



NEPAL ELECTRICITY AUTHORITY
Medium Voltage Grid Development Department, Transmission Directorate

BIDDING DOCUMENT

For

**Package-1: Design Build Plant and Works for Construction of
Birauta 132/11kV Substation and Associated Transmission and Distribution Lines in Pokhara**
(Bid Identification No.: ICB/NEA/UTDSIP/82/83-01)

Volume of Annex

Drawings forming part of Specifications

Employer: Nepal Electricity Authority
Country: Federal Democratic Republic of Nepal
Loan No.: NE-P13
Project: Urban Transmission and Distribution System Improvement Project
Contract: Package-1: Design Build Plant and Works for Construction of Birauta 132/11kV Substation and Associated Transmission and Distribution Lines in Pokhara

October 2025



Volume of Annex: Drawings forming part of Specifications

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ANNEX-2 Drawings for Transmission Line Work

ANNEX-3 Drawings for Distribution Line Work





NEPAL ELECTRICITY AUTHORITY
Grid Development Department, Transmission Directorate

BIDDING DOCUMENT

For

**Package-1: Design Build Plant and Works for Construction of
Birauta 132/11kV Substation and Associated Transmission and Distribution Lines in Pokhara**
(Bid Identification No.: ICB/NEA/UTDSIP/81/82-01)

Annex-1

Drawings for Substation Work



Substation Work

Drawing List

No.	Title	Drawing No.
01	SINGLE LINE DIAGRAM BIRAUTA SUBSTATION	BIR-SS-E-1001
02	TYPICAL SAS ARCHITECTURE	BIR-SS-E-1002
03	SCADA AND COMMUNICATION SYSTEM	BIR-SS-E-1003
04	TYPICAL INVERTER DISTRIBUTION SYSTEM	BIR-SS-E-1004
05	TYPICAL AC 400V SUPPLY SYSTEM	BIR-SS-E-1005
06	TYPICAL DC 48V SUPPLY SYSTEM	BIR-SS-E-1006
07	TYPICAL DC 110V SUPPLY SYTEM	BIR-SS-E-1007
08	SYMBOLS (1)	BIR-SS-E-1008
09	SYMBOLS (2)	BIR-SS-E-1009
10	SYMBOLS (3)	BIR-SS-E-1010
11	SIGNAL EVENT LIST FOR SUBSTATION WORK	BIR-SS-E-1011

No.	Title	Drawing No.
11	BIRAUTA 132/11KV GIS SUBSTATION -LOCATION PLAN-	BIR - SS - C - 0001
12	BIRAUTA 132/11KV GIS SUBSTATION -TOPOGRAPHIC SURVEY PLAN-	BIR - SS - C - 0002
13	BIRAUTA 132/11KV GIS SUBSTATION -DEMOLITION OF EXISTING BOUNDARY WALL, BUILDINGS & STRUCTURES-	BIR - SS - C - 0003
14	BIRAUTA 132/11KV GIS SUBSTATION -GENERAL LAYOUT-	BIR - SS - C - 0101
15	BIRAUTA 132/11KV GIS SUBSTATION BUILDING -ELEVATIONS-	BIR - SS - C - 0201
16	BIRAUTA 132/11KV GIS SUBSTATION BUILDING -SECTIONS-	BIR - SS - C - 0202
17	BIRAUTA 132/11KV GIS SUBSTATION BUILDING -BASEMENT FLOOR PLAN-	BIR - SS - C - 0203
18	BIRAUTA 132/11KV GIS SUBSTATION BUILDING -GROUND FLOOR PLAN-	BIR - SS - C - 0204
19	BIRAUTA 132/11KV GIS SUBSTATION BUILDING -FIRST FLOOR PLAN-	BIR - SS - C - 0205
20	BIRAUTA 132/11KV GIS SUBSTATION BUILDING -ROOF PLAN-	BIR - SS - C - 0206
21	BIRAUTA 132/11KV GIS SUBSTATION -GUARD HOUSE PLAN, SECTION & ELEVATION-	BIR - SS - C - 0207
22	BIRAUTA STAFF QUARTER BUILDING -ELEVATIONS & SECTION-	BIR - SS - C - 0301
23	BIRAUTA STAFF QUARTER BUILDING -FLOOR PLAN-	BIR - SS - C - 0302
24	TYPICAL BOUNDARY WALL DETAILS	BIR - SS - C - 0401
25	DETAIL DRAWING OF MAIN GATE	BIR - SS - C - 0402
26	SIDE DRAIN - D2	BIR - SS - C - 0403



NEPAL ELECTRICITY AUTHORITY

Urban Transmission and Distribution
System Improvement Project

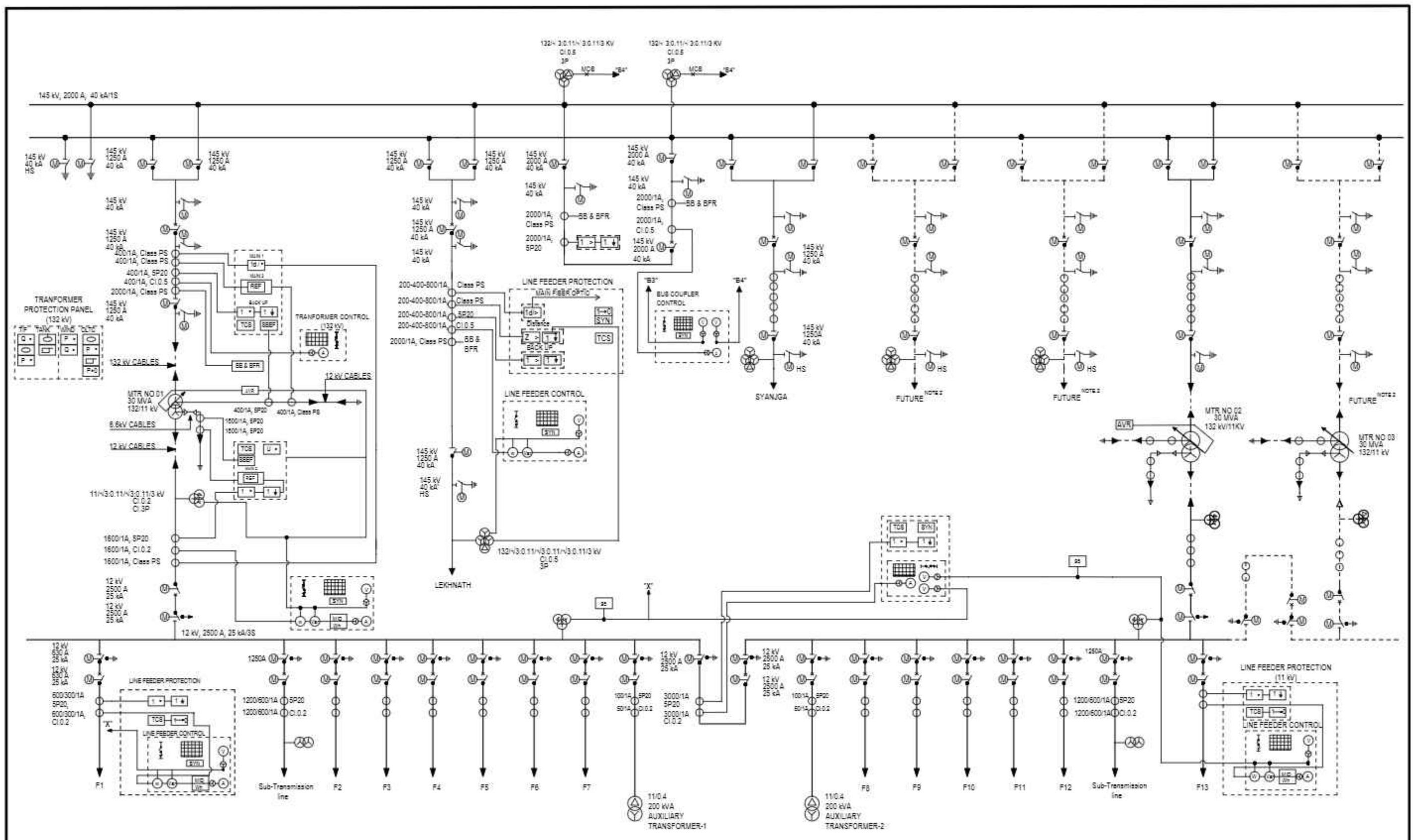
Nippon Koei Co., Ltd., Japan
in association with
Total Management Services Pvt. Ltd., Nepal

