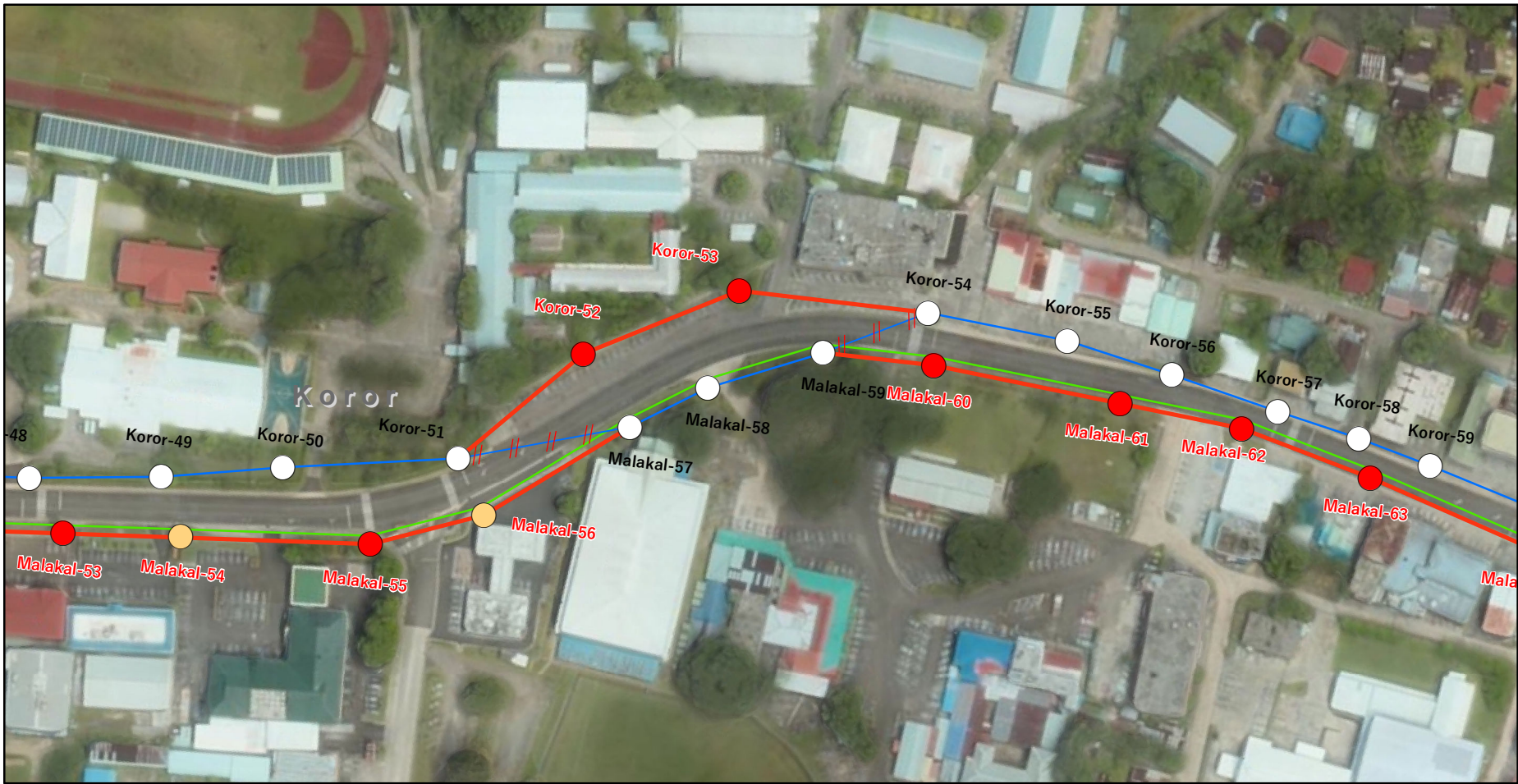
0 25 50 m













LEGEND


● Pole (New)	— Line (New)
● Pole (Replaced)	— Line (Existing)
● Pole (Rearranged)	— Cable (New)
○ Pole (Existing)	— Cable (Existing)
MH Manhole	— Communication Line

