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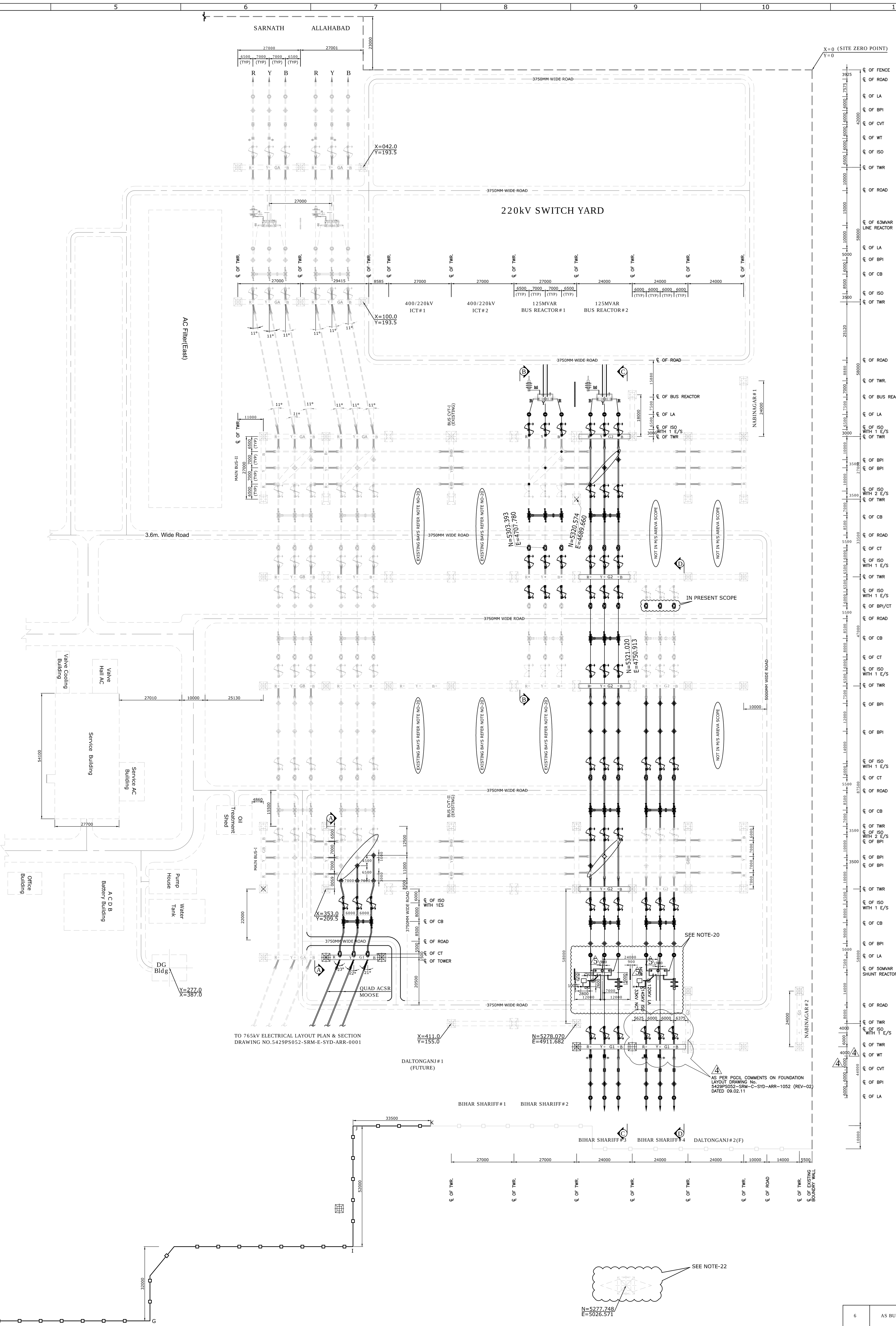

