

# ELECTRICAL DRAWINGS

PUMP HOUSE

PROJECT  
LOCATION

**CONSTRUCTION OF 66/33kV SUBSTATION AND ASSOCIATED WORKS  
: JAMTSHOLING, TASHICHOLING (SIPSOO), SAMTSE, BHUTAN**

**BILL OF QUANTITY:**

SYMBOL	DESCRIPTION	MAKE	QTY.
	40 W, 240V, LED WATER PROOF LUMINAIRES SURFACE/SUSPENDED MOUNTING POLYCARBONATE BODY CORROSION RESISTANT CRCA GEAR TRAY CUM REFLECTOR IS FINISHED IN WHITE POWDER COATING, IP-65.	BIPC 40W LED BAJAJ	01 No.
	40 W, 240V, LED LUMINAIRES CRCA STEEL SHEET HOUSING SUITABLE FOR SURFACE/SUSPENDED MOUNTING WITH ACCESSORIES FINISH: WHITE POWDER COATED (RAL 9016)	BLTRU 40W WH LED BAJAJ	06 Nos.
	240V, 1400MM SWEEP CEILING FAN COMPLETE WITH ELECTRONIC REGULATOR AND SWITCH, SUSPENSION ROD, CANOPY & ACCESSORIES.	BAJAJ	01 No.
	DC 110V 60W GLS BULKHEAD LUMINAIRE, SUITABLE FOR WALL/CEILING SURFACE AND SUSPENSION MOUNTING.	BAJAJ	01 Nos.
	5A AND 15A 240V, 6PIN TYPE POWER SOCKET WITH SWITCH SUITABLE FOR FLUSH/SURFACE MOUNTING.	APPROVED MAKE	02 Nos.
	16A TPN MCB WITH ENCLOSURE	APPROVED MAKE	01 No.

**NOTES:**

- ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE SPECIFIED.
- THIS DRAWING SHALL BE REFERRED FOR ILLUMINATION PURPOSE ONLY.
- GI CONDUIT SHALL BE PROVIDED FOR LIGHTING WIRING.
- THE MOUNTING HEIGHT OF MCB, ELP & DCLP SHALL BE 1800MM ABOVE FFL TO TOP. AND SWITCH BOARD SHALL BE 1200 ABOVE FFL TO CENTRE.
- THE MOUNTING HEIGHT OF POWER SOCKETS SHALL BE 500MM ABOVE FFL TO CENTRE.
- JBS, SWITCH BOXES, AND LUMINAIRES ETC. SHALL BE EARTHED BY SUITABLE 2.5Sq.mm Cu.WIRES.
- SEPARATE NEUTRAL WIRE SHALL RUN FOR EACH CIRCUITS (eg. R1-N, R2-N,..).
- AC LIGHTING, AC EMERGENCY, DC EMERGENCY AND POWER SOCKET WIRES SHALL HAVE SEPARATE CONDUIT RUNNING.
- WIRES OF DIFFERENT PHASES SHALL BE RUN IN SEPARATE CONDUITS.
- WIRES SHALL BE PVC INSULATED, 1100V GRADE, FLEXIBLE WIRES SHALL BE THE FOLLOWING OF THE MINIMUM SIZES.
  - FROM LIGHTING PANEL TO SWITCH BOARD -2.5Sq.mm. Cu.
  - FROM SWITCH BOARD TO FIXTURE/FANS -2.5Sq.mm. Cu.
  - FROM LIGHTING PANEL TO 15A RECEPTACLES -4Sq.mm. Cu.
- EXACT LOCATION OF FITTING SHALL BE DECIDED AT SITE BASED ON THE ACTUAL SITE CONDITIONS.
- ALL SWITCHES AND POWER SOCKETS SHALL BE FLUSH MOUNTED WITH WALL SURFACES.
- PULL BOX SHALL BE PROVIDED WHEREVER REQUIRED AS PER THE SITE REQUIREMENT IN THE CONDUIT RUN.
- PULL BOXES SHALL BE USED TO FACILITATE PULLING OF WIRES. WIRES SHALL BE SPLICED AT JUNCTION BOXES WITH APPROVED TYPE CONNECTORS/TERMINAL STRIPS.
- WIRES SHALL NOT BE PULLED THROUGH MORE THAN TWO EQUIVALENT 90° BENDS IN A SINGLE CONDUIT RUN, WHEREVER REQUIRED, SUITABLE JUNCTION BOXES SHALL BE USED.
- THE LOCATION OF LIGHTING PANELS ARE TENTATIVE.

