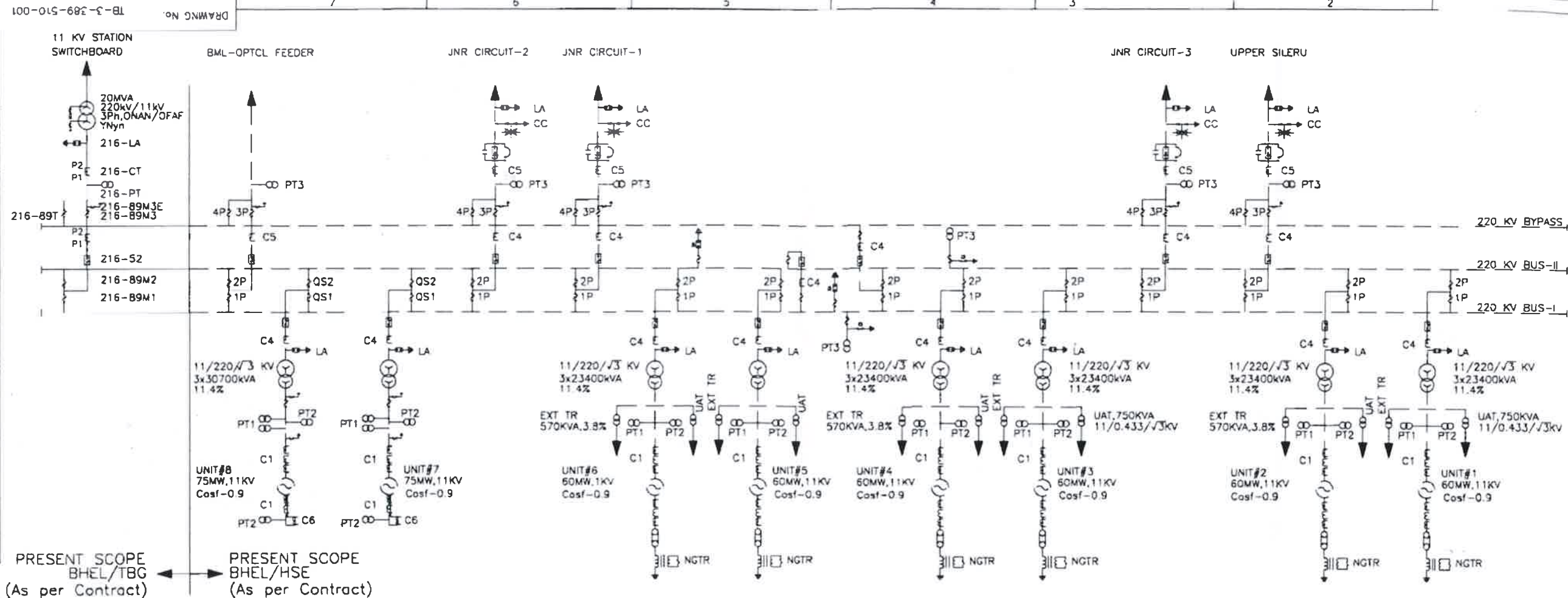


**Annexure - 1**

**List of Documents (220kV Switchyard at Balimela HEP) -**

<b>Sl No</b>	<b>Doc No.</b>	<b>Description</b>	<b>Pages</b>
1	TB-3-389-510-001	Single Line Diagram of 220kV Switchyard Extn.	1
2	TB-3-389-510-002	220kV Switchyard Electrical Layout Plan & Section Elevation	1
4	TB-0-389-316-005	Cable Trench Layout for 220kV Switchyard	1

FIRST ANGLE PROJECTION ( ALL DIMENSIONS ARE IN MM. )



PRESENT SCOPE  
BHEL/TBG  
(As per Contract)

PRESENT SCOPE  
BHEL/HSE  
(As per Contract)

MAIN SYSTEM PARAMETERS:-	
NOMINAL SYSTEM VOLTAGE	220 kV
HIGHEST SYSTEM VOLTAGE	245 kV
NO. OF PHASES	3
BIL	1050 kV
CREEPAGE DISTANCE (25MM/KV)	6125 mm
SHORT CIRCUIT CAPABILITY	40 KA/3s
RATED FREQUENCY	50 Hz
ONE MIN. POWER FREQUENCY DRY AND WET WITHSTAND VOLTAGE GRMS	450 kV