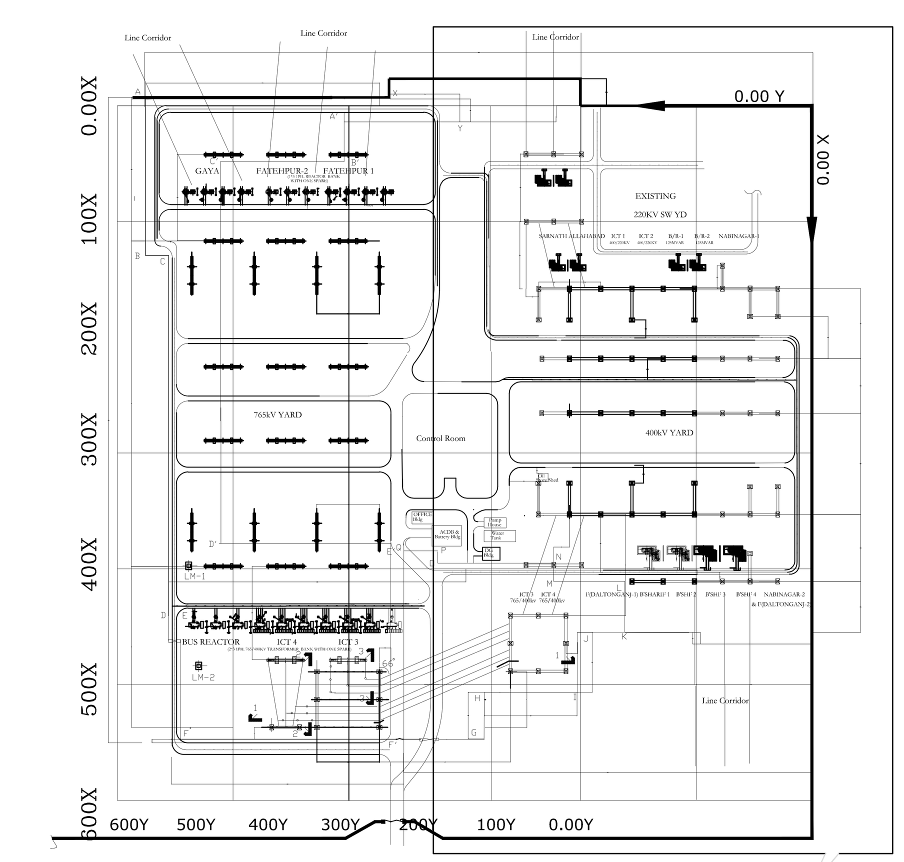

KEY PLAN
SCALE-1:5000

400kV SIDE

SYSTEM PARAMETERS

Sl.No.	DESCRIPTION OF PARAMETER	400kV SYSTEM
1	SYSTEM OPERATING VOLTAGE	400kV
2	MAX. OPERATING VOLTAGE OF THE SYSTEM (rms)	420kV
3	RATED FREQUENCY	50Hz
4	NO. OF PHASES	3
5	RATED INSULATION LEVELS i) FULL WAVE IMPULSE WITHSTAND VOLTAGE (1.2/50microsec.) ii) SWITCHING IMPULSE WITHSTAND VOLTAGE (250/2500microsec.) DRY & WET iii) ONE MINUTE POWER FREQUENCY DRY & WET WITHSTAND VOLTAGE (rms)	 1550kVp 1050kVp 630kV
6	CORONA EXTINCTION VOLTAGE	320kV
7	MAX. RADIO INTERFERENCE VOLTAGE FOR FREQUENCY BETWEEN 0.5MHz & 2MHz AT 320kV rms FOR 400kV SYSTEM & 156kV rms FOR 220KV & 92kV rms FOR 132kV SYSTEM	1000 microV
8	MIN. CREEPAGE DISTANCE	25MM/kV (10500MM)
9	MIN. CLEARANCE i) PHASE TO PHASE a) CONDUCTOR TO ROD b) CONDUCTOR TO CONDUCTOR ii) PHASE TO EARTH iii) SECTIONAL CLEARANCE	 4200MM 4000MM 3500MM 6500MM
10	GROUND CLEARANCE GROUND CLEARANCEFROM BOTTOM OF PORCELAIN	8000MM 2440MM
11	RATED SHORT CIRCUIT CURRENT FOR 1 SEC. DURATION	40kA
12	SYSTEM NEUTRAL EARTHING	EFFECTIVELY EARTHED

SWITCHYARD CONDUCTOR DETAILS

DESCRIPTION	400kV
MAIN BUS–I & II	QUAD ACSR BERSIMIS/MOOSE CONDUCTOR
EQUIPMENT INTERCONNECTION	4" IPS AL. TUBE (OD=114.2mm, ID=97.18mm) & MOOSE ACSR CONDUCTOR
JACKBUS	MOOSE ACSR CONDUCTOR
DROPPERS	MOOSE ACSR CONDUCTOR
EARTHWIRE	7/3.66mm GI WIRE (10.98mm DIA)