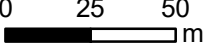
0 25 50 m

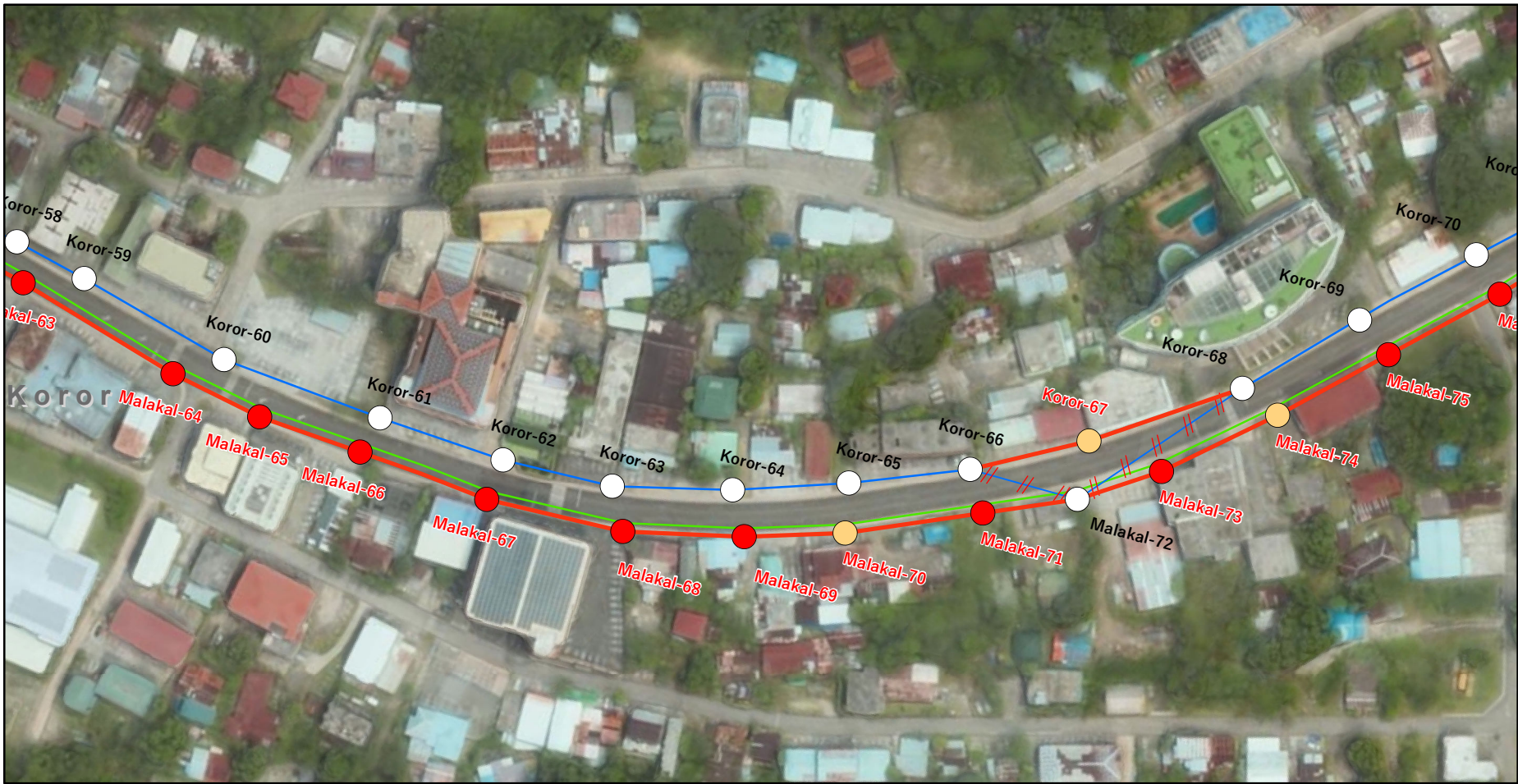


LEGEND

 Pole (New)	 Line (New)
 Pole (Replaced)	 Line (Existing)
 Pole (Rearranged)	 Cable (New)
 Pole (Existing)	 Cable (Existing)
 Manhole	 Communication Line



