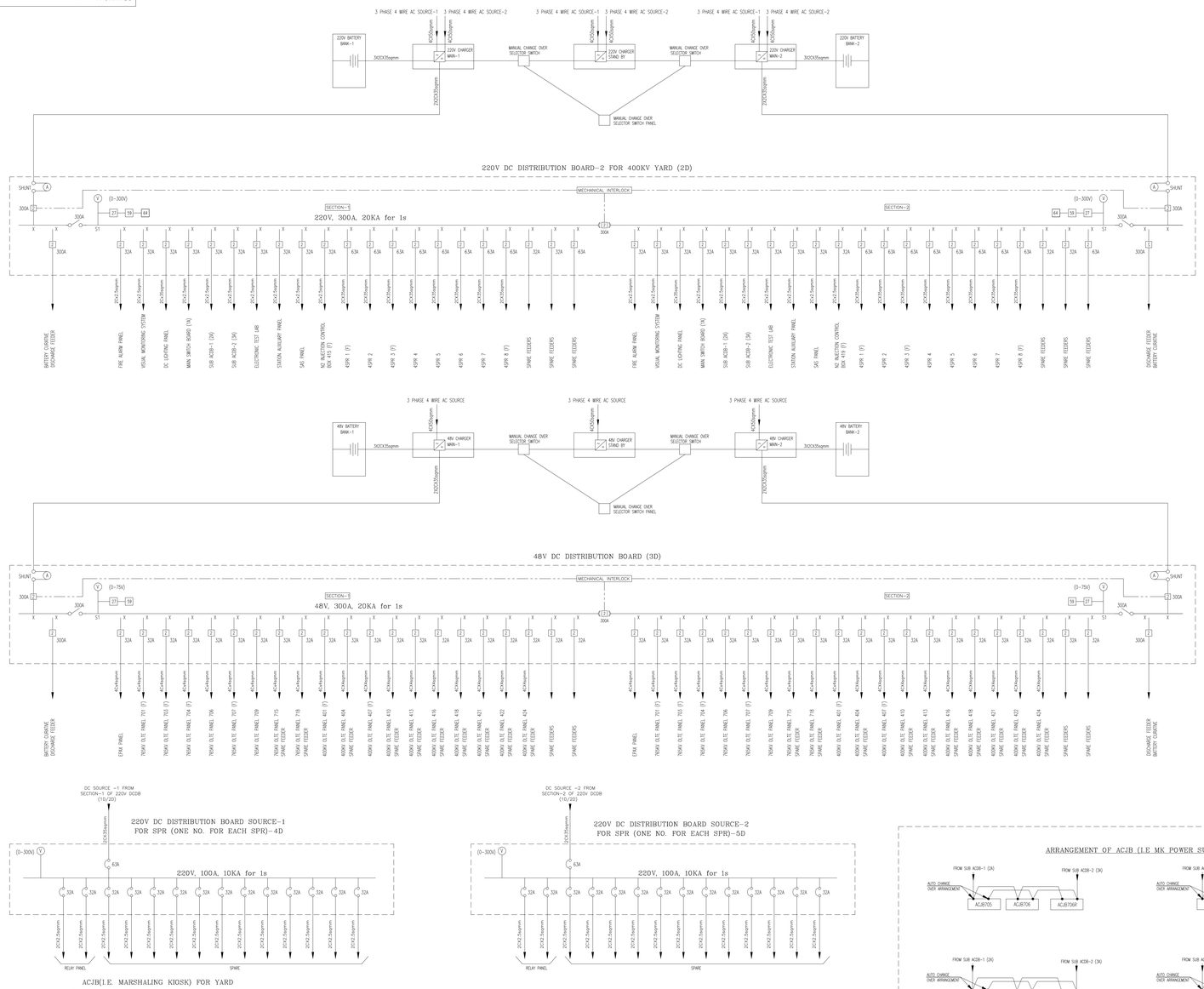
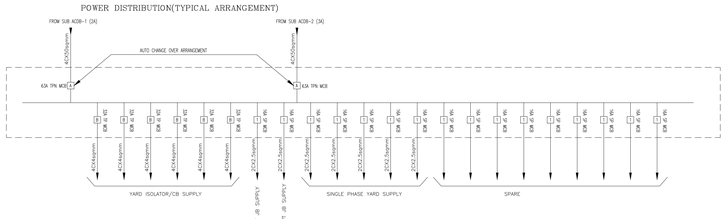
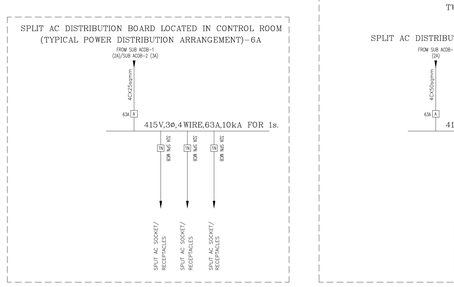
FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN MM.)

