



PUNJAB STATE TRANSMISSION CORPORATION LIMITED,

Regd Office: PSEB Head Office, The Mall, Patiala.147001.
Office of: Dy. Chief Engineer/TS(Design),
First Floor, Shakti Sadan, Opp. Kali Mata Mandir, Patiala-147001.
Telefax-0175-2207774 email: se-trd@pstcl.org
Corporate Identity No. U4010PB2010SGC033814
Website : www.pstcl.org

Memo no. 1447

Dated:- 14/10/2021

To

The Member Secretary, E-mail:- nldc.psdf2020@gmail.com
Power System Operation Corporation Limited,
National Load Dispatch Centre,
B-9, 1st Floor, Qutub Institutional Area,
Katwaria Sarai, New Delhi-110016

Sub:- Funding of schemes from PSDF- Provision of second DC source at 220KV & 132KV Grid Sub-station of PSTCL under PSDF scheme.

Ref:- Your office letter no. NLDC-PSDF/TESG-56th meeting/2021-22 dated 22.09.21 received vide your email dated-28.09.2021.

As discussed in the 56th TESG meeting held on 07.07.2021 and MOM received vide above referred letter, please find enclosed herewith the following documents for your information and taking further necessary action please:-

- i) Revised A1 Format is attached as annexure-I.
- ii)
 - a) Duly filled revised A5 Format is attached as annexure-II
 - b) Protection Audit reports attached as Annexure-III.
 - c) Duly A6 Format is attached as Annexure-IV.
- iii) Approval of competent authority of PSTCL for seeking grant from PSDF is under process and the decision of the same will be provided to NLDC subsequently.
- iv) The block diagram and Schematic drawings of DCDB justifying the requirement is attached as Annexure-V.

- v) a) The general layout showing the existing layout of Battery, battery charger and DCDB in switch house building is attached as Annexure-VI.
b) The detail of date of commissioning of each sub-station is also attached as Annexure-VII.
- vi) There seems to be some error as the earthing cost is not included in the DPR.
- vii) Noted.
- viii) As discussed in the meeting held on dated 07.07.2021, revised BOQ (Format-3) after reviewing the cost of civil works and cables is attached herewith.

DA/As above


(Er. Arun Garg)
Nodal Officer/Dy.CE/TS (Design),
PSTCL, Patiala.

SUMMARY OF PROPOSAL

To be filled by the Requesting Organization / Project Entity	
1. Name of requesting Organization/Utility	Punjab State Transmission Corporation Ltd. (PSTCL)
2. Short Summary of Project / Scheme /Activity	The Scheme covers provision of Second DC Source at 28 Nos. 220KV Substations and 44 nos. 132KV Substations of PSTCL in Punjab.
a. Name and location of the Project / Scheme /Activity	Providing Second phase of second DC SOURCE at 72 No., 220KV and 132 KV Substations in Punjab.
b. Objective of the Project / Scheme /Activity	The objective of the scheme is to meet with Grid Connectivity Standards by providing Second DC Source for secure and reliable operation of the integrated power Grid in the Northern Region.
c. Authorized person for this project / Scheme/ Activity	Name : Er. Arun Garg, SE/TS,(D) PSTCL, Patiala E-mail. ID : se-trd@pstcl.org Land line No. : (0175) 2207774 Mobile No. : 96461-17803 Fax No. : 0175-2207774
d. Nature of Project / Scheme/ Activity : Inter – State / Intra – State (Please Specify).	Although Project is Intra – State yet is essential for secure and reliable operation of interconnected Northern Regional Grid.
e. Identified Beneficiaries.	Punjab
f. Merits of the scheme	To provide secure and reliable operation of the interconnected Grid.
g. Limitations, if any	NIL
h. Time frame for Implementation	24 months
i. Estimated cost of Project / Scheme/ Activity	Rs. 11.67 Crore (approx.)
j. Category under which the project is classified (Please refer Para 5.1 of the Guidelines/ Procedure).	Project is classified under Para 5.1 (c) i.e. setting right the discrepancies identified in protection audit.