Drawing No :

Title :

Drawing List





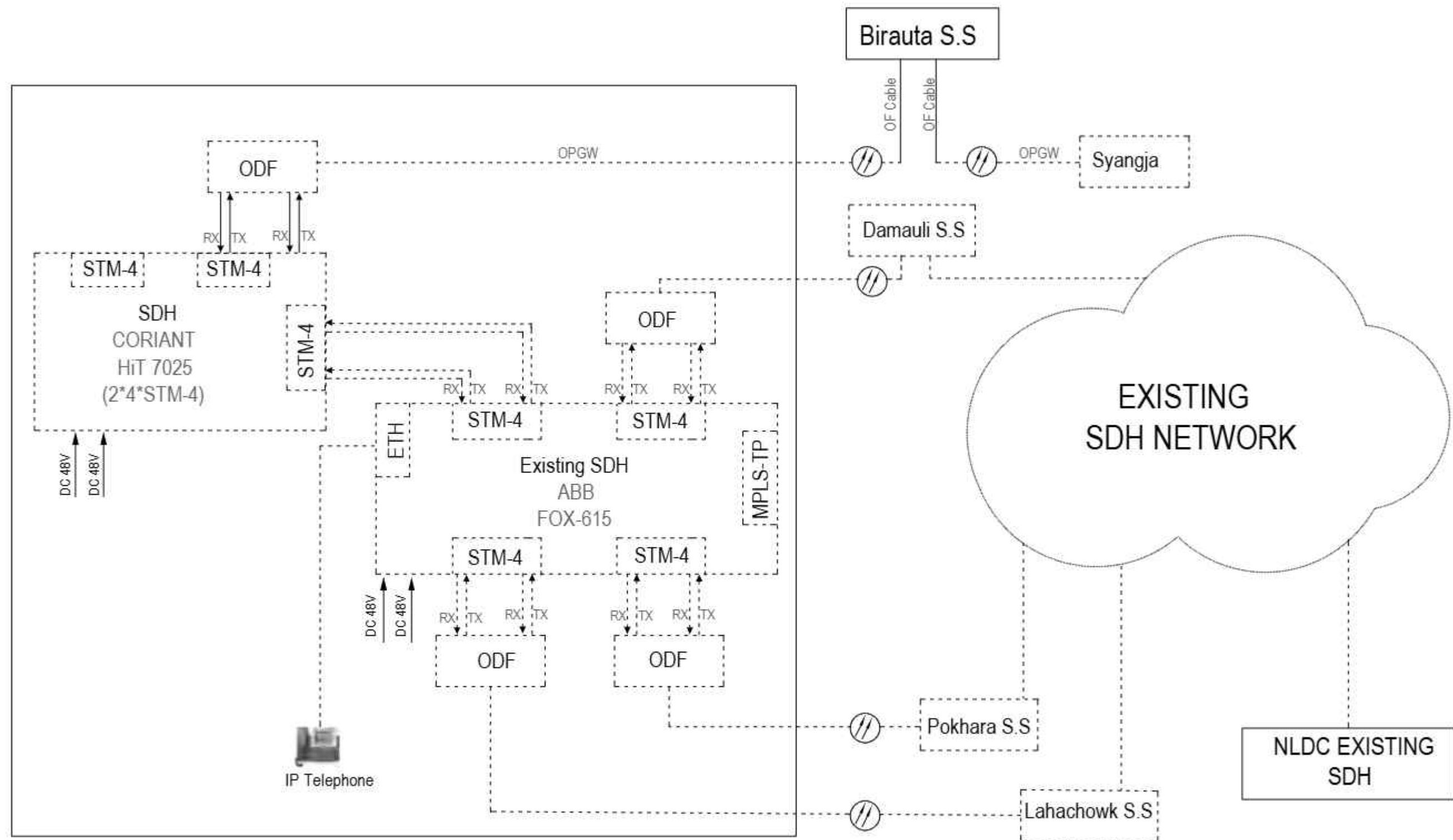
NOTE:

1. 11kV GIS: The disconnecting switch at line side or bus bar side is acceptable.
2. 132kV GIS: The space for three(3) future feeders will be provided in 132kV GIS room.
3. The order of feeders may be rearranged in detail design stage.