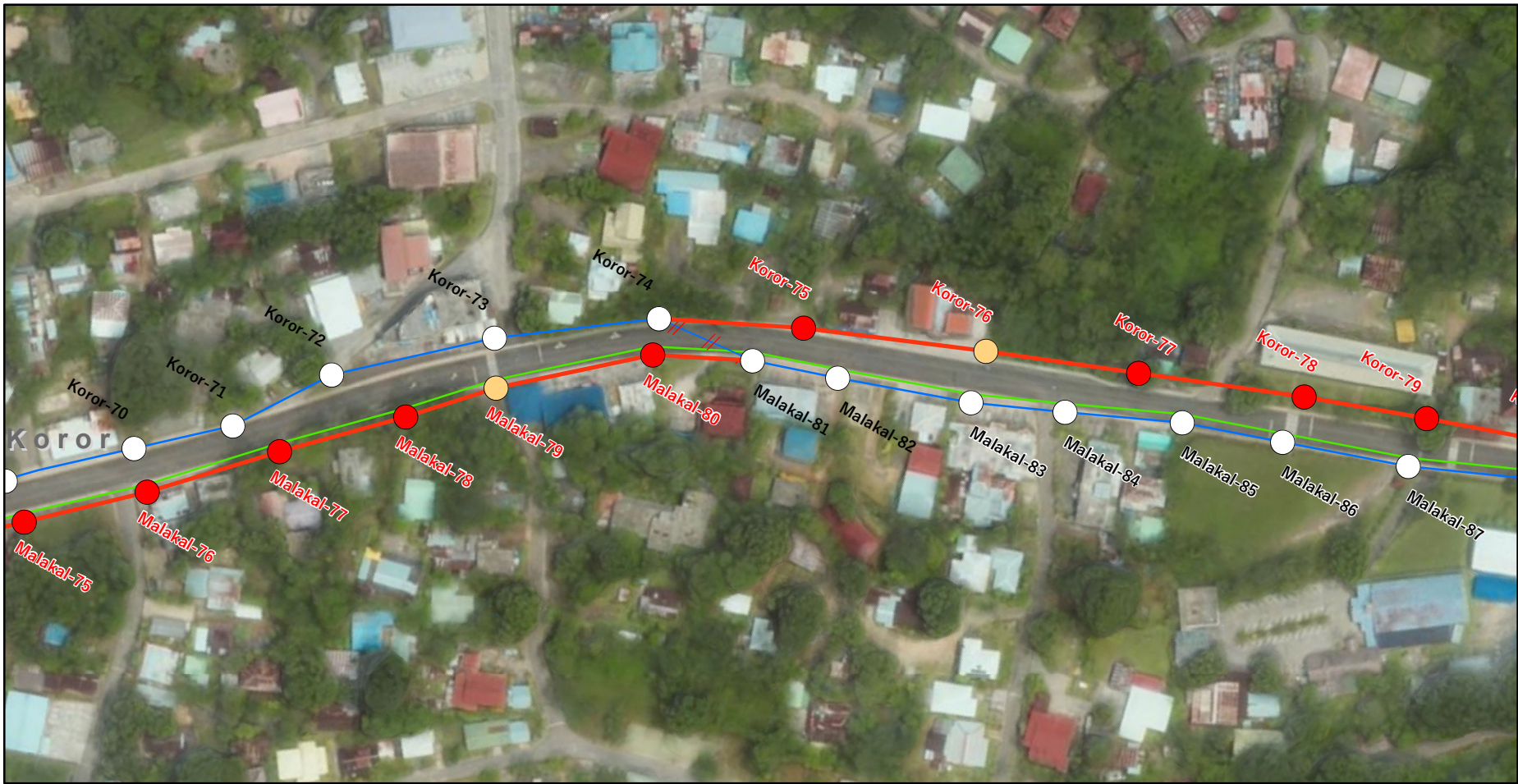














LEGEND


● Pole (New)	— Line (New)
● Pole (Replaced)	— Line (Existing)
● Pole (Rearranged)	- - - Cable (New)
○ Pole (Existing)	- - - Cable (Existing)
MH Manhole	— Communication Line