Date: 14.10.2021

Signature : 
 Name: Er. Arun Garg

(Authorized Representative)

Brief Details of the Project Appraisal by CTU/ STU /RPC

Item	Details to be filed by Applicant Utility
Appraisal By :	CTU <input type="checkbox"/> STU <input checked="" type="checkbox"/> RPC <input type="checkbox"/>
Date of Submission to CTU/ STU/RPC for approval	Chief Engineer/P&M, PSTCL, Ludhiana Agenda no. 98/2015-16/PM dated-08.07.2015 submitted to the WTDs (Whole time Directors) of PSTCL.
Name of the Scheme	Provision of second DC source at 220kV & 132kV Grid sub-stations of PSTCL as per CERC petition no. 220/MP/2012 & Grid Connectivity Standards.
Details of the Appraisal Report by CTU / STU/ RPC (Attached at Annexure)	Reference No: Company Secretary/PSTCL memo no. 1042/WTD-59.7/PSTCL Date: 23.07.2015
Summary of observations from CTU/ STU/ RPC Appraisal Report	Summary of Proposal Appraised Technical Observations Financial Observation Compliance of Grid Standards/Codes by the Applicant Limitations/Shortcomings pointed out by CTU/STU/RPC, if any Recommendations of CTU/STU/RPC

Date : 14.10.2021Signature : Arun Garg
(Er. Arun Garg)
Nodal Officer/Dy.CE/TS (Design),
PSTCL, Patiala.

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FAX: (404) 522-5757

All New System TS (D)

PSTC
PENNSYLVANIA STATE TEACHERS' CREDIT CORPORATION

PUNJAB STATE TRANSMISSION CO
(Regd. Office: PSEB, Hoshiarpur)

Corporation Limited, P
Patiala-147001)
OSGC033874 Suppl. Or. I.
Post.org (O/o Company Secretary) E-mail : com@pslcbspatial.com
Tel/Fax No. 0175-2200000

Postal Address: 14/801, Puri Bhawan, Sector 14, Chandigarh - 160014
E-mail: comsec@pvt.org.in | Tel/Fax: 0172-2215001

Company Secretary) E-mail : USGC033874@compuserve.com
Tel/Fax No. 0175-2308233

Subject:- CE/P&M Agenda No. 98/2015-16/PM dated 17.7.2015- To provide Engineering second DC source at 220 & 132 KV sub-stations of PSTCL as per CERC Petition No.- 220/MP/2012 and CEA Grid Connectivity standards.

The decision taken by the Committee of Whole Time Directors in its meeting held on 15.07.2015 at its Registered Office of the Corporation, PSEB H.O., Office, The Mail, Patiala, on the above subject:-

"Director/Technical apprised the Committee that there are 132 KV Substations also which are connected with generating station and requires to be covered in the first phase. The Committee noted the same. The Committee perused the agenda put up Chief Engineer/P&M. After detailed deliberation, administrative approval was accorded as under:

- i. In order to comply with

- After detailed deliberation, administrative committee perused the record as under:

 - i. In order to comply with CEA Grid Connectivity Standards and to ensure the rectification of deficiencies pointed in the protection audit as per CERC order in petition no. 220/MP/2012, it was decided to have second DC source at all 220 KV and 132 KV Substations in a phased manner along with separate DC charger and DC distribution board.
 - ii. In the first phase all 132/220 KV Substations connected with 400 KV Substations, PGCIL, Generating Stations and BBMB shall be covered and remaining 132/220 KV Substation will be covered in second phase.
 - iii. In the third and fourth phase 132/66/33/11 KV and 132/11 KV Substations shall be covered respectively.
 - iv. For all new upcoming 220 and 132 KV Substations, two set of DC sources shall be operationalized by TS Organization at the time of commissioning of these Substations. For existing 220 KV Substations one source will cover 220 KV or 132 KV System and second source will cover 66 or 11 KV system. Both the sources should be capable of inter changing or parallel running".

This is for information and necessary action under due intimation to this office please.