FOR BIDDING PURPOSE ONLY

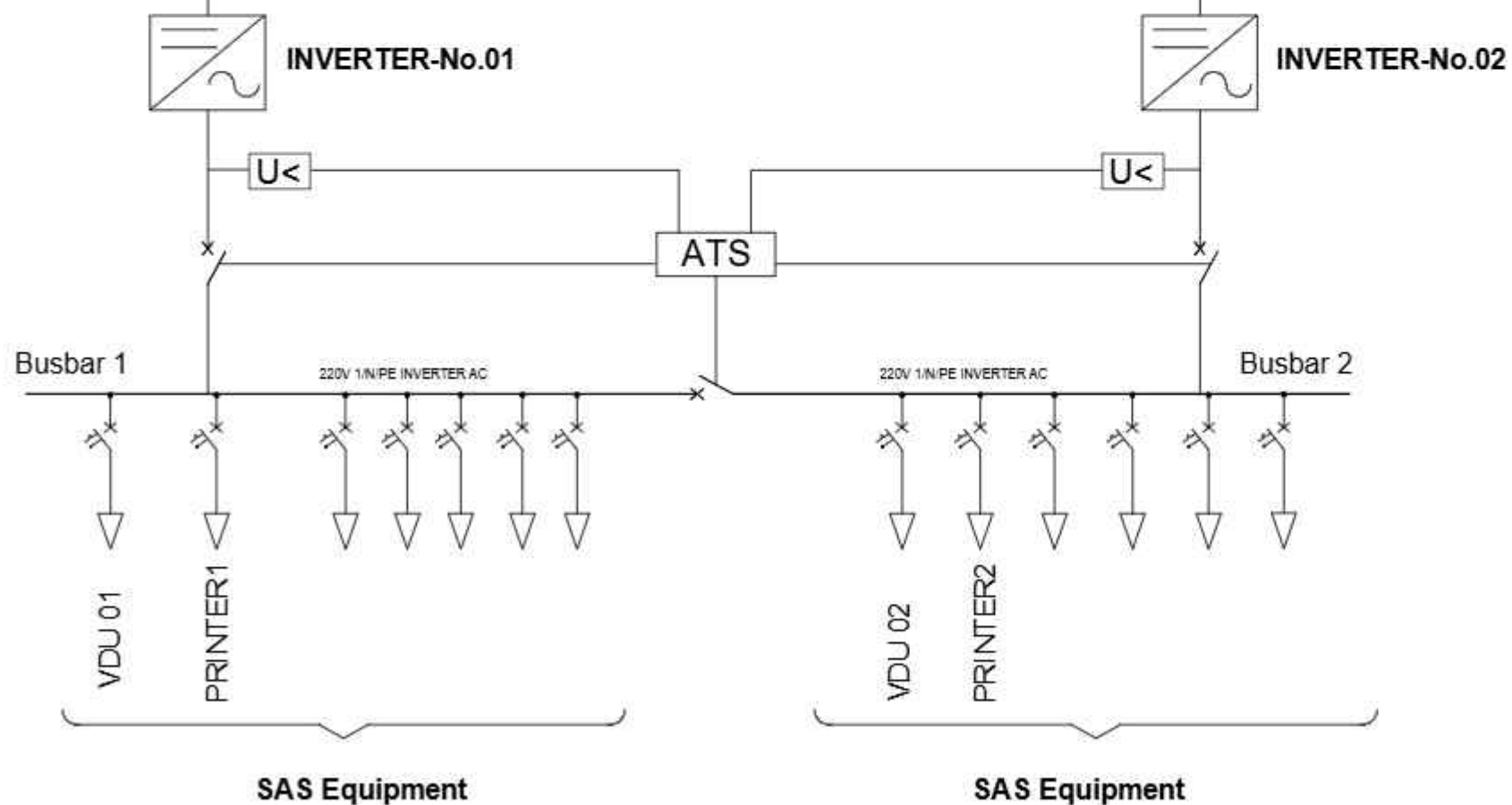
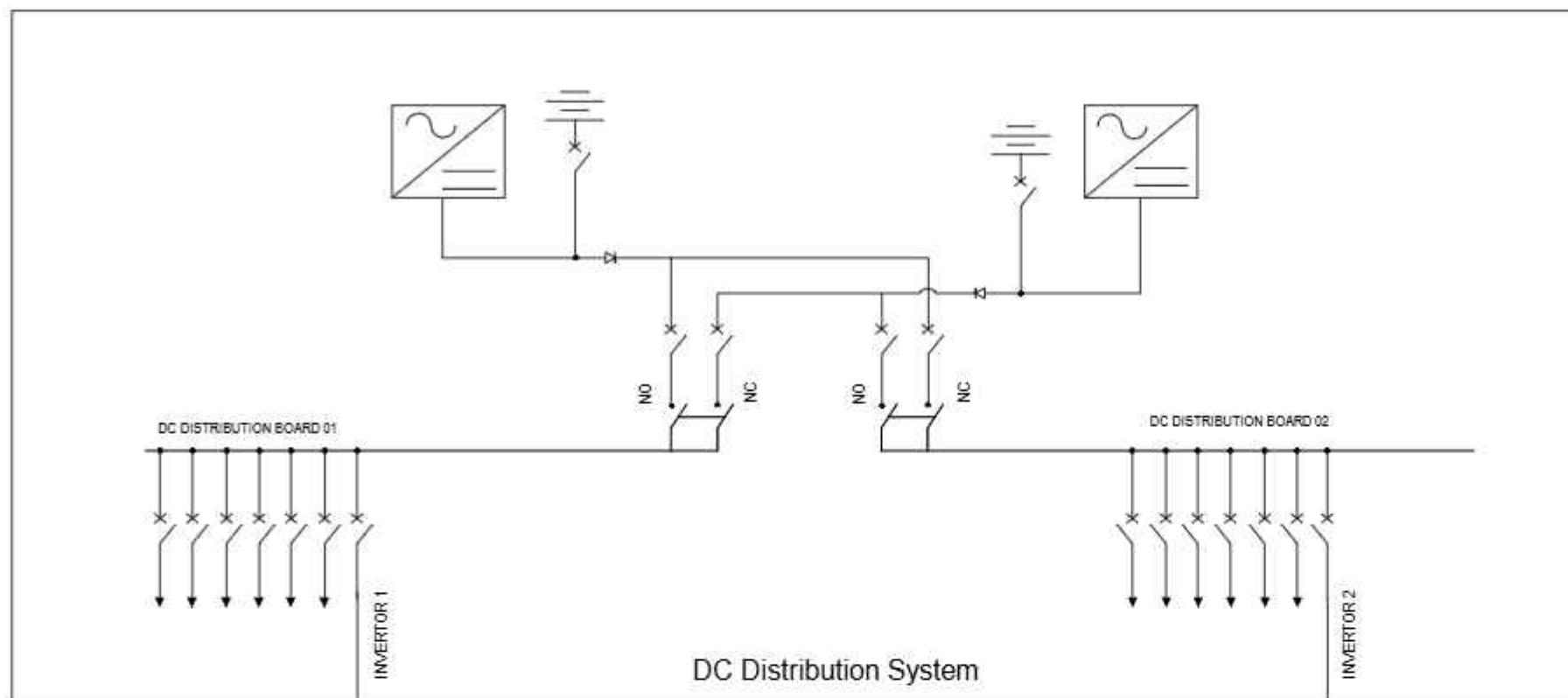
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				Checked			CONTRACT No. : GDD-PSC-UTDSIP-079/80	NEPAL ELECTRICITY AUTHORITY		Drawing No. : BIR-SS-E-1001	Sheet No. :
				Designed							REV :





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Rev.	Description	Date	Drawn	Function	Name	Date	Project Name	Client	Consultant	Drawing Title	Scale
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				Checked			CONTRACT No. : GDD-PSC-UTDSIP-079/80			Drawing No. : BIR-SS-E-1003	Sheet No. :
				Designed							REV:



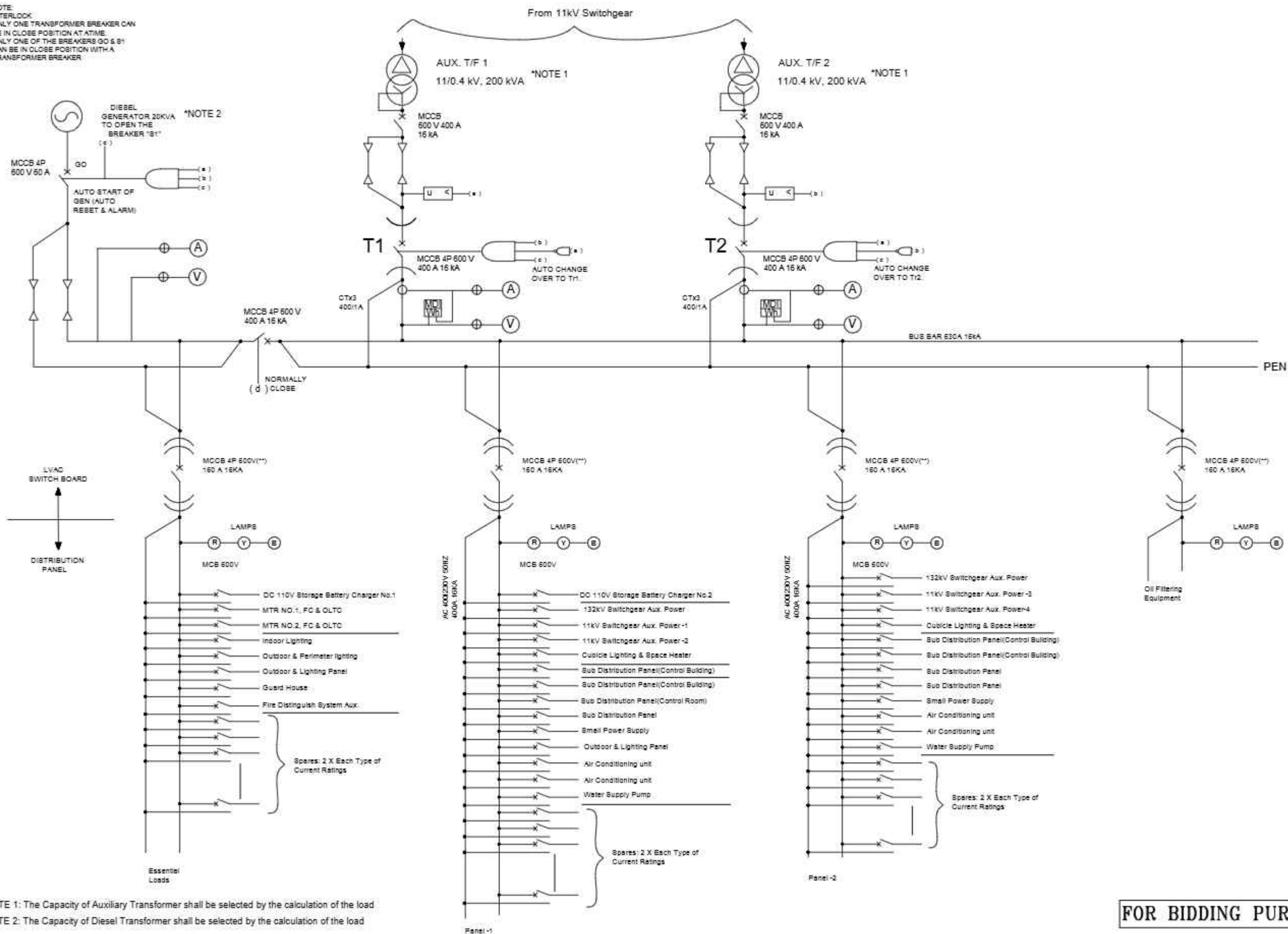
LEGEND :

