





Generally Approved
S.E. XEN XEN
CONTRACTS-II
REVPNL, JAIPUR

$$ZH-62$$

20.89

1095.01

75575.74

BOUNDARY WALL
(CLIENT SCOPE)

$$\begin{array}{r} 391094.7610 \\ 3275596.6240 \end{array}$$

5096.30

ARIPPL SCOPE

700.53

502.70

$$\frac{390128.8870}{3275599.7150}$$

390126.2000 /
3275097.0150

222.6

459.24

123.0

113.7

$$\begin{array}{r} 390585.4400 \\ 3275095.0400 \end{array}$$



Assistant Engineer (T&C)
RTVPL, Hanumanagar

Executive Engineer (T&C)
TUM, Hampden

Superintending Engineer (T)

1. FOR ALLOTMENTS OF 400kV & 220kV BAYS AS PER RRVPNL INSTRUCTIONS, AMMENDMENT NEED TO PROVIDE FOR EXTRA WORKS FROM RRVPNL SIDE.
2. AREA WITHIN THE FENCING WILL BE AMARARAJA SCOPE.

CLIENT:	 RAJASTHAN RAJYA VIDYUT PRASARAN NIGAM LIMITED
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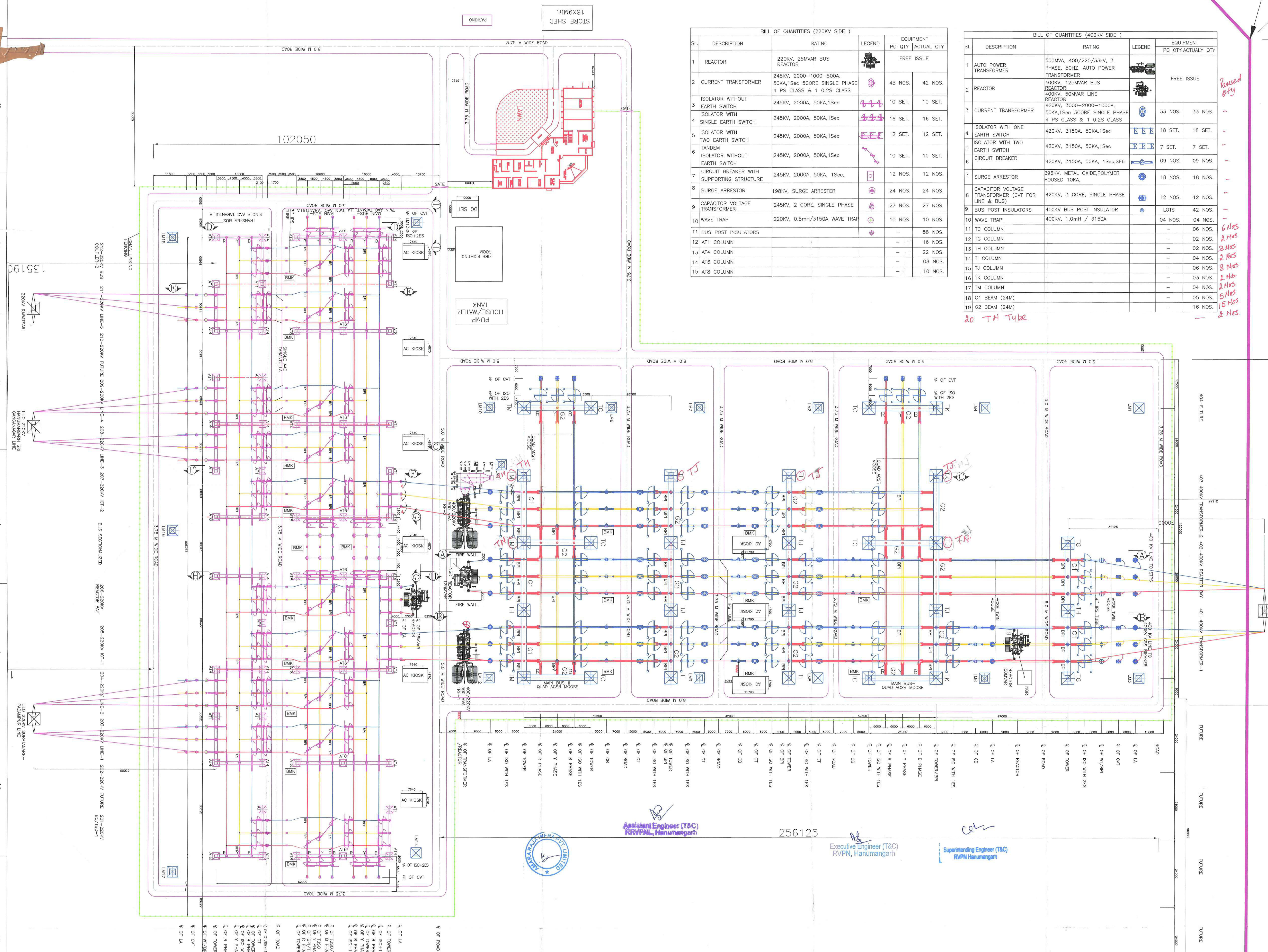
PROJECT NAME:
CONSTRUCTION OF 400/220KV GSS AT HANUMANGARH AND ASSOCIATED BAY WORKS AT 1X220KV FEEDER BAY AT 220KV GSS RAWATSAR, 1x132KV FEEDER BAY AT 220KV GSS UDHYOG VIHAR & 1X132KV FEEDER BAY AT 132KV GSS SRIGANGANGA