8P^o 35713
Company Secretary,
ESTOL, Patiala.

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Chief Engineer/P&M,
PSTCL, Ludhiana

U.O. No. 1042/WTD-59 7/PST/CI

Dated: 23.07.2015

Copy of the above is forwarded to Addl. S.E. Protection
Div., Ludhiana for Information and N.A.

ANNEXURE-III(a)

11) Any Other Observation/Comments

220 kV

Q3 Model

1. There is only one common 220V DC voltage source available. It is recommended that 02(two) nos. independent 220V DC sources should be provided.
2. There is no protection in 220V DC Distribution system, same is recommended to be provided.
3. Synchronizing facility not available, the same shall be provided.
4. RIL670 installed on 220kV Mohali-Nalagarh-II is not having IRIG-B/SNTP time synchronization facility. The same may be provided.
5. Station Event Logger is not available. Latest technology Station Event Logger is recommended to be provided.
6. All the Static relays are recommended to be replaced with Numerical relays with GPS time synchronization and in-built DR facility.
7. Considering availability of spares/service support, it is recommended that WS make old PLCC systems may be replaced.
8. Power Line Current Aided schemes available in only 03(three) nos. 220kV lines only. The same may also be provided in other 220kV lines.
9. Numerical Busbar Protection relay shall be provided
10. High Speed Single Phase Auto-reclose facility has to be introduced in all 220kV and above transmission lines as envisaged in publication no. 274 of CBLP.
11. It is observed that 04(Four) nos. 220kV lines are having same make & model numerical relays as Main-I & Main-II. It is recommended to provide numerical relays with different model/algoritm.

Mr. V. Venkateswaran

A.I. V. Venkateswaran

20/10/2012

P.Kallappan, CPRI M.Vasantha, POWERGRID

M.P.Singh, POWERGRID

Daljit Singh, Mahal, PSTCL

Rajbir Singh Malia, PSTCL

ANNEXURE- III(6)

220 KV S/S Sama

1. Time synchronization needs to be provided from the GPS Clock in all the feeders.

2. 220 V DC Source only one available. From reliability point of view one more 220 V DC source is required

3. The existing 220 V DC battery bank shall be replaced with VRLA type

4. PLCC panel- RSPP-II DIR, there is an alarm in Protection coupler, the same shall be attended

5. Recommended Relay settings are not available in both PGCL as well as PSTCL lines

6. All 220/132 KV lines shall be provided with the required rating of LAs

7. Oil leakage in R-phase CVT of W/G-1 and Udhampur line, the same shall be attended

8. Bus bar protection relay is not available, the same shall be procured and installed

9. All static Relays shall be replaced with Numerical relays with time synchronization and in built DR feature & GPS time synchronization

10. There is no DG set availability, the same shall be procured

11. Considering the availability of spare for existing DR which is very old, shall be replaced by latest technology envisaged in Publication No. 274 of CBI

13. Phase marking of all switchyard equipment's to be carried out

14. Painting all switchyard equipment's shall be taken up immediately, and such regular painting shall be carried out at least once in 5 years to give aesthetic look, and proper equipment upkeep.

15. CEA Safety & Electricity Regulations 2010 call for installation of Fire Fighting System for all oil-filled transformers having 2 kL or more oil or 10 MVA or more in capacity, as per IS 3034: 1993. Committee urges PSTCL to immediately go for installation of Fire Fighting System for all their Transformer units.