NO.	SYMBOL/DESIGNATION	MEANING
1.		CIRCUIT BREAKER
2.		MINIATURE CIRCUIT BREAKER
3.		BATTERY CHARGER
4.		BATTERY
5.		FUSE
6.		DIODE (DECOUPLING)
7.	ATS	AUTOMATIC TRANSFER SYSTEM
8.		RECTIFIER
9.		INVERTER
10.	UPS	UN-INTERRUPTABLE POWER SUPPLY
11.	SAS	SUBSTATION AUTOMATION SYSTEM

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Rev.	Description	Date	Drawn	Function	Name	Date	Project Name :	Client :	Consultant :	Drawing Title :	Scale :
				Approved			URBAN TRANSMISSION AND DISTRIBUTION SYSTEM IMPROVEMENT PROJECT		NIPPON KOEI CO., LTD. IN ASSOCIATION WITH TOTAL MANAGEMENT SERVICES PVT., LTD.	TYPICAL INVERTER DISTRIBUTION SYSTEM	
				Checked			CONTRACT No. : GDD-PSC-UTDSIP-079/80	NEPAL ELECTRICITY AUTHORITY		Drawing No. : BIR-SS-E-1004	Sheet No. :
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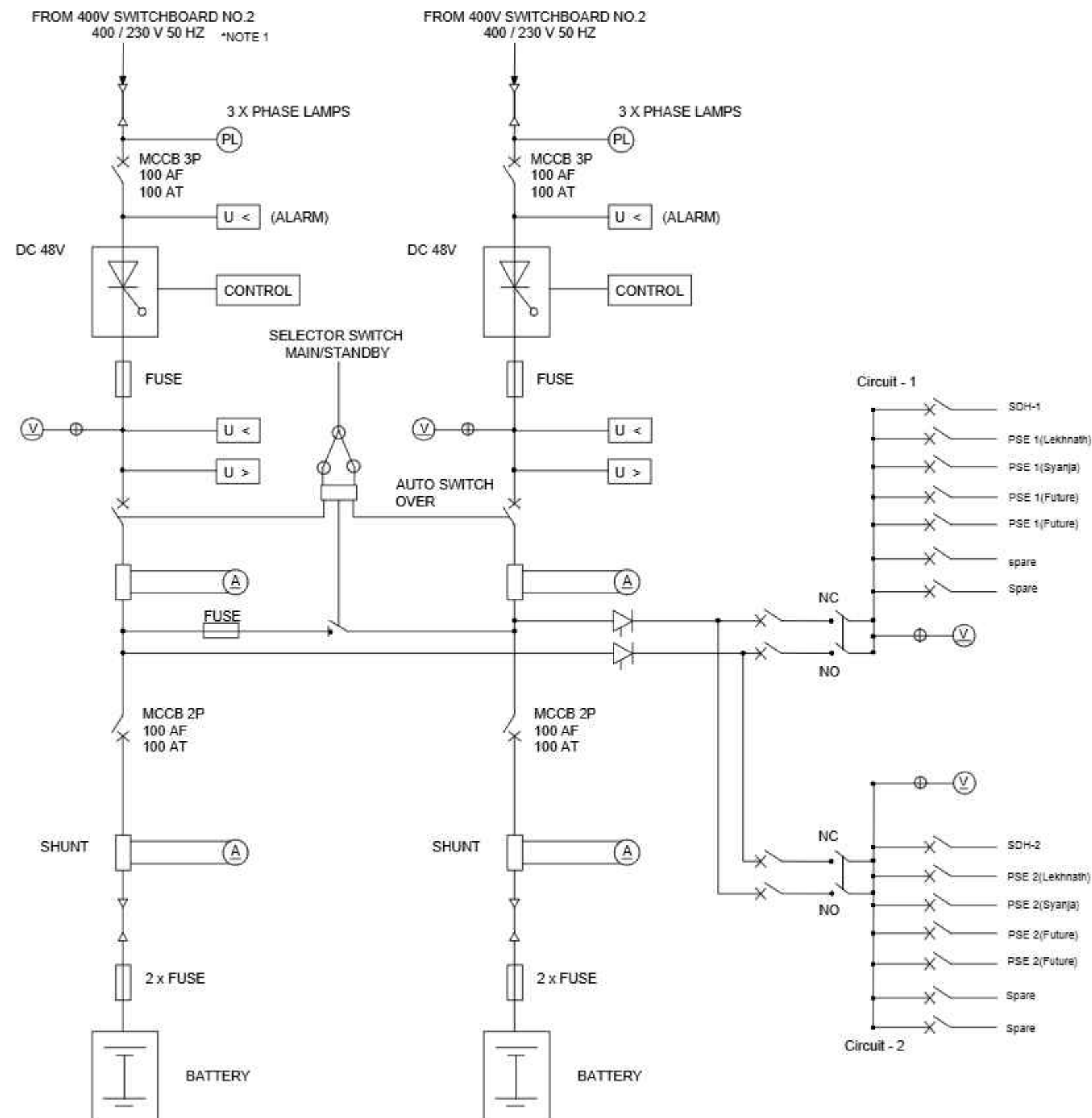
NOTE:
INTERLOCK
ONLY ONE TRANSFORMER BREAKER CAN
BE IN CLOSE POSITION AT A TIME.
ONLY ONE OF THE BREAKERS GO & S1
CAN BE IN CLOSE POSITION WITH A
TRANSFORMER BREAKER.



*NOTE 1: The Capacity of Auxiliary Transformer shall be selected by the calculation of the load.
*NOTE 2: The Capacity of Diesel Transformer shall be selected by the calculation of the load.