CLEARANCE TABLE:-	
MINDIMUM CLEARANCE TABLE	220kV
PHASE TO PHASE (PP)	2350mm
PHASE TO EARTH (PE)	2150mm
SECTION CLEARANCE (SC)	3000mm
HEIGHT OF CONDUCTOR CENTRE LINE OF FIRST LEVEL (HDL) FROM PLINTH LEVEL	3900mm
GROUND CLEARANCE FOR VEHICLE MOVEMENT	8000mm



CT DETAILS:-

CORE No.	RATIO	BURDEN (VA)	IPV (V)	MAX. I <sub>CT</sub> AT IPV	REC.	ACCURACY CLASS	PURPOSE
CORE 1	600-300/1A	-	> 1000 V AT 600/1A	100 mA AT 600/1A	< 6 OHMS AT 600/1A	PS	TRAFO DIFFERENTIAL
CORE 2	600-300/1A	-	> 1000 V AT 600/1A	100 mA AT 600/1A	< 6 OHMS AT 600/1A	PS	BUSBAR PROTECTION
CORE 3	600-300/1A	-	> 1000 V AT 600/1A	100 mA AT 600/1A	< 6 OHMS AT 600/1A	PS	SPARE
CORE 4	600-300-150/1A	20	-	-	-	SP20	BACKUP D/C & E/F
CORE 5	600-300-150/1A	10	-	-	-	0.5S ISF 43	METERING

RATED PRIMARY CURRENT OF CT SHALL BE 600A.

PT DETAILS:-

	SEC 1	SEC 2	SEC 3
RATIO	220V/110V/√3	220V/110V/√3	220V/110V/√3
BURDEN	75 VA	75 VA	75 VA
ACCURACY CLASS	3P	3P	0.2
TOTAL SIMULTANEOUS BURDEN = 75 VA			

LEGEND TABLE:-

—	PRESENT SCOPE
- - -	FUTURE/NOT IN PRESENT SCOPE

S.NO.	DESCRIPTION	SYMBOL/LEGEND	QTY	DESIG./ABBREVIATION	MAKE
1	245KV, 2000A, 40KA/3S SF6 CIRCUIT BREAKER (3-PH)	□	01	CB	
2	245KV, 2000A, 40KA/3S HBB ISOLATOR WITHOUT EARTH SWITCH (3-PH)	⋈	03	IS	
3	245KV, 2000A, 40KA/3S HBB ISOLATOR WITH ONE EARTH SWITCH (3-PH)	⋈	01	IS	
4	245KV, 600A, 3 CORE CURRENT TRANSFORMER (1-PH) (WITH 120X EXTENDED CURRENT RATING)	⋈	06	CT	BHEL
5	245KV, 220V/110V/110V/√3 PT (1-PH)	⋈	03	PT	BHEL
6	198KV, 10KA, CLASS-3 GAPLESS LIGHTNING ARRESTER (1-PH)	⋈	03	LA	

STRINGING DETAILS:-		CONDUCTOR	INS. STRING
MAIN BUS I & II/TRANSFER BUS		SINGLE MOOSE	SINGLE TENSION
JACK BUS & JUMPING		SINGLE MOOSE	SINGLE TENSION
ALL EQUIPMENT INTERCONNECTION		SINGLE MOOSE	

SEE 220KV  
Dwg. No. HEP/10/11/13/1/01 - PROPOSED ELECTRICAL SINGLE LINE DIAGRAM GENERATOR & 220KV SWITCHYARD

ADDITIONAL INFORMATION  
W.O.No.