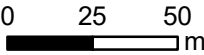
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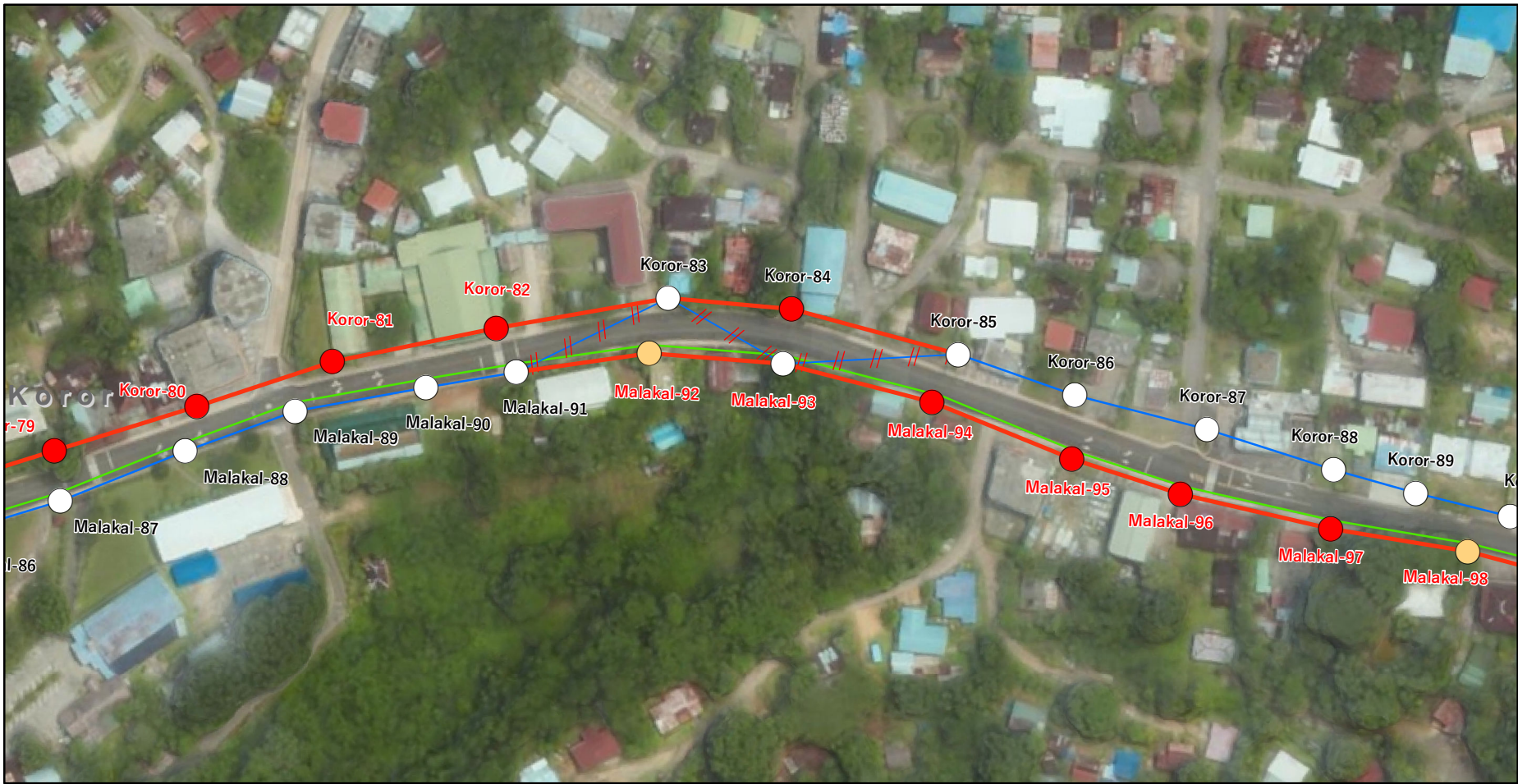


LEGEND

 Pole (New)	 Line (New)
 Pole (Replaced)	 Line (Existing)
 Pole (Rearranged)	 Cable (New)
 Pole (Existing)	 Cable (Existing)
 Manhole	 Communication Line