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Rev.	Description	Date	Drawn	Name	Date	Project Name :	Client :	Consultant :	Drawing Title :	Scale :
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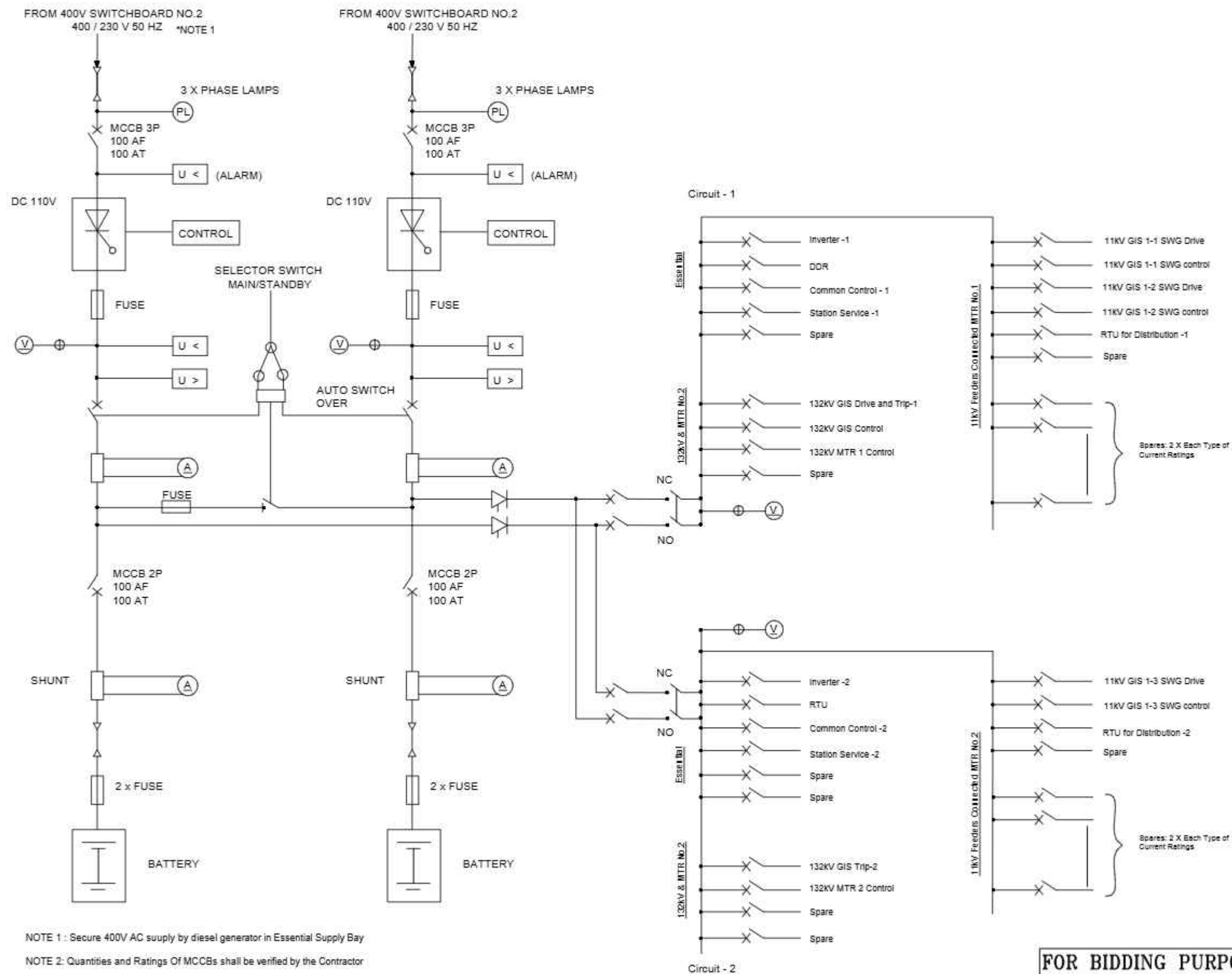


NOTE 1 : Secure 400V AC supply by diesel generator in Essential Supply Bay

NOTE 2: Quantities and Ratings Of MCCBs shall be verified by the Contractor

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Rev.	Description	Date	Drawn	Checked	Approved	Name	Date	Project Name :	Client :	Consultant :	Drawing Title :	Scale :
								URBAN TRANSMISSION AND DISTRIBUTION SYSTEM IMPROVEMENT PROJECT	NEPAL ELECTRICITY AUTHORITY	NIPPON KOEI CO., LTD. IN ASSOCIATION WITH TOTAL MANAGEMENT SERVICES PVT., LTD.	TYPICAL DC 48 V SUPPLY SYSTEM	Sheet No. :
								CONTRACT No. : GDD-PSC-UTDSIP-079/80			Drawing No. : BIR-SS-E-1006	REV :



FOR BIDDING PURPOSE ONLY

Rev.	Description	Date	Drawn	Name
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Primary Power Circuit

	Auto - Transformer
	Transformer (D - y connection)
	Transformer With On Load Tap Changer (Y-y Connection)
	Zigzag - Transformer
	Underground Cable With Cable Head
	Disconnection Switch With Earth Switch
	Circuit Breaker
	Current Transformer
	Disconnection Switch
	Earth Switch
	Motor Drive Actuator
HS	High Speed
	Voltage Transformer (Y-y-y Connection)
	Voltage Transformer (Y-y-bd(broken delta) Connection)

Primary Power Circuit

	Lightning Arrestor
	Neutral Grounding Arrestor
	Synchronous Generator

Station Service Circuit

	Diesel Generator
	AC Power Source
AC	Alternative Current Circuit
DC	Direct Current Circuit
	Battery

Control or Monitoring Places

	National Control Center
	Distribution Control center

Transmission Path

FO	Fiber Optics Cable
E/N	Ether Net
	Star Topology Path Or Parallel Wired Path Connection

Protocols

60870-5	IEC 60870-5-104 Protocol
61850-8	IEC 61850-8 Protocol
TCP/IP	TCP/IP protocol
IP	IP protocol
LON	LON works Network

WLAN Level Equipment

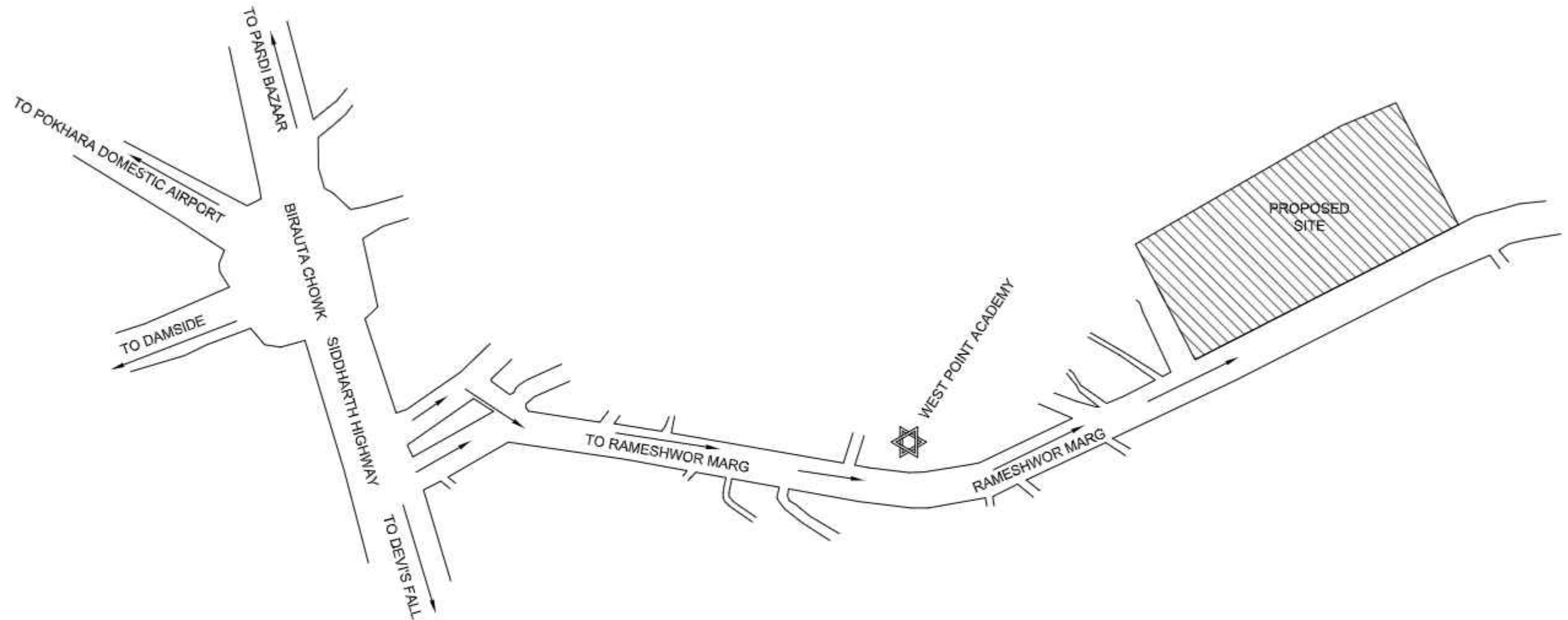
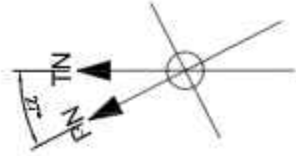
	Synchronous Digital Hierarchy (WLAN- Switch/MPX)
	Remote Terminal Unit
	Automation Component (Data Communication for Distribution System)
	Gate-way
	Optical Distribution Frame
	Modem
	Network Router

SAS Equipment

	SAS Server
	
	
	Human Machine Interface PC
	Network Switch

Signal List (132kV)