**REFERENCE DRAWINGS:**

- BPC/TCD/TPO/12-01/DWG-C/PH-ARCHITECTURAL DWG.

**NORMAL SWITCH BOARD DETAILS**

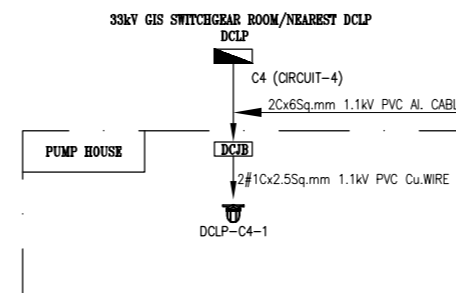
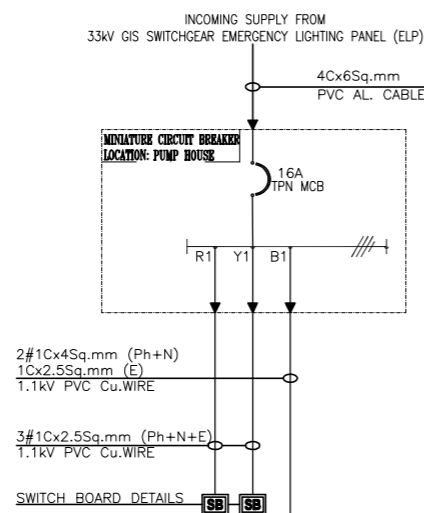
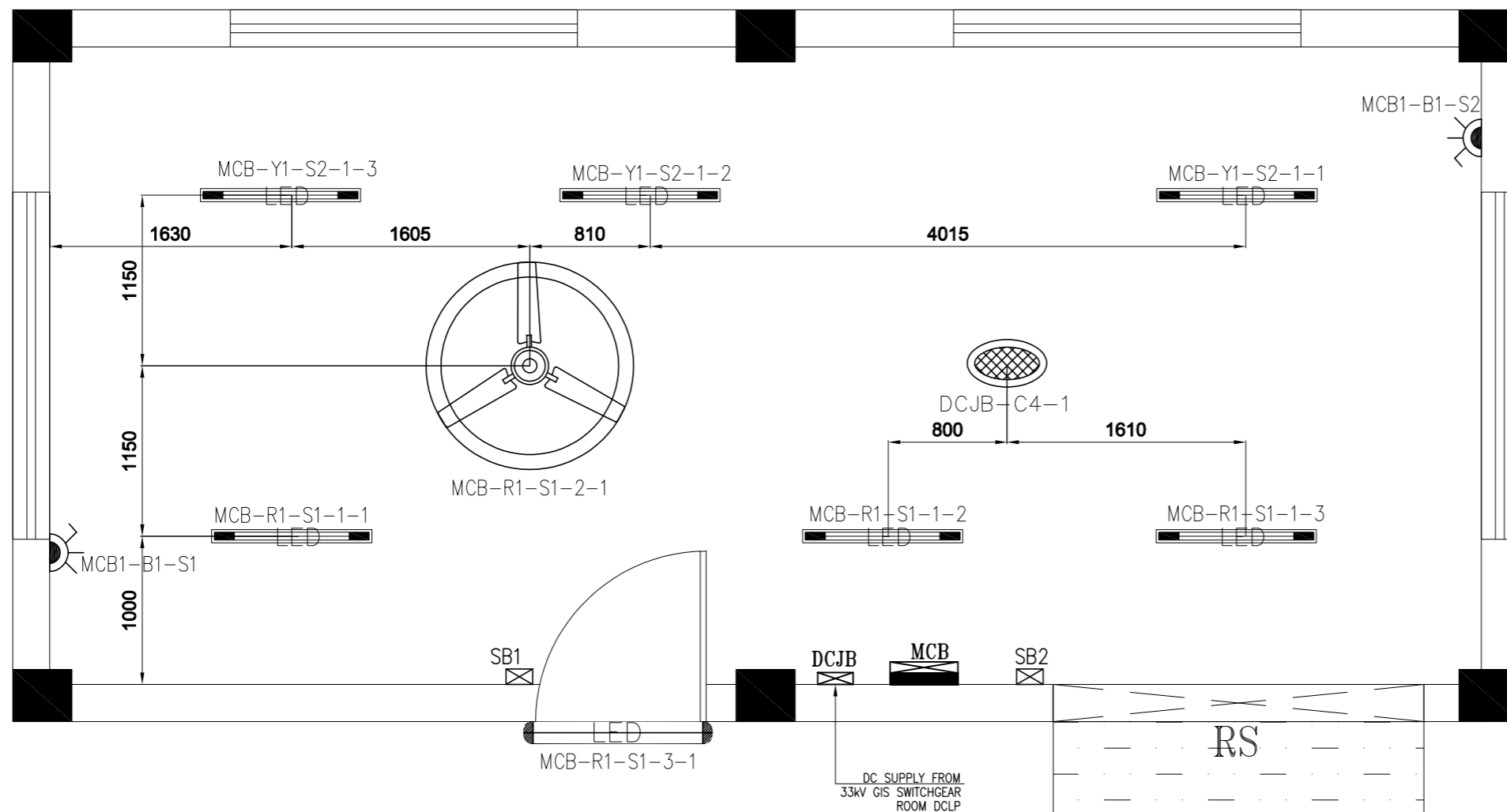
PANEL	CIRCUIT	SWITCH BOARD LOCATION	SWITCH BOARD	NUMBER OF 1 WAY SWITCH	NUMBER OF 5A SOCKET	NUMBER OF FAN REGULATOR	NUMBER OF MODULE
(MCB)	R1	PUMP HOUSE	SB-1	3	-	1	6
	Y1	PUMP HOUSE	SB-2	2	-	-	4