CONTRACTOR:  Amara Raja Infra Pvt. Limited COO, Hyderabad-500032		NAMES	SIGN.	DATE
	DRAWN	RB		25.04.2024
	CHKD.	KSK		25.04.2024
	APPD.	NSV		25.04.2024

	DRG. NO: ARIPL-RRVPNL-HANUMANGARH-EL-OGA-002	REV.M R2
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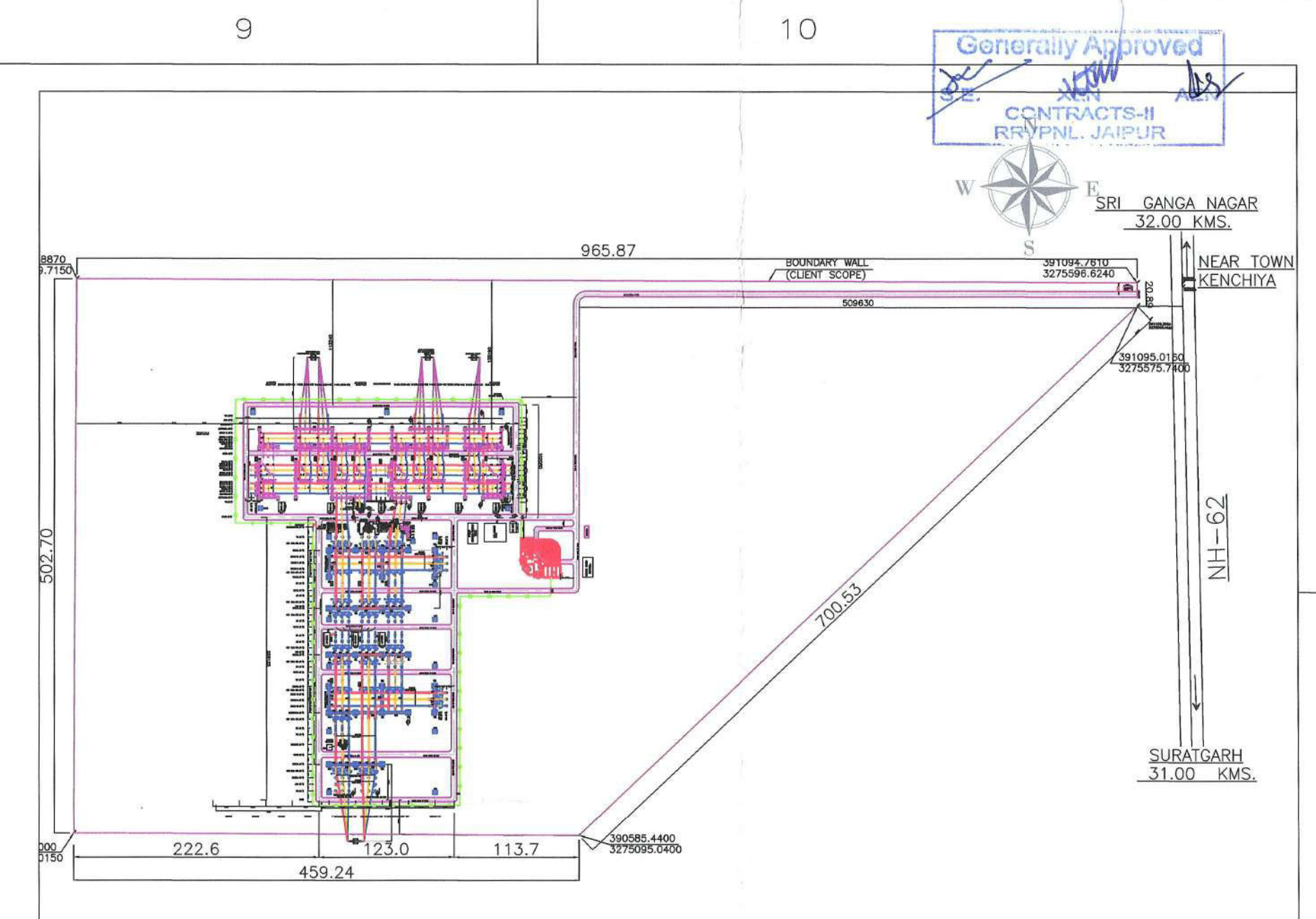
PAPER SIZE: A0

ALL DIMENSIONS ARE IN mm & WEIGHTS ARE IN kg UNLESS OTHERWISE SPECIFIED.
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BILL OF QUANTITIES (220KV SIDE)				
SL.	DESCRIPTION	RATING	LEGEND	EQUIPMENT PO QTY ACTUAL QTY
1	REACTOR	220KV, 25MVAR BUS REACTOR		FREE ISSUE
2	CURRENT TRANSFORMER	245KV, 2000-1000-500A, 50KA/1Sec 5CORE SINGLE PHASE 4 PS CLASS & 1 0.25 CLASS		45 NOS. 42 NOS.