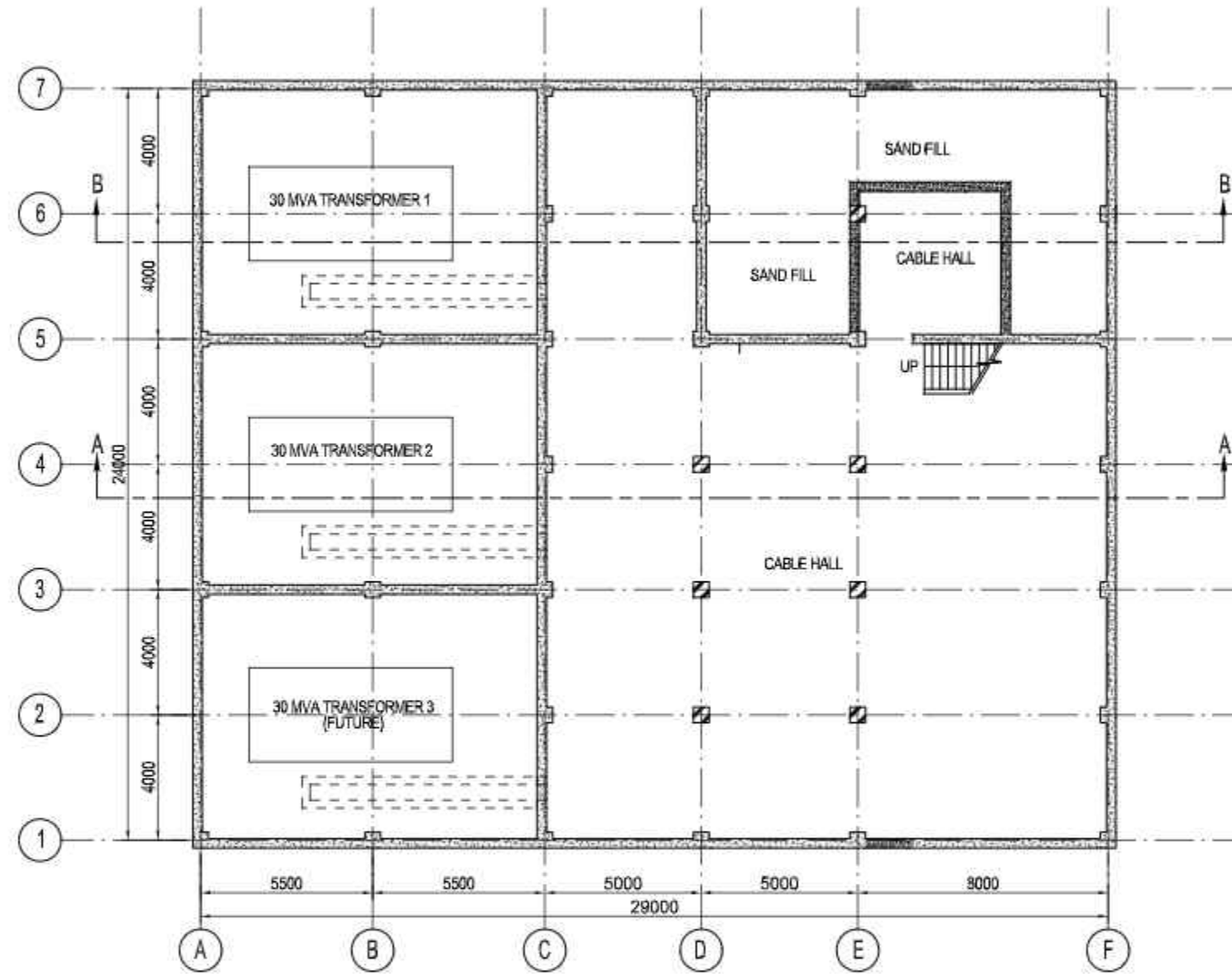
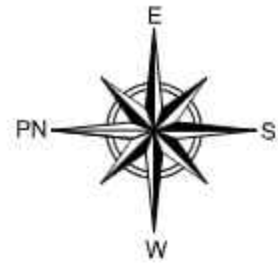
Feeder	Signal Name	Signal Status	Binary Type	Signal Type	Local	SAS	LDC	Note 4		Note 5	
								MCC	ELC	4th Loc.	
Substation Common Signal	Gateway Fail Alarm	Appear/Disappear	Single Point	Alarm	✓	✓	1005	M105	E105	✓	
	Communication Fail Alarm(FOX)	Appear/Disappear	Single Point	Alarm	✓	✓	1005	M105	E105	✓	
	Telephone EX Fail	Appear/Disappear	Single Point	Alarm	✓	✓	1005	M105	E105	✓	
	Fire Fighting System Group Alarm	Appear/Disappear	Single Point	Alarm	✓	✓	1002	M102	E102	✓	
	Room Temperature Group Alarm	Appear/Disappear	Single Point	Alarm	✓	✓	1002	M102	E102	✓	
	Air Conditioner Fail Alarm-Control Room	Appear/Disappear	Single Point	Alarm	✓	✓	1002	M102	E102	✓	
	Air Conditioner Fail Alarm-Communication Room	Appear/Disappear	Single Point	Alarm	✓	✓	1002	M102	E102	✓	
	Air Conditioner Fail Alarm-Switchgear Room	Appear/Disappear	Single Point	Alarm	✓	✓	1002	M102	E102	✓	
	Outdoor Temperature	Analog	Digital Measurement	Value(+/-)	✓	✓	6044	M644	E644	✓	
	Humidity	Analog	Digital Measurement	Value	✓	✓	6045	M645	E645	✓	



LOCATION PLAN
(NOT TO SCALE)

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			Function	Name	Date	Project Name :	Client :	Consultant :	Drawing Title :	Scale :
			Approved			URBAN TRANSMISSION AND DISTRIBUTION		NIPPON KOEI CO., LTD.	BIRAUTA 132/11kV GIS SUBSTATION	NONE
			Checked			SYSTEM IMPROVEMENT PROJECT		IN ASSOCIATION WITH	LOCATION PLAN	Sheet No. : 1 of 1
			Designed			CONTRACT No. : GDD-PSC-UTDS/IP-079/80	NEPAL ELECTRICITY AUTHORITY	TOTAL MANAGEMENT SERVICES PVT., LTD.	Drawing No. : BIR - SS - C - 0001	REV : 0
Rev.	Description	Date	Drawn							