BILL OF QUANTITY

SNO.	DESCRIPTION	QUANTITY (FOR STAGE–1) (SHT–1)
01	400kV BPI, 8kN	33

NOTES:-

1. ALL THE DIMENSIONS ARE IN MM.
2. * LOCATION OF WAVE TRAP SHOWN IS INDICATIVE ONLY. FINAL LOCATION SHALL BE DECIDED BASED ON PLCC REQUIREMENT.
3. LEVELS (RL) FOR SWITCHYARD SHALL BE AS PER EXISTING SWITCHYARD LEVEL.
4. DEAD END TOWER ERECTION AND OUTGOING SHIELD WIRE ARE NOT IN AREVA SCOPE BUT LINE EQUIPMENT CONNECTION SHALL BE DONE BY AREVA.
5. SUPPLY ERECTION, TESTING & COMMISSIONING OF TRAFO & REACTOR INCLUDING (OLTC & TERMINAL CONNECTOR OF TRAFO) & (NGR, 120kV LA, & TERM. CONNECTOR OF REACTOR), FORMATION OF HV, LV, TERTIARY, NEUTRAL & AUXILIARY BUSES ALONG WITH BPI & ITS STRUCTURE AND ASSOCIATED CIVIL WORKS SHALL NOT BE AREVA SCOPE OF SUPPLY.
6. INTER EQUIPMENT DIMENSION ARE PLANNED SO AS TO ACHIEVE REQUIRED PHYSICAL AND ELECTRICAL CLEARANCE. HOWEVER IF ELECTRICAL CLEARANCE ARE NOT AVAILABLE AT SITE AND MODIFICATIONS ARE REQUIRED TO ACHIEVE IT, THE REQUIRED MODIFICATION WILL BE DONE BY AREVA WITHOUT ANY EXTRA COST IMPLICATION TO OWNER.
7. LOCATION OF LINE EQUIPMENTS SHOWN ARE CONSIDERING TOWER WITHOUT ANY DEVIATION SITE MAY CHANGE THE LINE EQUIPMENT POSITION DEPENDING UPON THE DEAD END TOWER LOCATION (AS PER ACTUAL.)
8. BOUNDARY WALL ALONG WITH SUBSTATION PROPERTY LINE, OWNER SITE OFFICE, STORES, CONTOURING AND SUBSTATION LEVELLING ARE NOT IN AREVA SCOPE.
9. FIRE RESISTANT WALL BETWEEN 765kV TRANSFORMER UNITS ARE NOT IN AREVA SCOPE.
10. SOIL INVESTIGATION & SOIL RESISTIVITY MEASUREMENT OF SUBSTATION ARE NOT IN AREVA SCOPE.
11. ALL CO–ORDINATE MARKED IN DRAWING SHALL BE CHECKED AND ENSURED BY SITE.
12. RADIUS BEND OF ROAD SHALL BE SHOWN IN ROAD LAYOUT.
13. ALL EQUIPMENT QTY. SHALL BE AS PER APPROVED SLD.
14. FOUNDATION FOR WAVE TRAP WILL BE CAST IN ALL THREE PHASES.
15. IN BIHARSHARIFF–3 DIA, THERE IS UNDER GROUND 33kV CABLE FROM 400/220kV ICT–2 TO STATION T/F IN 132kV YARD. RE–ROUTING OF THE SAME SHALL BE DONE TO AVOID FOULING WITH EQUIPMENT FOUNDATIONS. BY M/S AREVA AS PER MOM HELD AT SITE.
16. NO SUSPENSION STRING REQUIRED FOR QUAD THROUGH CONNECTION BELOW GANTRY.
17. EXISTING EQUIPMENT IN EXISTING BAYS ARE NOT SHOWN FOR CLARITY PURPOSE.
18. FOR ICT–3 INTERCONNECTION REQUIRED 400kV EQUIPMENT AND THERE BOQ REFER "LAYOUT PLAN AND SECTION FOR 765kV SUBSTATION DRAWING NO. 5429PS052–SRM–E–SYD–ARR–0001".
19. TRANSMISSION LINE SIDE INSULATOR STRING FOR LINE TRANSMISSION AT TAKE–OFF GANTRY IS IN SCOPE OF M/S AREVA
20. 33kV NEUTRAL CT & NGR BY–PASS ISOLATOR ARE ADDED AS SCOPE OF M/S AREVA. DETAIL ARRANGEMENT SHALL BE SHOWN AFTER ISSUE OF REACTOR GA DRAWING BY M/S PGCIL.
21. FOUNDATION FOR 420kV BUS REACTOR, 420kV LINE REACTOR ALONGWITH NGR, LA, NCT & BY–PASS ISOLATOR, ROAD CUM RAIL TRACK & FIRE WALL FOR ABOVE IS IN SCOPE OF M/S AREVA.
22. LOCATION OF DEAD END TOWER IS TO BE CONFIRMED BY M/S PGCIL FOR BHIHARSHARIFF 3&4 LINE.