3	ISOLATOR WITHOUT EARTH SWITCH	245KV, 2000A, 50KA/1Sec	444	10 SET. 10 SET.
4	ISOLATOR WITH SINGLE EARTH SWITCH	245KV, 2000A, 50KA/1Sec	444	16 SET. 16 SET.
5	ISOLATOR WITH TWO EARTH SWITCH	245KV, 2000A, 50KA/1Sec	EEF	12 SET. 12 SET.
6	TANDEM ISOLATOR WITHOUT EARTH SWITCH	245KV, 2000A, 50KA/1Sec		10 SET. 10 SET.
7	CIRCUIT BREAKER WITH SUPPORTING STRUCTURE	245KV, 2000A, 50KA, 1Sec.		12 NOS. 12 NOS.
8	SURGE ARRESTOR	98KV, SURGE ARRESTOR		24 NOS. 24 NOS.
9	CAPACITOR VOLTAGE TRANSFORMER	245KV, 2 CORE, SINGLE PHASE		27 NOS. 27 NOS.
10	WAVE TRAP	220KV, 0.5mH/3150A WAVE TRAP		10 NOS. 10 NOS.
11	BUS POST INSULATORS			58 NOS.
12	ATI COLUMN			16 NOS.
13	ATA COLUMN			22 NOS.
14	ATB COLUMN			08 NOS.
15	ATC COLUMN			10 NOS.