16. Since there is no event logger available, station event logger to be provided.

17. PLCC Protection coupler to be provided in all 220 KV lines.

DETAILED

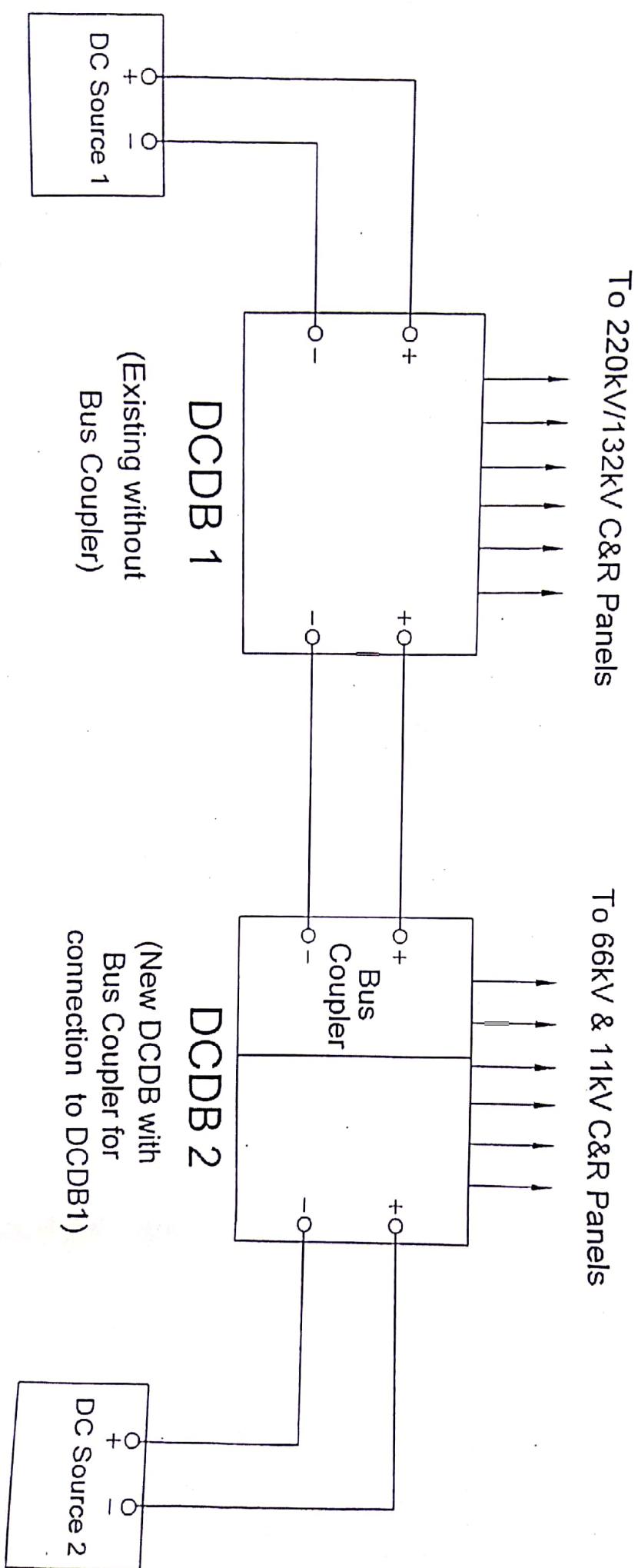
Kaliappan,
P.Kaliappan,
CPRI

M.P.Singh,
POWERGRID

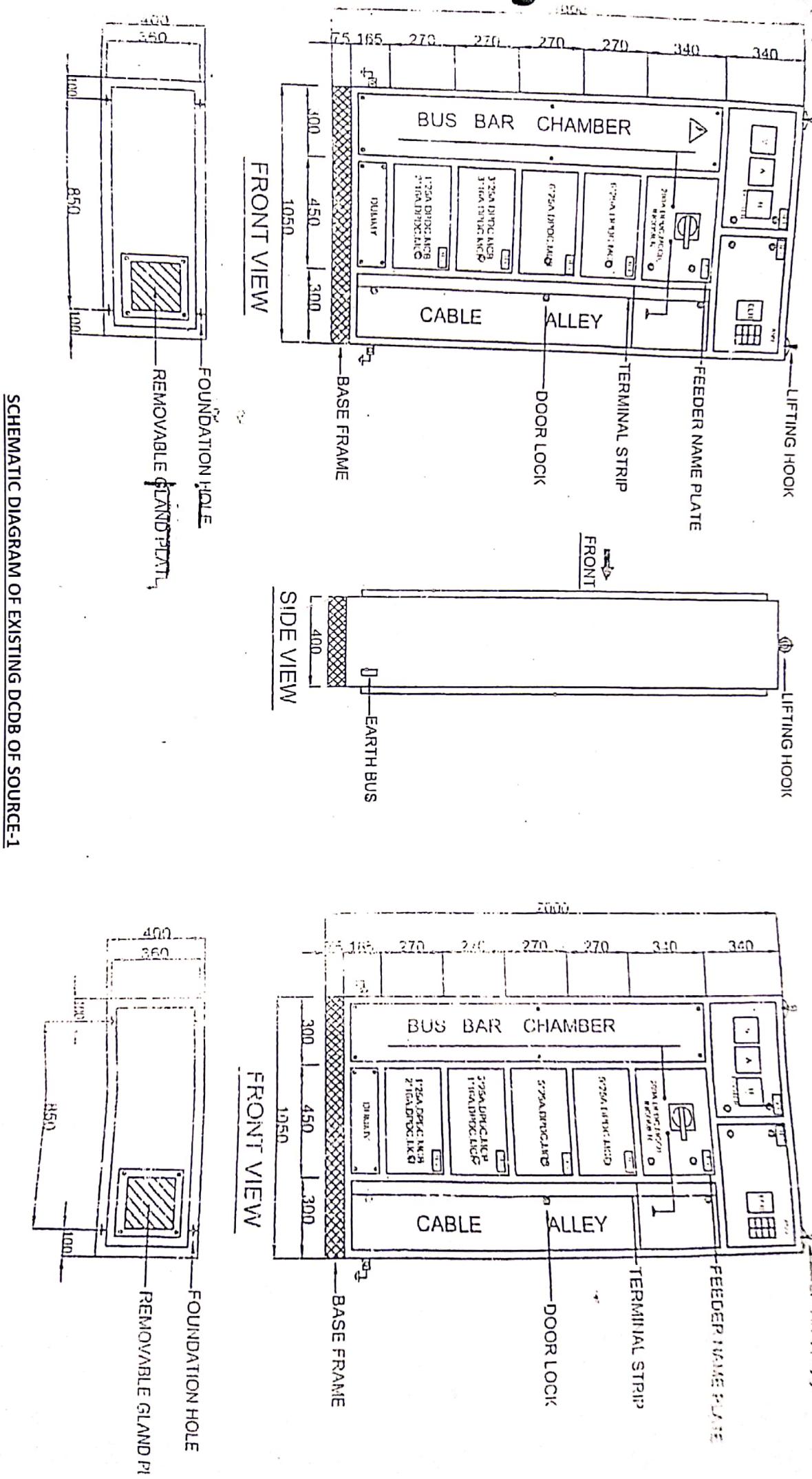
R.R.Murali,
POWERGRID
Pradeep Kumar
PSTCL

ANNEXURE-V(i)