**MOUNTING DETAILS:**

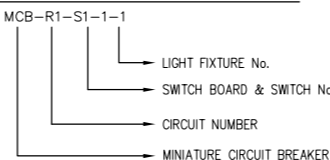
SYMBOL	PUMP HOUSE (3.450M)
	(3.0M) SUSPENDED
	(3.450M) SURFACE
	2.50M (W) OR ABOVE THE DOOR
	0.50M (W) FLUSH

NOTE: W-WALL C-CEILING FC-FALL CEILING

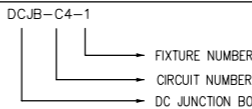
**PUMP HOUSE ILLUMINATION LAYOUT**



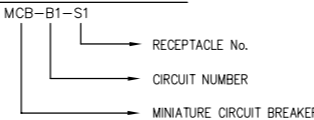
**AC NORMAL LIGHTING FIXTURE IDENTIFICATION:**



**DC EMERGENCY LIGHTING PANEL IDENTIFICATION:**

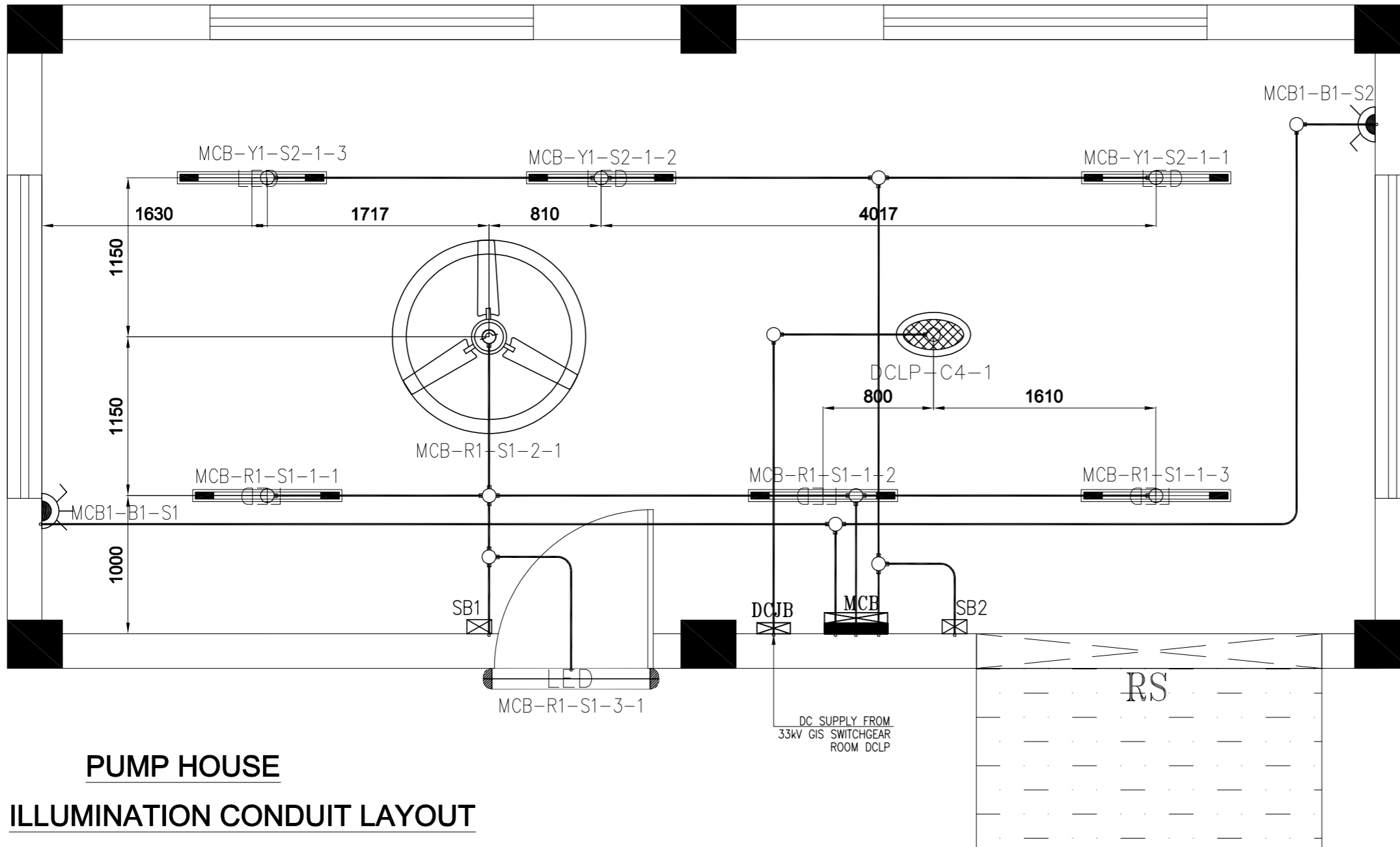


**RECEPTACLE IDENTIFICATION:**



SYMBOL	DESCRIPTION	WATTAGE PER FIXTURE	TOTAL QTY.	R1	Y1	B1
	40 W, 240V, LED LUMINAIRES CRCA STEEL SHEET HOUSING SUITABLE FOR SURFACE/SUSPENDED MOUNTING WITH ACCESSORIES FINISH: WHITE POWDER COATED (RAL 9016)	40	06	3	3	-
	40 W, 240V, LED WATER PROOF LUMINAIRES SURFACE/SUSPENDED MOUNTING POLYCARBONATE BODY CORROSION RESISTANT CRCA GEAR TRAY CUM REFLECTOR IS FINISHED IN WHITE POWDER COATING, IP-65.	40	01	1	-	-