BILL OF QUANTITIES (400KV SIDE)				
SL.	DESCRIPTION	RATING	LEGEND	EQUIPMENT PO QTY ACTUAL QTY
1	AUTO POWER TRANSFORMER	500MVA, 400/220/33KV, 3 PHASE, 50HZ, AUTO POWER TRANSFORMER		FREE ISSUE
2	REACTOR	400KV, 125MVAR BUS REACTOR, 50MVAR LINE REACTOR		
3	CURRENT TRANSFORMER	420KV, 3000-2000-1000A, 50KA/1Sec 5CORE SINGLE PHASE 4 PS CLASS & 1 0.25 CLASS		33 NOS. 33 NOS.
4	ISOLATOR WITH ONE EARTH SWITCH	420KV, 3150A, 50KA/1Sec	EEF	18 SET. 18 SET.
5	ISOLATOR WITH TWO EARTH SWITCH	420KV, 3150A, 50KA/1Sec	EEF	7 SET. 7 SET.
6	CIRCUIT BREAKER	420KV, 3150A, 50KA, 1Sec, SFB		09 NOS. 09 NOS.
7	SURGE ARRESTOR	396KV, METAL OXIDE, POLYMER HOUSED 10KA,		18 NOS. 18 NOS.
8	CAPACITOR VOLTAGE TRANSFORMER (CVT FOR LINE & BUS)	420KV, 3 CORE, SINGLE PHASE		12 NOS. 12 NOS.
9	BUS POST INSULATORS	400KV BUS POST INSULATOR		LOTS 42 NOS.
10	WAVE TRAP	400KV, 1.0mH / 3150A		04 NOS. 04 NOS.
11	TC COLUMN			06 NOS.
12	TG COLUMN			02 NOS.
13	TH COLUMN			02 NOS.
14	TI COLUMN			04 NOS.
15	TJ COLUMN			06 NOS.
16	TK COLUMN			03 NOS.
17	TM COLUMN			04 NOS.
18	G1 BEAM (24M)			05 NOS.
19	G2 BEAM (24M)			16 NOS.



KEYPLAN LAYOUT

SL. NO.	DESCRIPTION	SYMBOL
1	BOUNDARY LINE	
2	ROAD	
3	ROAD CENTER LINE	
4	FUTURE SCOPE	
5	CHAIN LINK FENCING	
6	GATE	

SYSTEM PARAMETERS			
SL.	DESCRIPTION	400KV SYSTEM	220KV SYSTEM
1	SYSTEM OPERATING VOLTAGE	400KV	220KV
2	MAXIMUM SYSTEM VOLTAGE	420KV	245KV
3	RATED FREQUENCY	50Hz	50Hz

CONDUCTOR DETAILS	
SL.	DESCRIPTION
1	400KV BUS-A & B
2	400KV EQUIPMENT
3	400KV JACK BUS
4	220KV BUS - I
5	220KV BUS - II
6	220KV TRANSFER BUS
7	220KV JACK BUS
8	220KV EQUIPMENT
9	22.5KV EQUIPMENT

BILL OF QUANTITIES (22.5KV SIDE)				
SL.	DESCRIPTION	RATING	LEGEND	EQUIPMENT PO QTY ACTUAL QTY
1	LT 3PH, TRANSFORMER	33/433 KV/800 KVA LT 3ph TRANSFORMER		01 NO. 01 NO.
2	ISOLATOR WITHOUT EARTH SWITCH	72.5KV, 800A, TP, GO, HORIZONTAL DOUBLE BREAK, ISO WOES	444	03 SET. 02 SET.
3	HQ FUSE	72.5KV/50 Amp, SP HORN GAP FUSE UNIT		3 SET. 2 SET.
4	LIGHTNING ARRESTER	42KV, 52KV Class, LIGHTNING ARRESTER		06 NOS. 06 NOS.
5	BUS POST INSULATORS	72.5KV, OUTDOOR POST INSULATOR		04 NOS.
6	EMVT	36KV, 52KV class EMVT		06 NOS. 06 NOS.