STATUS OF DRAWING  
DISTRIBUTION OF PRINTS

ग्राहक/परियोजना का नाम  
NAME OF CUSTOMER  
CONSULTANT  
PROJECT

ORISSA HYDRO POWER CORPORATION LIMITED (OHPC)  
WAPCOS  
6X60 MW BALIMELA POWER HOUSE, BALIMELA  
R&M WITH NEW TG SET OF BALIMELA HEP UNIT # 1 TO 6



भारत हेवी इलेक्ट्रिकल्स लिमिटेड  
Bharat Heavy Electricals Ltd.  
TRANSMISSION PROJECTS DIVISION

क्र.सं./NO.	नाम/NAME	हस्ता./SIGN.	दि./DATE
1	MVK	Sd/-	17.02.17
2	VK	Sd/-	17.02.17
3	SKS	Sd/-	17.02.17

जुगुपति / SCALE  
NTS  
कार्ड कोड  
CARD CODE

SINGLE LINE DIAGRAM OF  
220KV EXTENSION SWITCHYARD

ड्राइंग.क्र./DRAWING NO.  
TB-3-389-510-001  
पृष्ठ क्र./Page No 01  
जुगुपति/Next Sheet -

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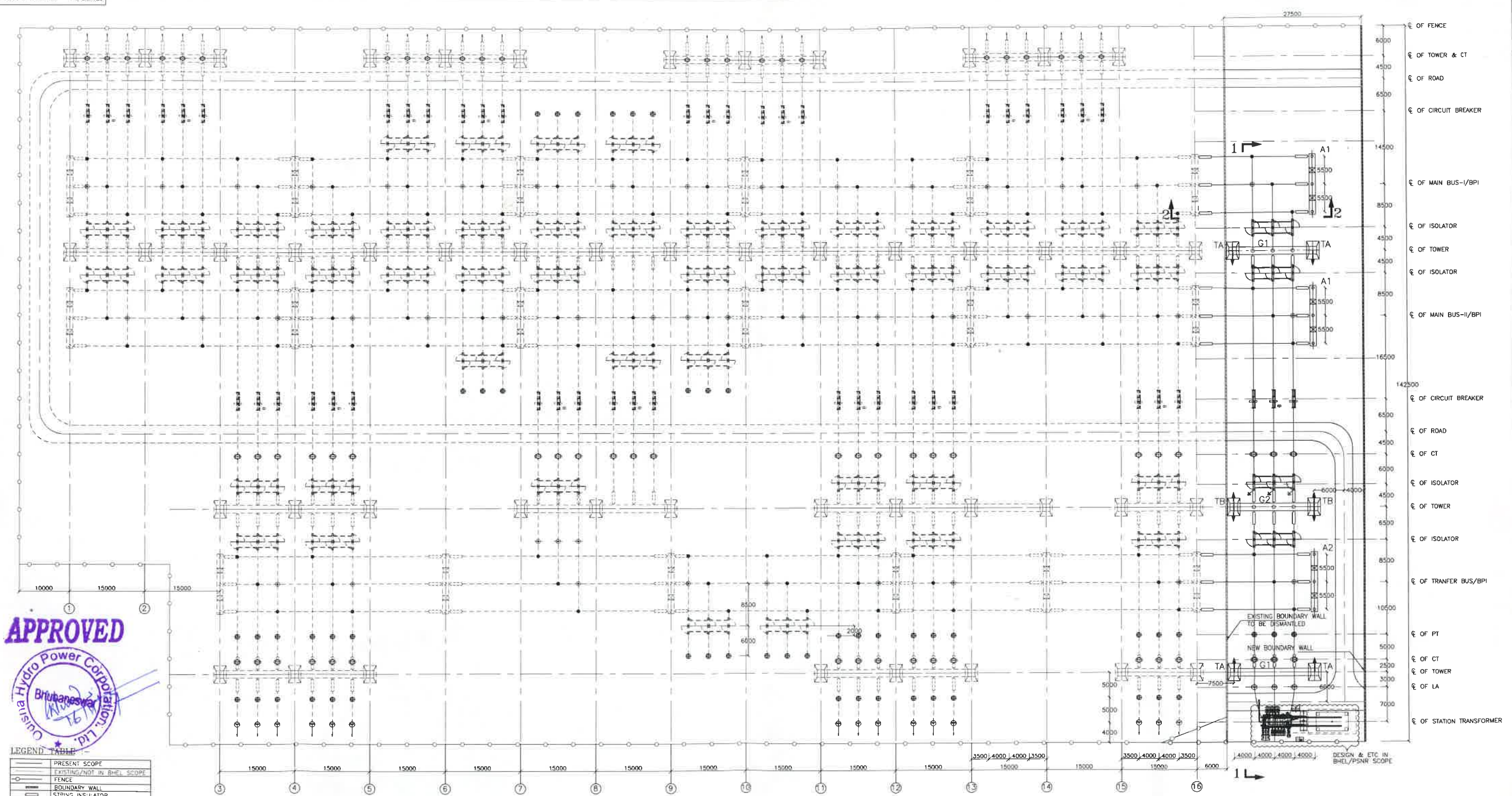
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REF. DRG. No.