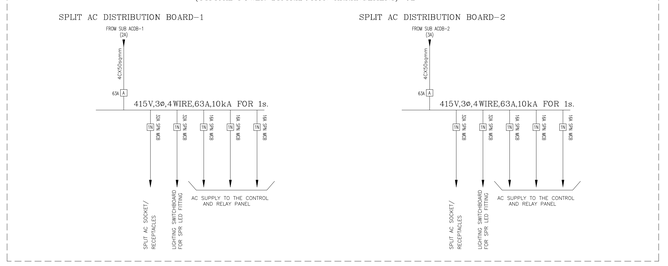
DRAWING No. TB-0-394-316-004

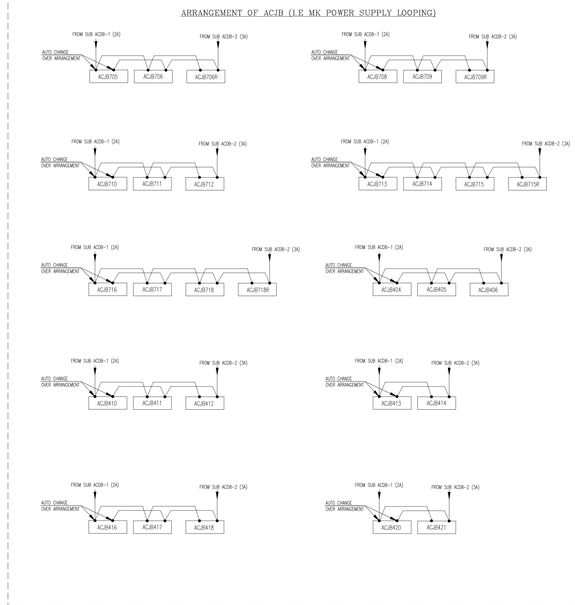




Power cable type		
sl. No.	cable description	Type
1	4CX 240sq mm	Al /XLPE
2	2CX2.5 sq mm	CU/PVC
3	4CX4 sq mm	CU/PVC
4	2CX35 sq mm	CU/PVC
5	4CX25 sq mm	CU/PVC
6	4CX50 sq mm	CU/PVC