REFERENCE DRAWING:

- 1. SINGLE LINE DIAGRAM FOR 400/220KV S/S - AT HANUMANGARH ARIPL/RRVPL/HANUMANGARH/SLD-001

NOTES:

- 1. ALL DIMENSIONS ARE IN MM.
- 2. EQUIPMENT GA ARE INDICATIVE AND WILL BE CORRECTED AFTER FINALIZATION OF VENDOR SPECIFIC EQUIPMENT DRG.
- 3. LOCATION OF LINE SIDE LA/CVT IS INDICATIVE CONSIDERING FOR DEVIATION IN DEAD END TOWER IN CONSULTATION WITH SITE INCHARGE.
- 4. * SLOPE IN ROAD SHALL BE AS PER ROAD AND DRAIN DRAWING.
- 5. LOCATION OF CONTROL ROOM BUILDING, BAY KIOSK, OIL SUMP PIT, PARKING SHED, SECURITY ROOM AND STORAGE AREA IS TENTATIVE FINAL SHALL BE AS PER SITE CONDITION.
- 6. LM LOCATION WILL BE FINALIZED DURING DSLP LAYOUT.

1	SECOND SUBMISSION	APPROVAL	25.06.25	NSV
0	FIRST SUBMISSION	APPROVAL	25.04.25	NSV