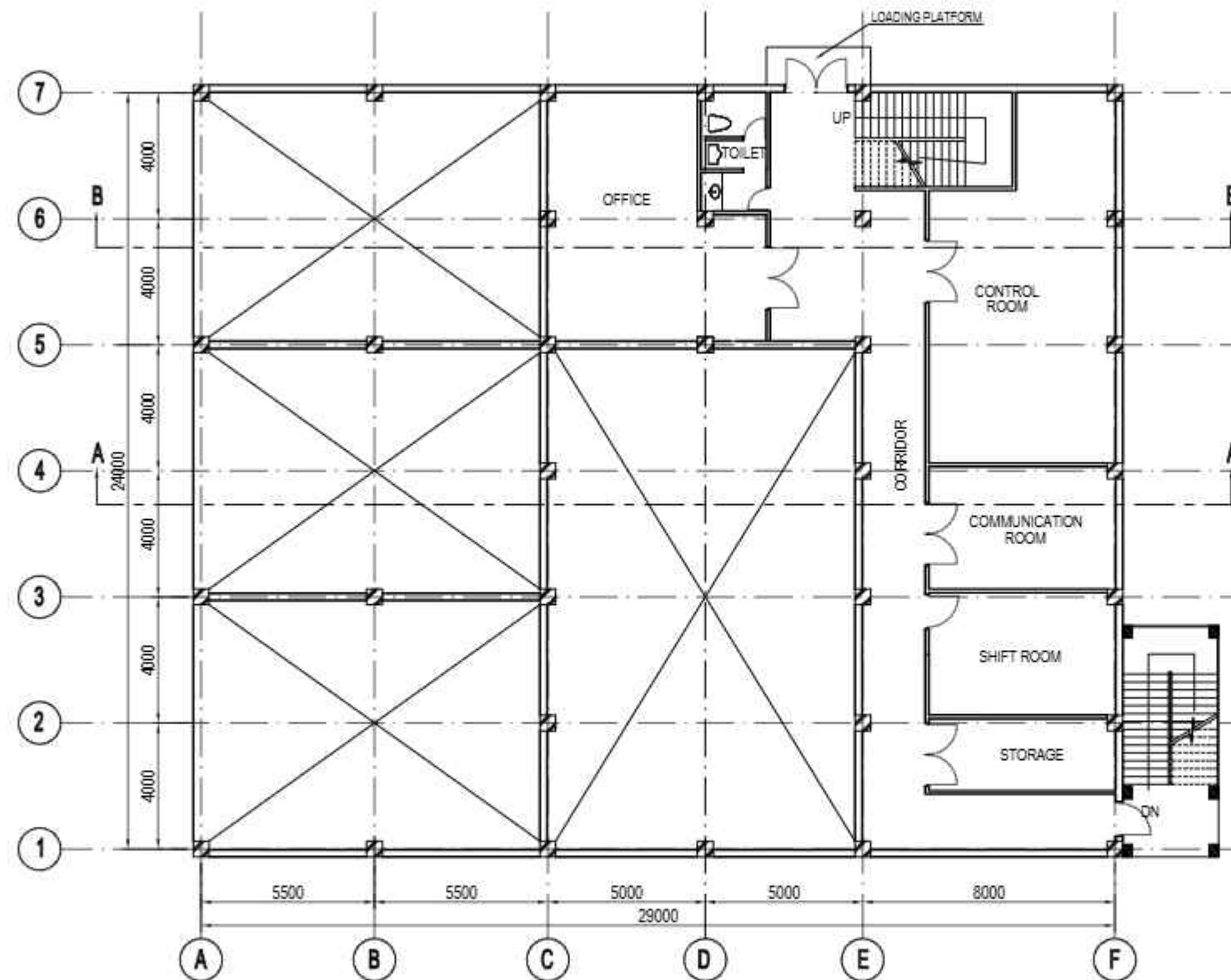
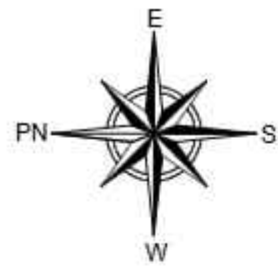


BASEMENT FLOOR PLAN



FOR BIDDING PURPOSE ONLY

Rev.	Description	Date	Drawn	Function	Name	Date	Project Name :	Client :	Consultant :	Drawing Title :	Scale :
				Approved			URBAN TRANSMISSION AND DISTRIBUTION SYSTEM IMPROVEMENT PROJECT		NIPPON KOEI CO., LTD. IN ASSOCIATION WITH TOTAL MANAGEMENT SERVICES PVT., LTD.	BIRAUTA 132/11kV GIS SUBSTATION BUILDING BASEMENT FLOOR PLAN	1 : 100
				Checked			CONTRACT No. : GDD-PSC-UTDSIP-079/80	NEPAL ELECTRICITY AUTHORITY		Drawing No. : BIR - SS - C - 0203	Sheet No. : 3 of 6
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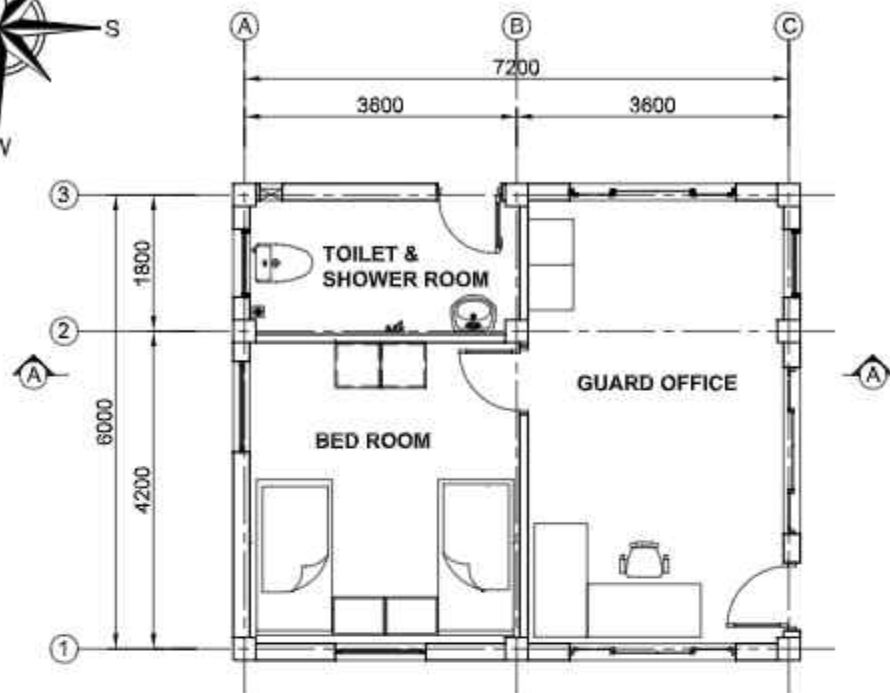
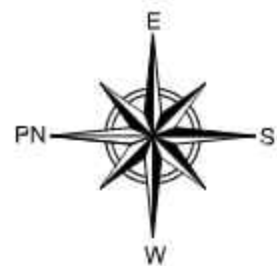


FIRST FLOOR PLAN

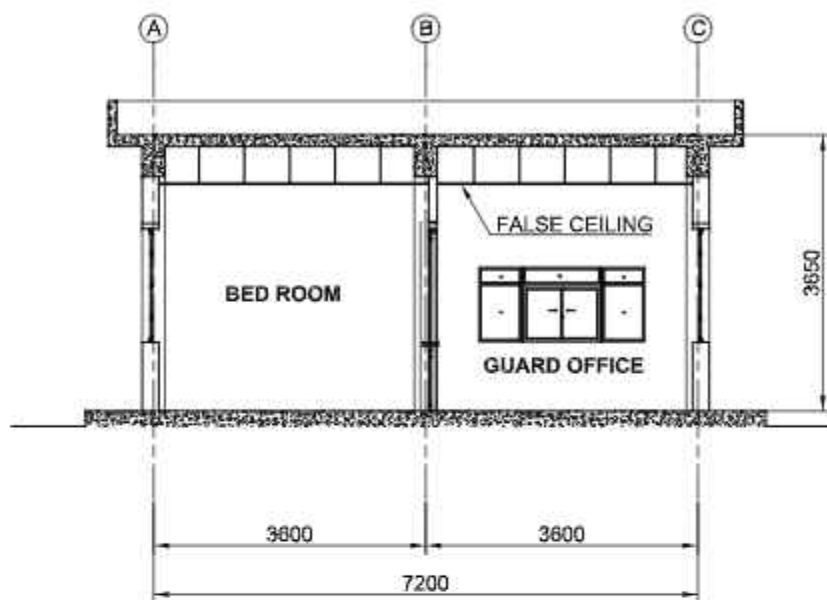


FOR BIDDING PURPOSE ONLY

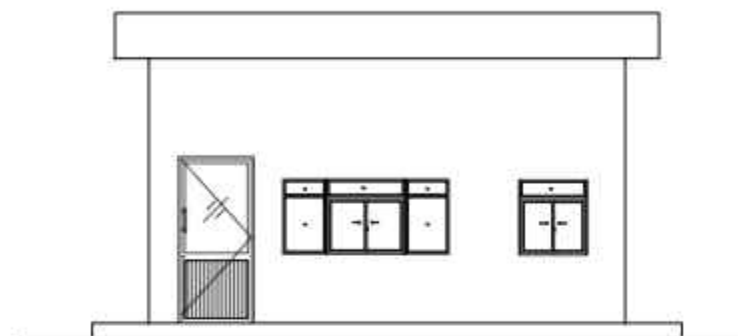
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				Approved			URBAN TRANSMISSION AND DISTRIBUTION SYSTEM IMPROVEMENT PROJECT		NIPPON KOEI CO., LTD. IN ASSOCIATION WITH TOTAL MANAGEMENT SERVICES PVT., LTD.	BIRAUTA 132/11KV GIS SUBSTATION BUILDING FIRST FLOOR PLAN	1 : 100
				Checked			CONTRACT No. : GDD-PSC-UTDSIP-079/80	NEPAL ELECTRICITY AUTHORITY			Sheet No. : 5 of 6
				Designed						Drawing No. : BIR - SS - C - 0205	REV : 0