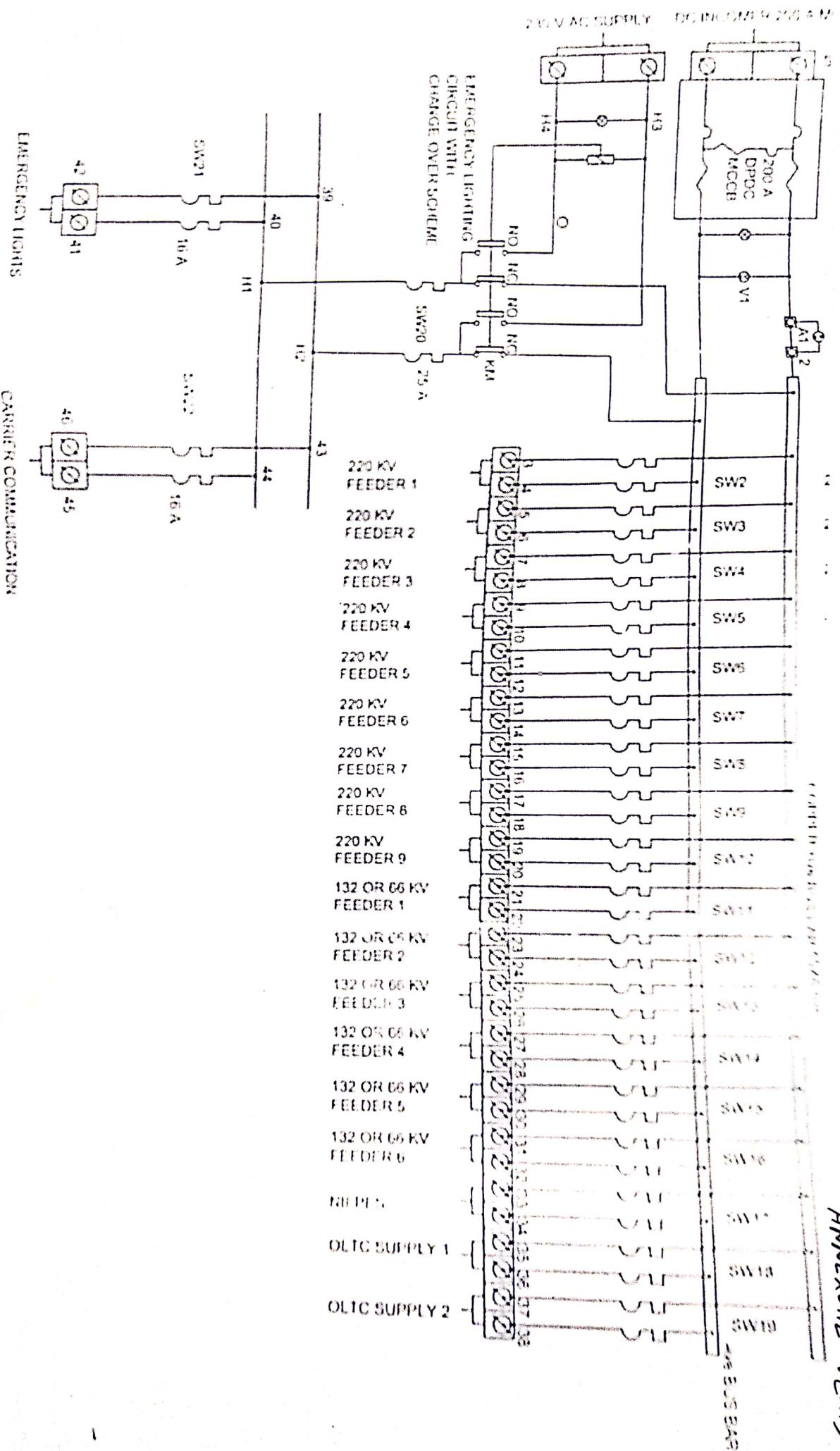
BLOCK DIAGRAM JUSTIFYING THE REQUIREMENT OF DCDB



ANNEXURE - V (c) i)