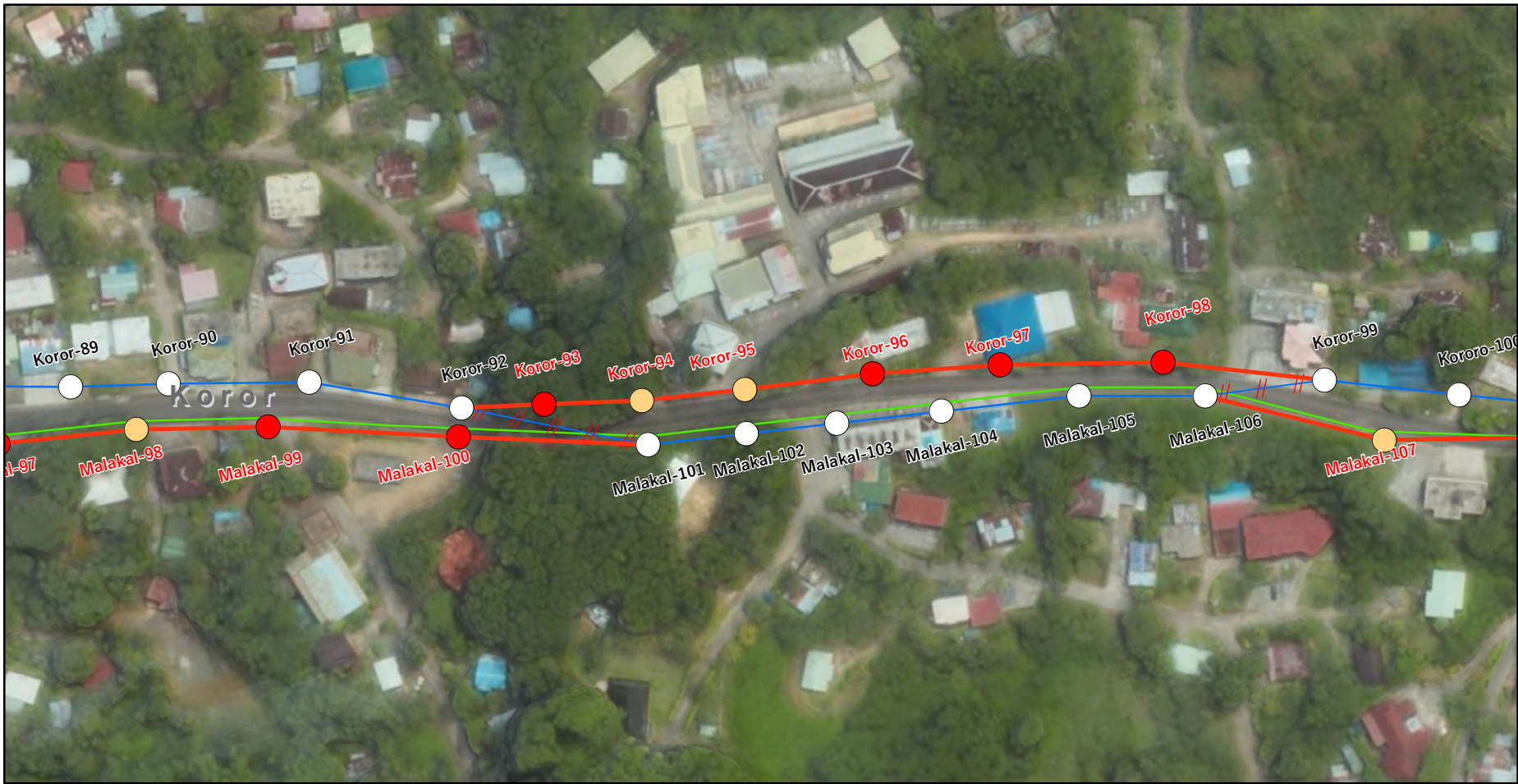




LEGEND

● Pole (New)	— Line (New)
● Pole (Replaced)	— Line (Existing)
● Pole (Rearranged)	- - - Cable (New)
○ Pole (Existing)	- - - Cable (Existing)
MH Manhole	— Communication Line