REV.	DISCREPTION	REMARKS	DATE	SIGN.

CLIENT: RAJASTHAN RAJYA VIDYUT PRASARAN NIGAM LIMITED

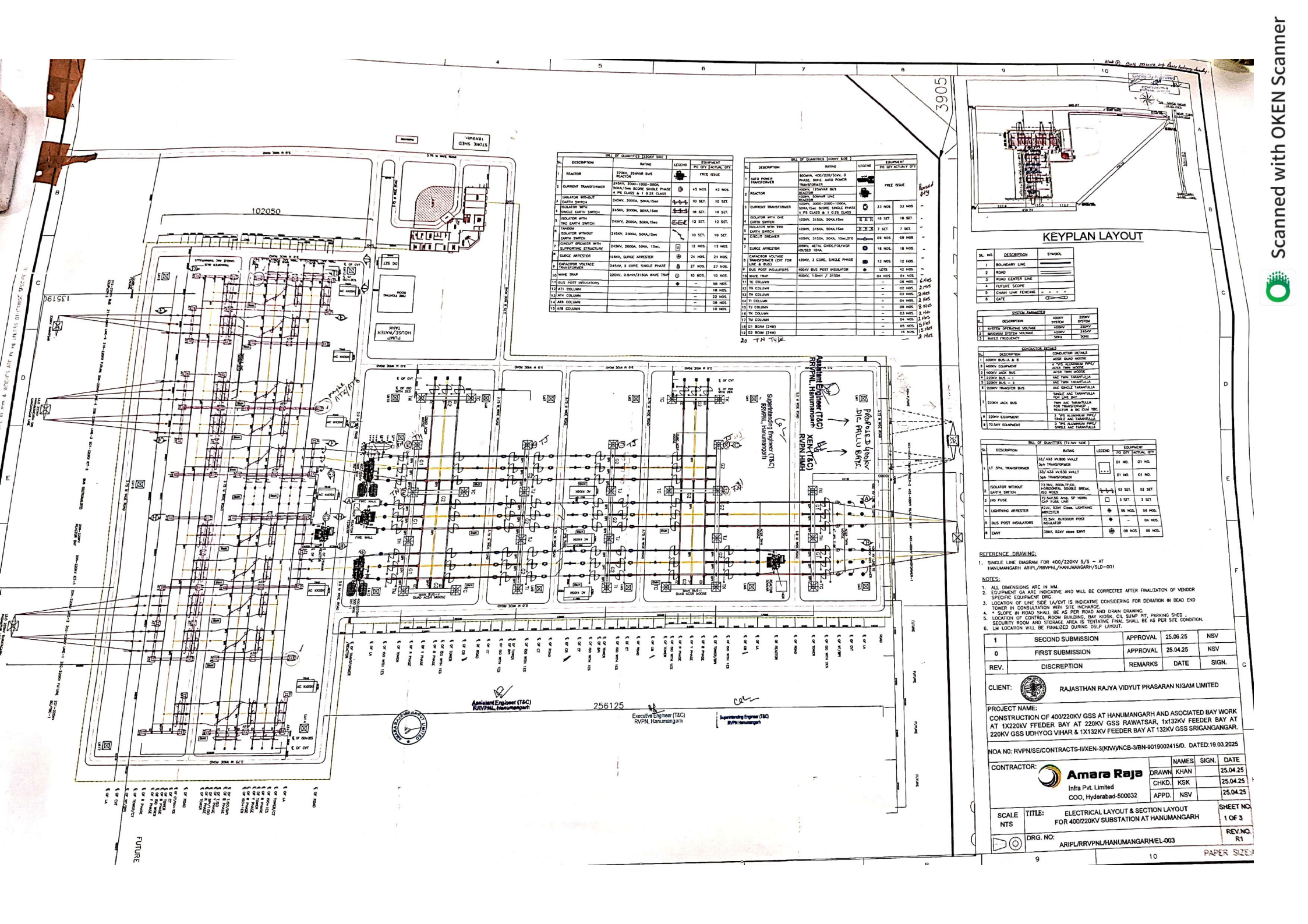
PROJECT NAME:
CONSTRUCTION OF 400/220KV GSS AT HANUMANGARH AND ASSOCIATED BAY WORK AT 1X220KV FEEDER BAY AT 220KV GSS RAWATSAR, 1X132KV FEEDER BAY AT 220KV GSS UDHYOG VIHAR & 1X132KV FEEDER BAY AT 132KV GSS SRIGANGANGARH.

NOA NO: RVPN/SE/CONTRACTS-II/XEN-3(KW)/NCB-3/BN-9019002415/D. DATED:19.03.2025

CONTRACTOR:	NAMES	SIGN.	DATE
Amara Raja Infra Pvt. Limited COO, Hyderabad-500032	DRAWN	KHAN	25.04.25
	CHKD.	KSK	25.04.25
	APPD.	NSV	25.04.25

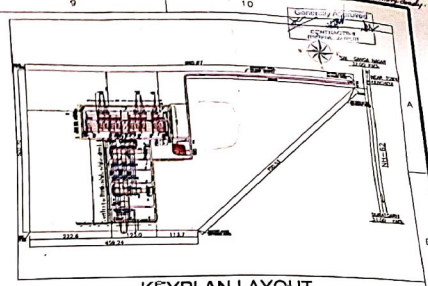
SCALE	TITLE: ELECTRICAL LAYOUT & SECTION LAYOUT FOR 400/220KV SUBSTATION AT HANUMANGARH	SHEET NO. 1 OF 3
DRG. NO:	ARIPL/RRVPL/HANUMANGARH/EL-003	REV.NO. R1