	240V, 1400MM SWEEP CEILING FAN COMPLETE WITH ELECTRONIC REGULATOR AND SWITCH, SUSPENSION ROD, CANOPY & ACCESSORIES.	100	01	1	-	-
	5/15A, 240V RECEPTACLES IN SWITCH BOARD.	100	01	-	1	-
	5A AND 15A 240V, 6PIN TYPE POWER SOCKET WITH SWITCH SUITABLE FOR FLUSH/SURFACE MOUNTING.	500	01	-	-	2
TOTAL LOAD IN WATTS						
	LIGHTING R : 260 W Y : 220 W LOAD B : - W			260	220	1000
	RECEPTACLE R : - W LOAD Y : - W B : 1000 W					

REV	DATE	DESCRIPTION	BY	CHKD.	APPD.
<b>BHUTAN POWER CORPORATION LTD.</b> TRANSMISSION CONSTRUCTION DEPARTMENT					
PROJECT : CONSTRUCTION OF 66/33 kV SUBSTATION AT JAMTSHOLING, SIPS00					
TITLE: PUMP HOUSE ELECTRIFICATION DRAWINGS					
DESIGNED / DRAWN:			APPROVED :		
(UOYEN TEMPA)			DATE : FEBRUARY 2021		
DWG. NO: BPC/TCD/TPO/12-01/DWG-E/PH-ELECT-01			SCALE : AS STATED		
			REV. RO		