0 25 50 m



LEGEND

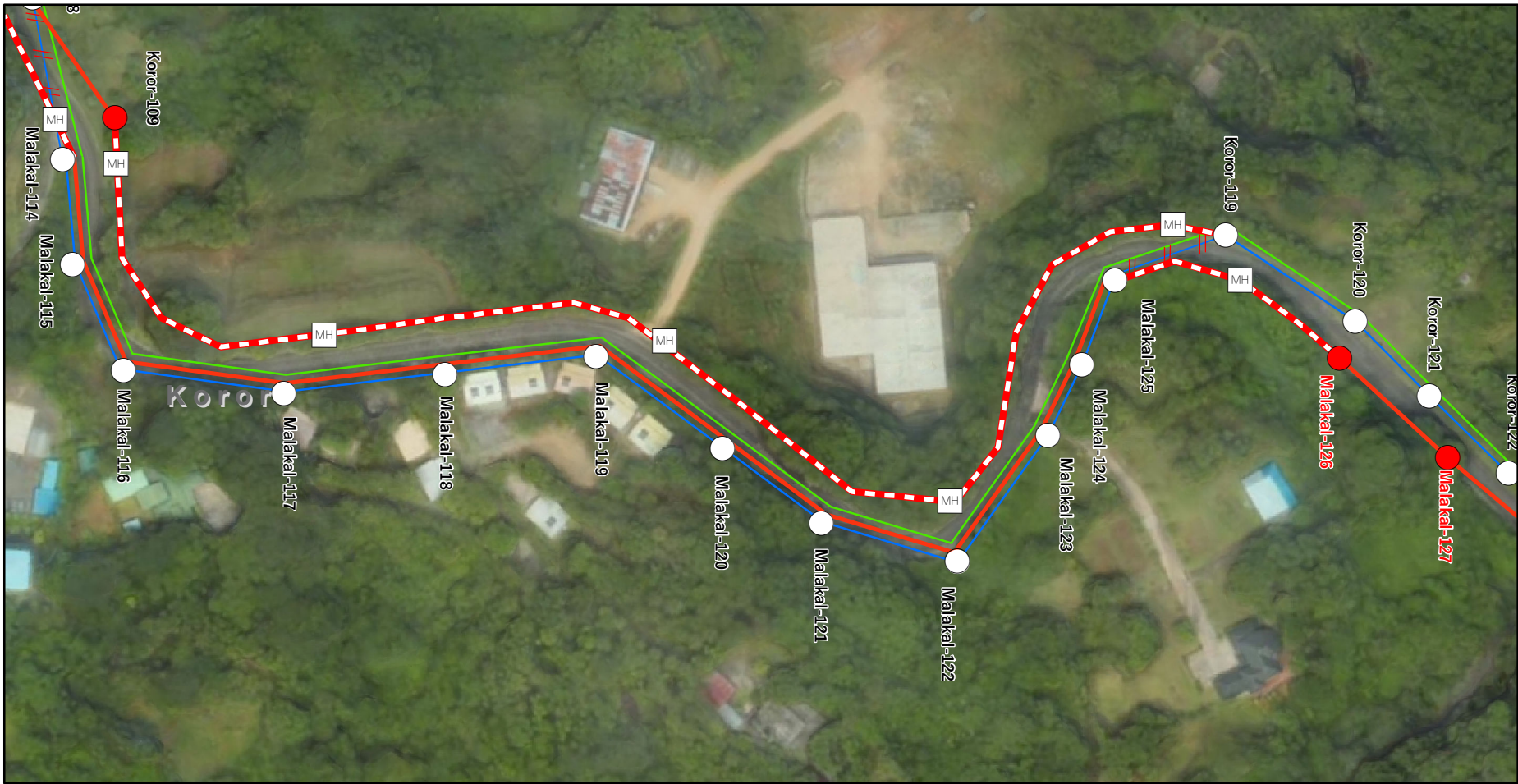
● Pole (New)	— Line (New)
● Pole (Replaced)	— Line (Existing)
● Pole (Rearranged)	 Cable (New)
 Pole (Existing)	 Cable (Existing)
MH Manhole	— Communication Line