BOQ of LT switchgear for Ariyalur project									
BOQ as per contract					Proposed equivalent BOQ				
Sl. No	LOA Reference	Description of Materials	Qty.	Unit	Description of Materials	Qty.	Unit	Remarks	Enclosure of board
81	A	Supply of 415 V,3 ϕ,4 WIRE,1500 A,20 KA FOR 1 SEC Three phase and neutral -distribution Change over panel with Bus section provision with change over provision - for- 2 EB incoming and DG-1 incoming	1	Set	415V , 3 phase 4 wire , 1600A, 25kA for 1 sec main switchboard **(1A)**	1	Set	Located in switchyard control room	Steel
82	A	Supply of 415 V,3 ϕ,4 WIRE,500 A,20 KA FOR 1 SEC Three phase and neutral -distribution Change over panel with Bus section provision with change over provision - for- 2 EB incoming and DG-1 incoming	2	Set	82(a)= 415V , 3 phase 4 wire , 800A, 20kA for 1 sec sub ACDB - 1**(2A)**	1	Set	Located in switchyard control room	Steel
					82(b) =415V , 3 phase 4 wire , 800A, 20kA for 1 sec sub ACDB - 2**(3A)**	1	Set	Located in switchyard control room	Steel
					82(c) = 415V , 3 phase 4 wire ,500A, 20kA for 1 sec main lighting distribution board cun 300KVA lighting transformer **(4A)**	1	Set	(1) Located in switchyard control room (2)As per contract specification , It is required , therefore equivalent board has been considered . (3) New item (price is same as sl. No. 82)	Steel
83	A	Supply of 220 V DC 2 WIRE,with 300 A, 2 module distribution with bus system and with change over provision - for- 2 Dc Source (for 765 and 400 KV)	2	Set	83(a)= 300A , 20kA for 1 sec 220V DCDB -1 for 765kV switchyard **(1D)**	1	Set	Located in switchyard control room	Steel
					83(b)= 300A , 20kA for 1 sec 220V DCDB -2 for 400kV switchyard **(2D)**	1	Set	Located in switchyard control room	Steel
84	A	Supply of 48 V DC 2 WIRE, 2 module distribution with bus system	1	Set	300A , 20kA for 1 sec 48V DCDB **(3D)**	1	Set	Located in switchyard control room	Steel
85	A	AC Distribution for Kiosk 15 out going feeder each with auxiliary contacts	20	No.				Not required , power distribution of SPR(i.e. kiosk) shall be taken from nearest AC junction box(i.e. Marshalling kiosk and switchyard sub ACDB)	Steel
86	A	DC Distribution for Kiosk 12 out going feeder each with auxiliary contacts	20	No.	86(a) =100A , 10kA for 1 sec 220V DCDB source -1 for SPR ((4D)	10	Nos.	(1) Located in SPR (2) 1 no. for each SPR	Steel
					86(b)= 100A , 10kA for 1 sec 220V DCDB source -2 for SPR **(6D)**	10	Nos.	(1) Located in SPR (2) 1 no. for each SPR	Steel
87	A	AC junction Box (FRP)	32	Nos.	AC Junction box (FRP)	30	Nos.	(1) 1 no. for each circuit breaker (2) Located in switchyard	FRP
88	A	DC interlock box (FRP)	32	Nos.	DC interlock box (FRP)	30	Nos.	(1) 1 no. for each circuit breaker (2) Located in switchyard	FRP
28	A	220 V 535 AH Battery complete Set with stand, insulators and terminal connectors,electrolyte,hydrometer,room thermometer and multimeter	4	set	220 V 535 AH Battery complete Set with stand, insulators and terminal connectors,electrolyte,hydrometer, room,thermometer,and multimeter	4	set	Located in switchyard control room	-
29	A	220V , 100 Amps Battery charger	6	Nos.	220V , 100 Amps Battery charger (Float and float cum Boost Charger)	6	Nos.	Located in switchyard control room	Steel
30	A	48 V 1250 AH Battery complete Set with stand, insulators and terminal connectors,electrolyte,hydrometer,room thermometer and multimeter	2	set	48 V 1250 AH Battery complete Set with stand, insulators and terminal connectors,electrolyte,hydrometer, room thermometer and multimeter	2	set	Located in switchyard control room	-
31	A	48 V 250 A Battery charger	3	Nos.	48 V 250 A Battery charger (float cum Boost Charger)	3	Nos.	Located in switchyard control room	Steel
98	B	Supply and Fixing main switch board shall be of indoor, industrial wall mounted, vermin proof, dust proof and suitable for 400/440 V, 3 phase, 4 wire system with bus bar chamber, interconnections to sub circuit MCBs and cable glands with the following ratings of INCOMER : 1 No. 200 Amps TPN Fuse switch (with HRC fuse) and outgoing circuits bus bars shall be rated for 4 pole 63 Amps Main Switch and 16 A MCB -10 Nos for each sub circuit complete with angle iron frame ,all labour ,lead and lift etc.,complete as per standard specification	22	set	415V , 3 phase 4 wire ,200A, 20kA for 1 sec emergency lighting distribution board cun 100KVA lighting transformer **(5A)**	1	Set	(1) Located in switchyard control room (2)As per contract specification , It is required , therefore equivalent board has been considered . (3) New item (price is same as sl. No. 98)	Steel
96	B	Supply of sub-distribution board having 1 No. 63 A , TPN isolator as incomer and 3 Nos. MCB 32 A (Reputed make), DP HRC fuse as outgoing as per standard specification	26	Nos.	96(a) 415V , 3 phase 4 wire ,63A, 10kA Split AC Distribution board having 1 No. 63 A , TPN MCB as incomer and 3 Nos. 32A SPN MCB as outgoing **(6A)**	8	Nos.	(1) Wall mounted distribution board used for split AC supply in control room. (2)Total 8 nos. for control room. Supply from control room sub ACDB-1(2A)/sub ACDB-2(3A) (3) New item (price is same as sl. No. 96)	Steel
					96(b) 415V , 3 phase 4 wire ,63A, 10kA Split AC Distribution board having . Incomer feeder -1 No. 63 A, TPN MCB. Outgoing feeders -2 Nos. 32A SPN MCB and 3 nos. 16A SPN MCB **(6B)**	20	Nos.	(1) Wall mounted distribution board used for split AC supply in SPR. (2)Total 20 nos. for SPR(each SPR 2 nos.) . Supply from control room sub ACDB-1(2A)/sub ACDB-2(3A) (3) New item (price is	Steel
		Reference A- SCHEDULE II: Supply of Electrical Equipments/Materials							
		Reference B- SCHEDULE - I Civil Works							