AS BUILT

LEGENDS:-

- –HORIZONTAL DOUBLE BREAK ISOLATOR WITH ONE EARTH SWITCH
- –HORIZONTAL DOUBLE BREAK ISOLATOR WITH TWO EARTH SWITCH
- –CIRCUIT BREAKER W/O CR
- –BUS POST ISOLATOR
- –CAPACITIVE VOLTAGE TRANSFORMER
- –CURRENT TRANSFORMER
- –PRESENT SCOPE
- –EXISTING/FUTURE/NOT IN M/S AREVA SCOPE
- –FENCE
- –LIGHTNING ARRESTOR
- 400 TOWER WITH PEAK
- 400 TOWER W/O PEAK
- WAVE TRAP
- SHIELD WIRE
- –HORIZONTAL CENTER BREAK ISOLATOR WITH ONE EARTH SWITCH

REFERENCE NO.	DESCRIPTION
IPPL–ELE–1001–SAS–1035	STRUCTURAL LOADING DIAGRAM PLAN & SECTION
C/ENGG/ER/DVC–SS/SSR/SLD/01	SINGLE LINE DIAGRAM
ENGG/ER/ENI–I/SAS/YRD/LAY/004 SHEET–1	CIVIL FOUNDATION & CABLE TRENCH LAYOUT
C/ENGG/ER/DVC–S3/SSR/LAY/M2/01 SHEET–1 TO SHEET–4	400kV LAYOUT MODULE
C/ENGG/ER/DVC–S3/SASARAM/LAY/GA/01 SHEET–2	GENERAL ARRANGEMENT OF SUB STATION
C/ENGG/ER/DVC–S3/SASARAM/LAY/GA/01 SHEET–1	GENERAL ARRANGEMENT OF SUB STATION
5429PS052–SRM–E–SYS–SLD–0401	765/400kV SWICTHYARD KEY SINGLE LINE DIAGRAM

REV.No.	DESCRIPTION		DATE	DRAWN	REVIWED	ELE. (CHECKED)	CIVIL (CHECKED)	MECH. (CHECKED)	APPROVED	STATUS
6	AS BUILT	Name		VKY	SSR				SSR	AS BUILT
		Date		13.02.15	13.02.15				13.02.15	
		Sign.								
5	REVISED IN LINE WITH FOUNDATION LAYOUT (5)	Name		JGS	DMH	DMH	APD		SKP	FOR APPROVAL
		Date		26.07.11	26.07.11	26.07.11	26.07.11		26.07.11	
		Sign.								
4	REVISED AS PER PGCIL COMMENTS DATED-09.02.11 (4)	Name		KOS	GSR	GSG	APD/SKL		PTK	FOR APPROVAL
		Date		09.02.11	09.02.11	09.02.11	09.02.11		09.02.11	
		Sign.								
3	REVISED AS PER PGCIL COMMENTS DATED-17.01.11	Name		KOS	GSR	GSG	APD/SKL		PTK	CAT-II
		Date		25.01.11	25.01.11	25.01.11	25.01.11		25.01.11	
		Sign.								
2	REVISED AS PER PGCIL COMMENTS DATED-07.12.10 & SITE VISIT DATED 05.01.11	Name		SSM	GSR	GSG	APD/SKL		PTK	FOR APPROVAL
		Date		11.01.11	11.01.11	11.01.11	11.01.11		11.01.11	
		Sign.								
1	REVISED AS PER CUSTOMER COMMENTS	Name		SBY	GSR	GSG	APD/SKL		PTK	CAT-II
		Date		03.12.10	03.12.10	03.12.10	03.12.10		03.12.10	
		Sign.								
0	FIRST ISSUE	Name		SBY	GSR	GSG	APD/SKL		PTK	FOR APPROVAL
		Date		13.09.10	13.09.10	13.09.10	13.09.10		13.09.10	
		Sign.								

CLIENT:
पावर ग्रिड कारपोरेशन ऑफ इंडिया लिमिटेड
POWER GRID CORPORATION OF INDIA LIMITED.
(A Government of Inida Enterprise)

2nd FLOOR, PLOT No.-2
SECTOR-29
GURGAON-122 001
(HARYANA).

PROJECT: 765/400kV SASARAM(NEW) SUBSTATION ASSOCIATED WITH 'COMMON SCHEME FOR 765kV POOLING STATION AND NETWORK FOR NR AND COMMON SCHEME FOR NETWORK FOR WR' AND EXTN. OF 765/400kV SASARAM SUBSTATION ASSOCIATED WITH 'SUPPLIMENTARY TRANSMISSION SYSTEM FOR DVC & MAITHON RIGHT BANK PROJECT' SEC. NO. C-47210-S019A-3

LOA No.: C-47210-S019A-3/G3/NOA-I/3385, NOA-II/3386 & NOA-III/3387 (DATED-29/06/2010)

TITLE: LAYOUT PLAN & SECTION FOR 400kV SUBSTATION

A0

AREVA T&D INDIA LTD
A 7, SECTOR-65
NOIDA - 201301
UTTAR PRADESH (INDIA).

DRAWING No.	TOTAL SH.	SH.No.	REV.
5429PS052-SRM-E -SYD-ARR-0002	002	001	R6
	SCALE 1:800		