PAPER SIZE:A0



BILL OF QUANTITIES (T&C SIDE)			
DESCRIPTION	RATING	LEADER	EQUIPMENT
1 REACTOR	220KV, 2000-1000-500A	45 NOS	42 NOS
2 CURRENT TRANSFORMER	220KV, 2000-1000-500A	10 SET	10 SET
3 ISOLATOR WITHOUT	24KV, 2000A, 500A/150A	10 SET	10 SET
4 EARTH SWITCH	24KV, 2000A, 500A/150A	10 SET	10 SET
5 ISOLATOR WITH	24KV, 2000A, 500A/150A	13 SET	12 SET
6 ISOLATOR WITHOUT	24KV, 2000A, 500A/150A	10 SET	10 SET
7 CIRCUIT BREAKER	24KV, 2000A, 500A/150A	12 NOS	12 NOS
8 SURGE ARRESTOR	24KV, 2000A, 500A/150A	24 NOS	24 NOS
9 CAPACITOR VOLTAGE	24KV, 2000A, 500A/150A	27 NOS	27 NOS
10 WAVE TRAP	220KV, 0.5H/1/30A WAVE TRAP	10 NOS	10 NOS
11 BUS POST INSULATORS	220KV, 0.5H/1/30A WAVE TRAP	36 NOS	36 NOS
12 415 COLUMN	220KV, 0.5H/1/30A WAVE TRAP	16 NOS	16 NOS
13 415 COLUMN	220KV, 0.5H/1/30A WAVE TRAP	22 NOS	22 NOS
14 415 COLUMN	220KV, 0.5H/1/30A WAVE TRAP	08 NOS	08 NOS
15 415 COLUMN	220KV, 0.5H/1/30A WAVE TRAP	10 NOS	10 NOS

BILL OF QUANTITIES (BUSY SIDE)			
DESCRIPTION	RATING	LEADER	EQUIPMENT
1 AUTO POWER TRANSFORMER	400KV, 400/220KV, 3 PHASE, 500A, 1000KVA	1 NOS	1 NOS
2 REACTOR	220KV, 2000-1000-500A	45 NOS	42 NOS
3 CURRENT TRANSFORMER	220KV, 2000-1000-500A	10 SET	10 SET
4 ISOLATOR WITH ONE	24KV, 2000A, 500A/150A	18 SET	18 SET
5 ISOLATOR WITH TWO	24KV, 2000A, 500A/150A	7 SET	7 SET
6 CIRCUIT BREAKER	24KV, 2000A, 500A/150A	08 NOS	08 NOS
7 SURGE ARRESTOR	24KV, 2000A, 500A/150A	18 NOS	18 NOS
8 CAPACITOR VOLTAGE	24KV, 2000A, 500A/150A	12 NOS	12 NOS
9 WAVE TRAP	220KV, 0.5H/1/30A WAVE TRAP	04 NOS	04 NOS
10 BUS POST INSULATORS	220KV, 0.5H/1/30A WAVE TRAP	04 NOS	04 NOS
11 415 COLUMN	220KV, 0.5H/1/30A WAVE TRAP	04 NOS	04 NOS
12 415 COLUMN	220KV, 0.5H/1/30A WAVE TRAP	04 NOS	04 NOS
13 415 COLUMN	220KV, 0.5H/1/30A WAVE TRAP	04 NOS	04 NOS
14 415 COLUMN	220KV, 0.5H/1/30A WAVE TRAP	04 NOS	04 NOS
15 415 COLUMN	220KV, 0.5H/1/30A WAVE TRAP	04 NOS	04 NOS



SL. NO.	DESCRIPTION	SYMBOL
1	BOUNDARY LINE	---
2	ROAD	---
3	ROAD CENTER LINE	---
4	FUTURE SCOPE	---
5	CHURN LINE FENCING	---
6	GATE	---

SYSTEM PARAMETER	
DESCRIPTION	400KV SYSTEM
1 SYSTEM OPERATING VOLTAGE	400KV
2 MAXIMUM SYSTEM VOLTAGE	500KV
3 RATED FREQUENCY	50Hz