0 25 50 m














LEGEND

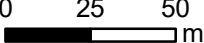
● Pole (New)	— Line (New)
● Pole (Replaced)	— Line (Existing)
● Pole (Rearranged)	- - - Cable (New)
○ Pole (Existing)	- - - Cable (Existing)
MH Manhole	— Communication Line

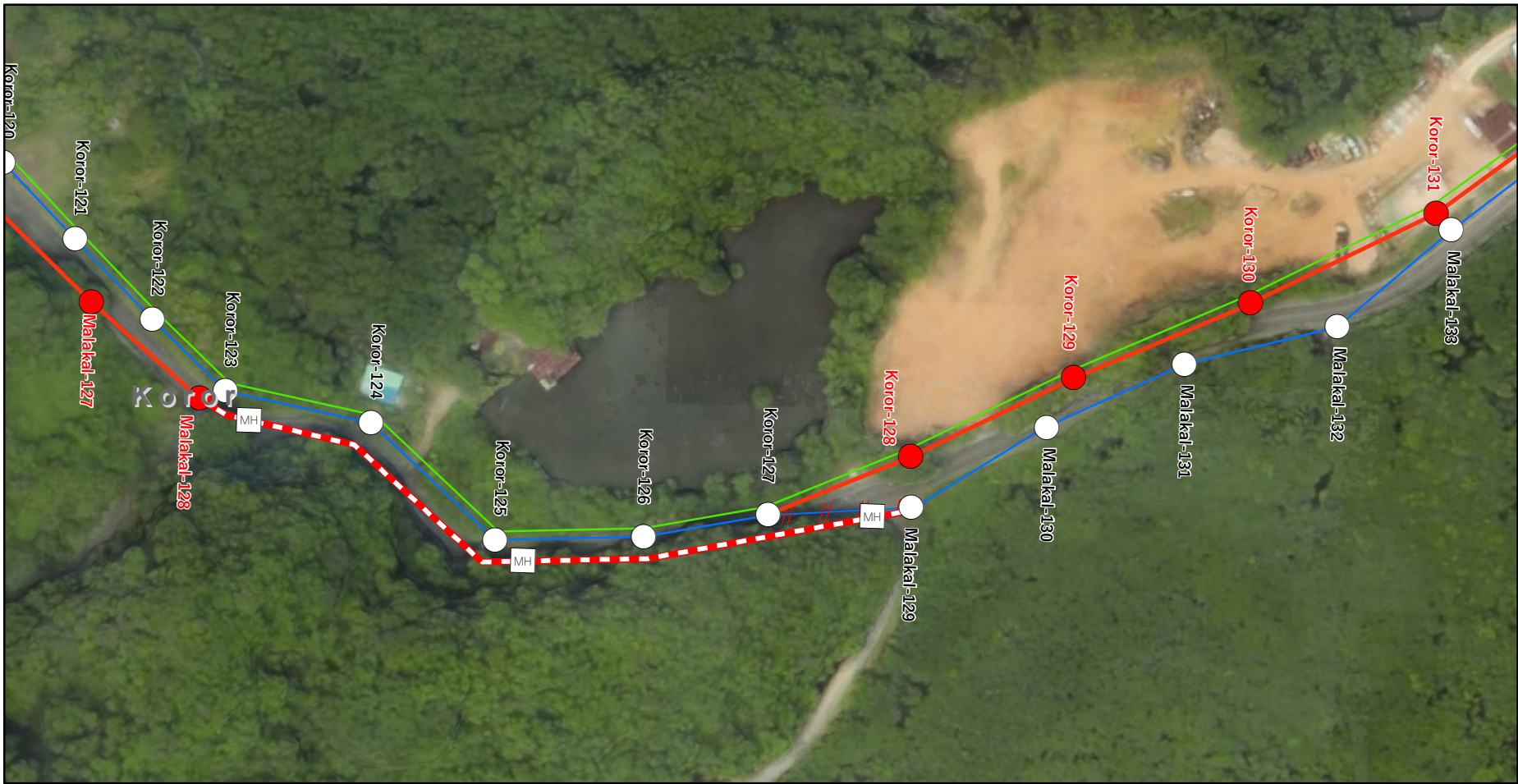


LEGEND

 Pole (New)	 Line (New)
 Pole (Replaced)	 Line (Existing)
 Pole (Rearranged)	 Cable (New)
 Pole (Existing)	 Cable (Existing)
 Manhole	 Communication Line







LEGEND

● Pole (New)	— Line (New)
● Pole (Replaced)	— Line (Existing)
● Pole (Rearranged)	 Cable (New)
 Pole (Existing)	 Cable (Existing)
MH Manhole	— Communication Line

0 25 50 m



LEGEND

● Pole (New)	— Line (New)
● Pole (Replaced)	— Line (Existing)
● Pole (Rearranged)	— Cable (New)
 Pole (Existing)	— Cable (Existing)
MH Manhole	— Communication Line

0 25 50 m



LEGEND

● Pole (New)	— Line (New)
● Pole (Replaced)	— Line (Existing)
● Pole (Rearranged)	— Cable (New)
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LEGEND

● Pole (New)	— Line (New)
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LEGEND

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● Pole (Rearranged)	— Cable (New)
 Pole (Existing)	— Cable (Existing)
MH Manhole	— Communication Line

0 25 50 m



LEGEND

	Pole (New)		Line (New)
	Pole (Replaced)		Line (Existing)
	Pole (Rearranged)		Cable (New)
	Pole (Existing)		Cable (Existing)
	Manhole		Communication Line



LEGEND

● Pole (New)	— Line (New)
● Pole (Replaced)	— Line (Existing)
● Pole (Rearranged)	- - - Cable (New)
○ Pole (Existing)	- - - Cable (Existing)
MH Manhole	— Communication Line



LEGEND

● Pole (New)	— Line (New)
● Pole (Replaced)	— Line (Existing)
● Pole (Rearranged)	 Cable (New)
○ Pole (Existing)	 Cable (Existing)
□ MH Manhole	— Communication Line



LEGEND

● Pole (New)	— Line (New)
● Pole (Replaced)	— Line (Existing)
● Pole (Rearranged)	 Cable (New)
○ Pole (Existing)	 Cable (Existing)
□ MH Manhole	— Communication Line

0 25 50 m



LEGEND

● Pole (New)	— Line (New)
● Pole (Replaced)	— Line (Existing)
● Pole (Rearranged)	 Cable (New)
○ Pole (Existing)	 Cable (Existing)
□ MH Manhole	— Communication Line

0 25 50 m



LEGEND

● Pole (New)	— Line (New)
● Pole (Replaced)	— Line (Existing)
● Pole (Rearranged)	 Cable (New)
 Pole (Existing)	 Cable (Existing)
MH Manhole	— Communication Line