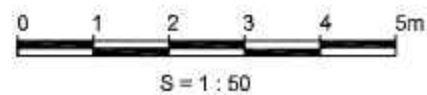
PLAN



SECTION A-A



ELEVATION
VIEW OF GRID C



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Rev.	Description	Date	Drawn	Function	Name	Date	Project Name	Client	Consultant	Drawing Title	Drawing No.	Scale
				Approved			URBAN TRANSMISSION AND DISTRIBUTION SYSTEM IMPROVEMENT PROJECT	 NEPAL ELECTRICITY AUTHORITY	NIPPON KOEI CO., LTD. IN ASSOCIATION WITH TOTAL MANAGEMENT SERVICES PVT., LTD.	BIRAUTA 132/11KV GIS SUBSTATION GUARD HOUSE - PLAN, SECTION & ELEVATION	BIR - SS - C - 202	1 : 50
			Checked			CONTRACT No. : GDD-PSC-UTDSIP-079/80	Sheet No. : 1 of 1					
			Designed				REV : 0					



NEPAL ELECTRICITY AUTHORITY
Grid Development Department, Transmission Directorate

BIDDING DOCUMENT

For

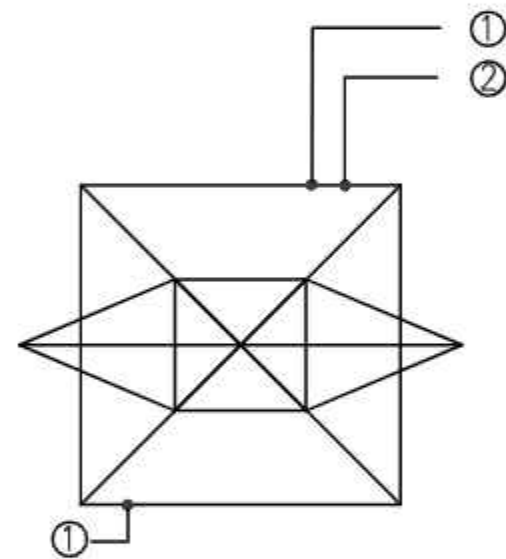
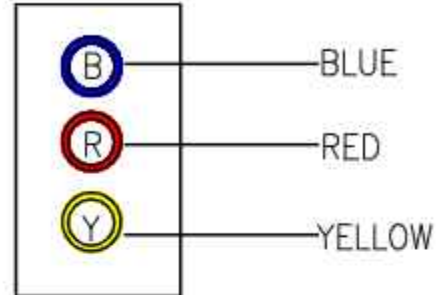
**Package-1: Design Build Plant and Works for Construction of
Birauta 132/11kV Substation and Associated Transmission and Distribution Lines in Pokhara**
(Bid Identification No.: ICB/NEA/UTDSIP/81/82-01)

Annex-2

Drawings for Transmission Line Work

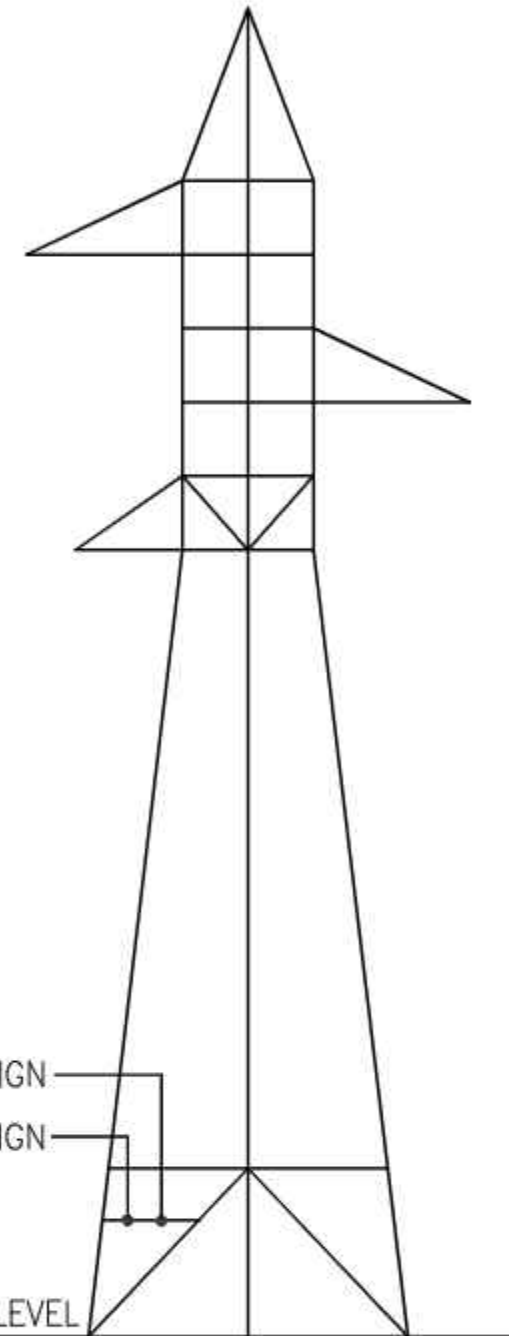


PHASING SIGN



- ① NUMBER SIGN
- ② PHASING SIGN

GROUND LEVEL



Tower and Line Identification Plate

FOR BIDDING PURPOSE ONLY



			Function	Name	Date	Project Name :	Client :	Consultant :	Drawing Title :	Scale :
			Approved			URBAN TRANSMISSION AND DISTRIBUTION		NIPPON KOEI CO., LTD.	132kV Overhead Transmission Line	NTS
			Checked			SYSTEM IMPROVEMENT PROJECT		IN ASSOCIATION WITH	Tower and Line Identification Plate	Sheet No. : 1 of 1
0			Designed			CONTRACT No. : GDD-PSC-UTDSIP-079/80	NEPAL ELECTRICITY AUTHORITY	TOTAL MANAGEMENT SERVICES PVT., LTD.	Drawing No. :	REV : 0
Rev.	Description	Date	Drawn						BIR-OH-E-0003	



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Grid Development Department, Transmission Directorate

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Annex-3

Drawings for Distribution Line Work



Distribution Line Work

Drawing List

No.	Title	Drawing No.	No.	Title	Drawing No.
01	Project Area Map	BIR-DL-0001			
02	Existing MV Network around the Project Area	BIR-DL-0002			
03	Underground Cable route and connection point	BIR-DL-0003			
04	Conceptual SLD for Scope of Works	BIR-DL-0004			
05	Existing LV Network in the Project Area	BIR-DL-0005			
06	Conceptual Drawing of Underground cable connection with Distribution Transformer	BIR-DL-0006			
07	Conceptual SLD for RMU	BIR-DL-3001			
08	Conceptual Diagram for Data Communication System	BIR-DL-3002			
09	Data Communication System Conceptual Data Flow Diagram	BIR-DL-3003			
10	Fiber Optic Line Diagram between DCC - Pokhara	BIR-DL-5001			
11	Substation RTU Point Table	BIR-DL-5002			
12	RMU/FRTU Point Table	BIR-DL-5003			

 NEPAL ELECTRICITY AUTHORITY	Urban Transmission and Distribution System Improvement Project	Drawing No :
	Nippon Koei Co., Ltd., Japan in association with Total Management Services Pvt. Ltd., Nepal	Title : Drawing List