CONDUCTOR DETAILS	
DESCRIPTION	CONDUCTOR DETAILS
1 400KV BUSBAR & B	400KV BUSBAR & B
2 400KV EQUIPMENT	400KV EQUIPMENT
3 400KV JACK BUS	400KV JACK BUS
4 220KV BUS - 1	220KV BUS - 1
5 220KV BUS - 2	220KV BUS - 2
6 220KV TRANSFORMER BUS	220KV TRANSFORMER BUS
7 220KV JACK BUS	220KV JACK BUS
8 220KV EQUIPMENT	220KV EQUIPMENT
9 220KV EQUIPMENT	220KV EQUIPMENT

BILL OF QUANTITIES (T&C SIDE)			
DESCRIPTION	RATING	LEADER	EQUIPMENT
1 LT 375V TRANSFORMER	375V, 1000-500-250A	01 NOS	01 NOS
2 ISOLATOR WITHOUT	17.5KV, 1000A, 500A/150A	01 SET	01 SET
3 EARTH SWITCH	17.5KV, 1000A, 500A/150A	01 SET	01 SET
4 FUSE	17.5KV, 1000A, 500A/150A	01 NOS	01 NOS
5 LIGHTNING ARRESTOR	17.5KV, 1000A, 500A/150A	01 NOS	01 NOS
6 BUS POST INSULATORS	17.5KV, 1000A, 500A/150A	01 NOS	01 NOS
7 GATE	17.5KV, 1000A, 500A/150A	01 NOS	01 NOS

REFERENCE DRAWING:
1. SINGLE LINE DIAGRAM FOR 400/220KV 5/5 - AT HANUMANGARH ARIP/L/RRVPL/HANUMANGARH/SLD-001

NOTES:
1. ALL DIMENSIONS ARE IN MM.
2. EQUIPMENT GA ARE INDICATIVE AND WILL BE CORRECTED AFTER FINALIZATION OF VENDOR SPECIFIC EQUIPMENT Dwg.
3. LOCATION OF LINE SIDE LAYOUT IS INDICATIVE CONSIDERING FOR DEDICATION IN DEAD END TOWER IN CONSULTATION WITH SITE INCHARGE.
4. * SLOPE IN ROAD SHALL BE AS PER ROAD AND DRAIN DRAWING.
5. LOCATION OF CONTROL ROOM BUILDING, BAY KIOSK, OIL SLUMP PIT, PARKING SHED, SECURITY ROOM AND STORAGE AREA IS TENTATIVE FINAL SHALL BE AS PER SITE CONDITION.
6. LM LOCATION WILL BE FINALIZED DURING GSS LAYOUT.

REV.	DESCRIPTION	APPROVAL	DATE	NSV
1	SECOND SUBMISSION	APPROVAL	25.04.25	NSV
0	FIRST SUBMISSION	APPROVAL	25.04.25	NSV

CLIENT: RAJASTHAN RAJYA VIDYUT PRASARAN NIGAM LIMITED

PROJECT NAME:
CONSTRUCTION OF 400/220KV GSS AT HANUMANGARH AND ASSOCIATED BAY WORK AT 1X220KV FEEDER BAY AT 220KV GSS RAWATSAR, 1X132KV FEEDER BAY AT 220KV GSS UDHYOG VIHAR & 1X132KV FEEDER BAY AT 132KV GSS SRIGANGANGAR.

NOA NO: RVPN/CONTRACTS-IIXEN-3/KVNCB-3/BN-9019002415/D. DATED: 19.03.2025

CONTRACTOR:		NAMES	SIGN.	DATE
Amara Raja		DRAWN	KHAN	25.04.25
Infra Pvt. Limited		CHKD.	KSK	25.04.25
COO, Hyderabad-500032		APPD.	NSV	25.04.25

SCALE: 1:1000
TITLE: ELECTRICAL LAYOUT & SECTION LAYOUT FOR 400/220KV SUBSTATION AT HANUMANGARH
DRG. NO: ARIP/L/RRVPL/HANUMANGARH/EL-003

SHEET NO: 1 OF 3
REV. NO: R1
PAPER SIZE: A3