0 25 50 m



LEGEND

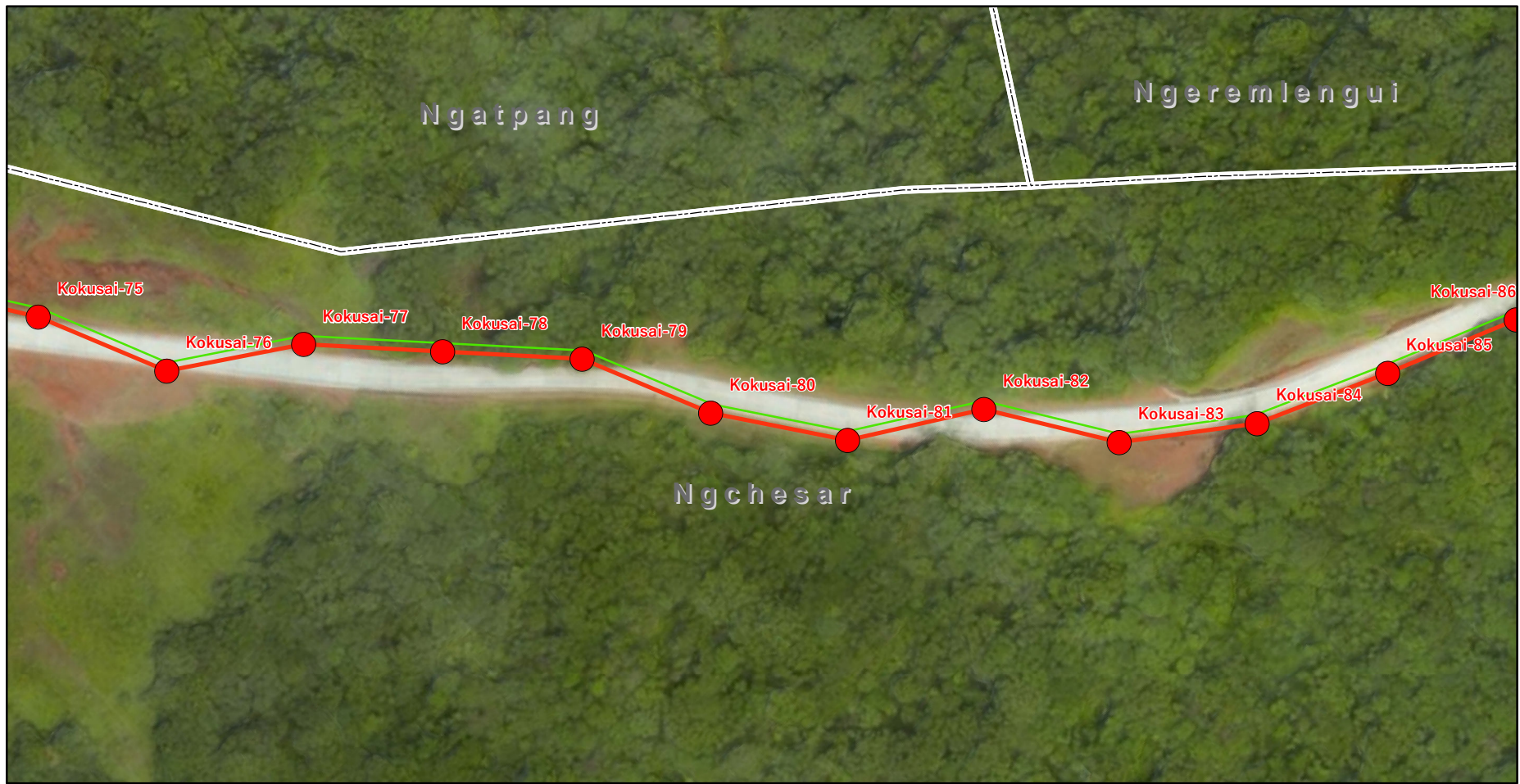
● Pole (New)	— Line (New)
● Pole (Replaced)	— Line (Existing)
● Pole (Rearranged)	- - - Cable (New)
○ Pole (Existing)	- - - Cable (Existing)
□ MH Manhole	— Communication Line

0 25 50 m



LEGEND

● Pole (New)	— Line (New)
● Pole (Replaced)	— Line (Existing)
● Pole (Rearranged)	 Cable (New)
○ Pole (Existing)	 Cable (Existing)
□ MH Manhole	— Communication Line



LEGEND

● Pole (New)	— Line (New)
● Pole (Replaced)	— Line (Existing)
● Pole (Rearranged)	- - - Cable (New)
○ Pole (Existing)	- - - Cable (Existing)
□ MH Manhole	— Communication Line



LEGEND

● Pole (New)	— Line (New)
● Pole (Replaced)	— Line (Existing)
● Pole (Rearranged)	 Cable (New)
○ Pole (Existing)	 Cable (Existing)
□ MH Manhole	— Communication Line

0 25 50 m













LEGEND

● Pole (New)	— Line (New)
● Pole (Replaced)	— Line (Existing)
● Pole (Rearranged)	 Cable (New)
○ Pole (Existing)	 Cable (Existing)
□ MH Manhole	— Communication Line

0 25 50 m



LEGEND

	Pole (New)		Line (New)
	Pole (Replaced)		Line (Existing)
	Pole (Rearranged)		Cable (New)
	Pole (Existing)		Cable (Existing)
	Manhole		Communication Line