LEGEND:–

- DRAW OUT TYPE AIR CIRCUIT BREAKER
- NON DRAW OUT TYPE 4–POLE MCCB
- NON DRAW–OUT 2–POLE MCB
- NON DRAW OUT TYPE 2–POLE MCCB
- NON DRAW OUT AIR BREAK SWITCH
- NON DRAW OUT TYPE TPN MCB
- NON DRAW OUT TYPE TP MCB
- NON DRAW OUT TYPE SP MCB
- NON DRAW OUT TYPE SPN MCB
- CONTROL FUSE
- CHARGER LINKS/FUSES

LEGEND:–

50N	:	INSTANTANEOUS EARTH FAULT RELAY
50	:	INSTANTANEOUS OVER CURRENT RELAY
51/51N	:	INVERSE DEFINITE MINIMUM TIME OVER CURRENT/EARTH FAULT RELAY
2	:	TIME DELAY PICKUP RELAY
27X	:	UNDER VOLTAGE MULTIPLIER RELAY
27	:	UNDER VOLTAGE RELAY
59	:	OVER VOLTAGE RELAY
64	:	DC EARTH FAULT RELAY
87	:	THREE POLE DIFFERENTIAL PROTECTION RELAY
49	:	OVER LOAD LELAY
51NS	:	STAND BY EARTH FAULT LELAY
REF	:	RESTRICTED EAETH FAULT LELAY
ASS	:	AMETER SELECTOR SWITCH
VSS	:	VOLTAGE SELECTOR SWITCH
SAS	:	SUBSTTAION AUTOMATION SYSTEM
MFM	:	MULTI FUNCTION METER

REFERANCE DRG. NO.

TITLE

ADDITIONAL INFORMATION
W.O.No. 86009

STATUS OF DRAWING CONTRACT

DISTRIBUTION OF PRINTS

प्राहक/परियोजना का नाम
NAME OF CUSTOMER/PROJECT

TAMILNADU TRANSMISSION CORPORATION, LTD.
765/400KV AIS S/S ARIYALUR IN VILLUPURAM

भारत हेवी इलेक्ट्रिकल्स लिमिटेड
ट्रांसमिशन परियोजना विभाग
BHARAT HEAVY ELECTRICALS LTD.
TRANSMISSION PROJECTS DIVISION

तैयार/DRAWN	PK	-सं-	27.12.17
जाँचा/CHECKED	SK	-सं-	
स्वीकृत/APPROVED	DM/BS	-सं-	

विभाग/DEPT. TBEM
कोड/CODE 422
शीर्षक/TITLE

उपाय/SCALE 1:1000

कार्ड कोड/CARD CODE

SINGLE LINE DIAGRAM FOR LT AC & DC SYSTEM AT ARIYALUR

ड्रॉ.सं./DRAWING NO. TB-0-394-316-004

पृष्ठ/REV. 01

पृष्ठ सं./SHEET No. 02 अगला पृष्ठ/NEXT SHEET --

REV.	DATE	ALTERED / CHECKED / APPROVED
01	03.05.18	ALTERED: MM

AS PER CUSTOMER COMMENTED DATED-23.04.18

COPY Right AND CONFIDENTIAL
The information in this document is the property of BHARAT HEAVY ELECTRICALS LIMITED, and may not be reproduced or disclosed to others without the express written consent of the company.

COMPUTER DRG. PATH NAME

REF. DRG. No.

SIGN. & DATE

INVENTORY No.