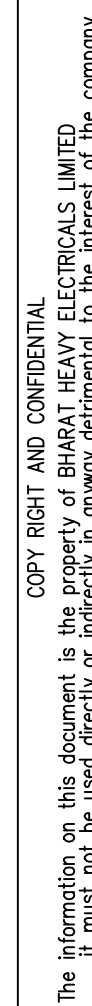
SIGN. & DATE

INVENTORY No.

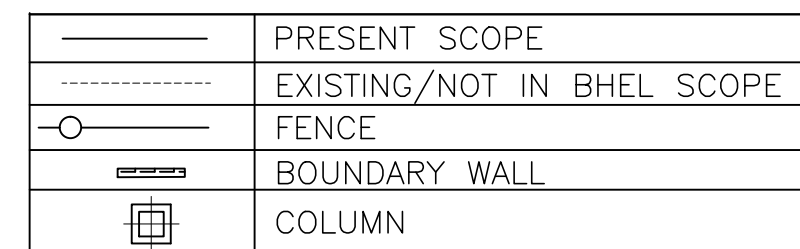









1. ——— 50MM PVC PIPE  
2. - - - - 100MM PVC PIPE  
3. B INDICATE 90 deg BEND  
4. T INDICATE TEE BEND



19. CONTROL CABLE SHALL BE LAID IN MULTILAYERS IN EACH TRAY.
20. THE CABLE OF CT /CVT BETWEEN SECONDARY TERMINAL BOX AND JB SHALL BE LAID IN 110/50MM PVC PIPE.
21. XXXX INDICATE PIPE CULVERT.
22. LONGITUDINAL SLOPE IN CABLE TRENCH SHALL BE TYPICALLY 1:500.
23. THE CABLE CABLE ASSEMBLY SHALL BE WELDED TO EMBEDDED INSERT PLATE AS MENTIONED BELOW.  
"6mm WELD 50mm LONG ON BOTH SIDES OF VERTICAL FLAT AT TOP AND BOTTOM AND NEAR EVERY INTERMEDIATE HORIZONTAL CABLE SUPPORT ANGLE. IT MEANS THAT IF CABLE CABLE ASSEMBLY HAS THREE TURNS IT SHALL BE WELDED TO FIVE LOCATION AT BOTH SIDE".
24. SUMP AND DRAINAGE SHALL BE SHOWN IN SEPARATE CIVIL DRAWING.
25. CABLES SHALL BE ROUTED THROUGH SHORTEST ROUTE AS POSSIBLE.
26. ALL CABLES FROM BAY CABLE TRENCH TO EQUIPMENTS INCLUDING AND ALL INTERPOLE CABLES (BOTH POWER AND CONTROL) FOR ALL EQUIPMENT, SHALL BE LAID IN PVC PIPES WHICH SHALL BE BURIED IN THE GROUND AT A DEPTH OF MIN. 250MM BELOW FINISH FORMATION LEVEL.

REV.	DATE	ALTERED CHECKED APPROVED	FIGURE LEFT RIGHT CODE		उत्तराध / SCALE	जल निकास CARD CODE	
ZONE					NTS		
			शीट का TITILE			ड्राइंग नं./DRAWING NO.	पृष्ठ/REV
			220 kV SWITCHYARD TRENCH LAYOUT			TB-0-389-316-005	00
						पृष्ठ नं./SHEET No. 01	अगला पृष्ठ/NEXT SHEET

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