# PUMP HOUSE ILLUMINATION CONDUIT LAYOUT

### BILL OF QUANTITY

SL.NO.	DESCRIPTION	QTY.	UNIT
01	25MM DIA PVC CONDUIT.	65	MTRS.
02	25MM DIA PVC 90 DEGREE (ELBOW) BEND	20	NOS.
03	ONE WAY JUNCTION BOX SUITABLE FOR 25MM DIA PVC CONDUIT.	05	NOS.
04	TWO WAY JUNCTION BOX SUITABLE FOR 25MM DIA PVC CONDUIT.	05	NOS.
05	TWO WAY 90° JUNCTION BOX SUITABLE FOR 25MM DIA PVC CONDUIT.	05	NOS.
06	THREE WAY JUNCTION BOX SUITABLE FOR 25MM DIA PVC CONDUIT.	10	NOS.
07	FOUR WAY JUNCTION BOX SUITABLE FOR 25MM DIA PVC CONDUIT.	04	NOS.
08	ONE WAY JUNCTION BOX FOR CEILING FAN (WITH HOOK)	01	NOS.
09	JUNCTION BOX BLANK COVER WITH 25/20MM HOLE KNOCKOUT PROVISION	30	NOS.
10	2.5SQ MM 1100V GRADE STRANDED PVC INSULATED COPPER WIRE FOR DC LIGHTING CONDUIT WIRING (WHITE-POSITIVE).	10	MTRS.
11	2.5SQ MM 1100V GRADE STRANDED PVC INSULATED COPPER WIRE FOR DC LIGHTING CONDUIT WIRING (GREY-NEGATIVE).	10	MTRS.
12	2.5SQ MM 1100V GRADE STANDARD PVC INSULATED COPPER WIRE FOR AC LIGHTING WIRING (R-PHASE).	35	MTRS.
13	2.5SQ MM 1100V GRADE STANDARD PVC INSULATED COPPER WIRE FOR AC LIGHTING WIRING (Y-PHASE).	25	MTRS.
14	2.5SQ MM 1100V GRADE STANDARD PVC INSULATED COPPER WIRE FOR AC LIGHTING WIRING (NEUTRAL).	45	MTRS.
15	4SQ MM 1100V GRADE STANDARD PVC INSULATED COPPER WIRE FOR AC POWER SOCKETS BLUE(B-PHASE).	35	MTRS.
16	4SQ MM 1100V GRADE STANDARD PVC INSULATED COPPER WIRE FOR AC POWER SOCKETS BLACK(NEUTRAL).	35	MTRS.
17	2.5Sq.mm PVC Cu. EARTH WIRE FOR EARTHING (YELLOW GREEN)	80	MTRS.

### LEGENDS:-

- ONE WAY PVC PULL/JUNCTION BOX
- ⊕ TWO WAY PVC PULL/JUNCTION BOX
- ⊕ TWO WAY 90° PVC PULL/JUNCTION BOX
- ⊕ THREE WAY 90° PVC PULL/JUNCTION BOX
- ⊕ FOUR WAY PVC PULL/JUNCTION BOX
- ⊕ ONE WAY JUNCTION BOX FOR CEILING FAN (WITH HOOK)
- DROPPER / RAISER
- 25 MM PVC CONDUIT FOR NORMAL AC LIGHTING.
- 25 MM PVC CONDUIT FOR RECEPTACLES.
- 25 MM PVC CONDUIT FOR NORMAL DC LIGHTING.

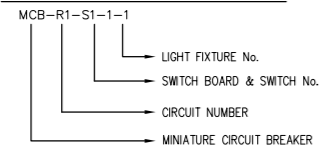
### REFERENCE DRAWINGS:

1. BPC/TCD/TPO/12-01/DWG-C/PH-ARCHITECTURAL DWG.
2. PUMP HOUSE ILLUMINATION LAYOUT.

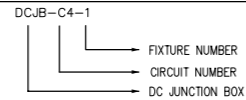
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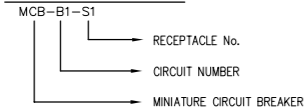
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