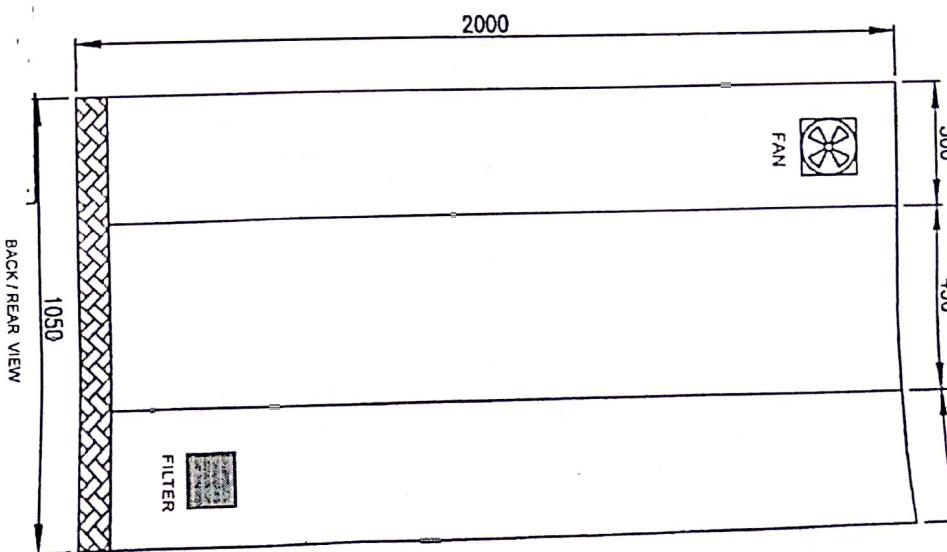
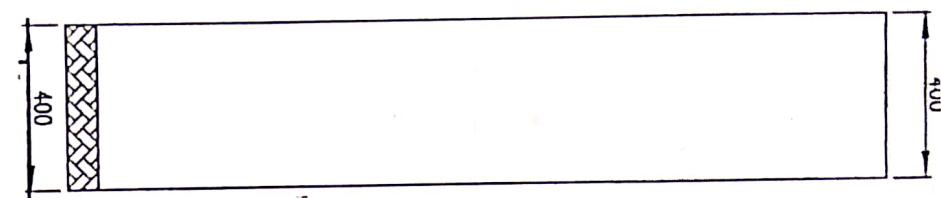
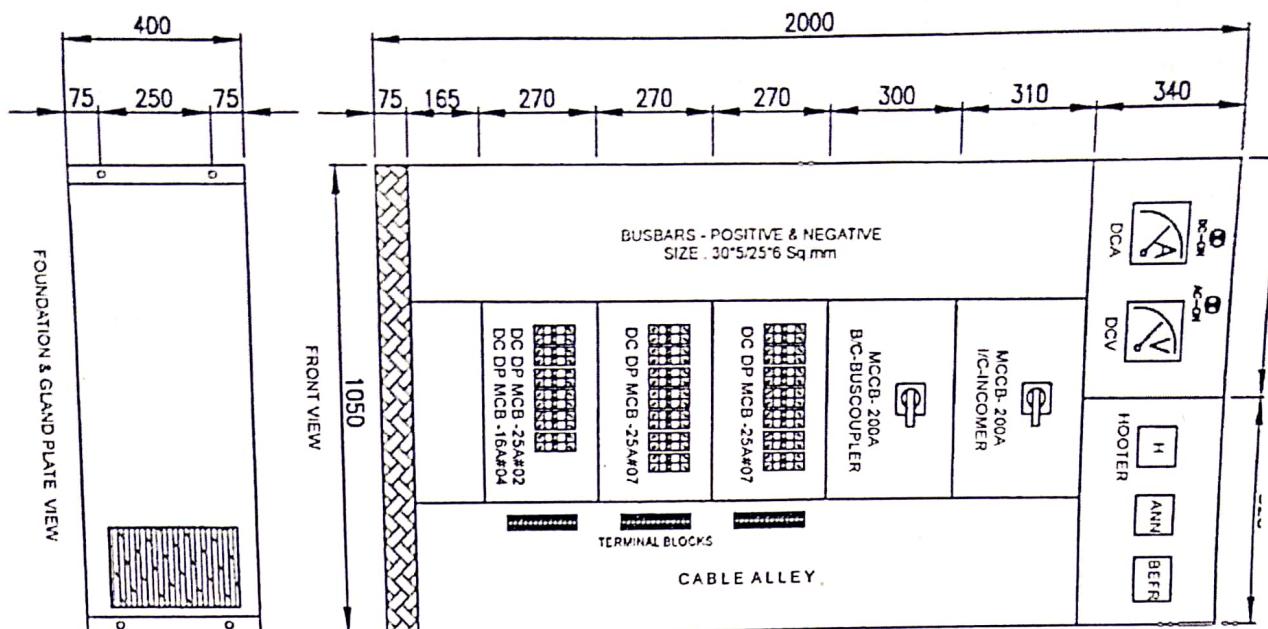


ANNEXURE - V(iii)



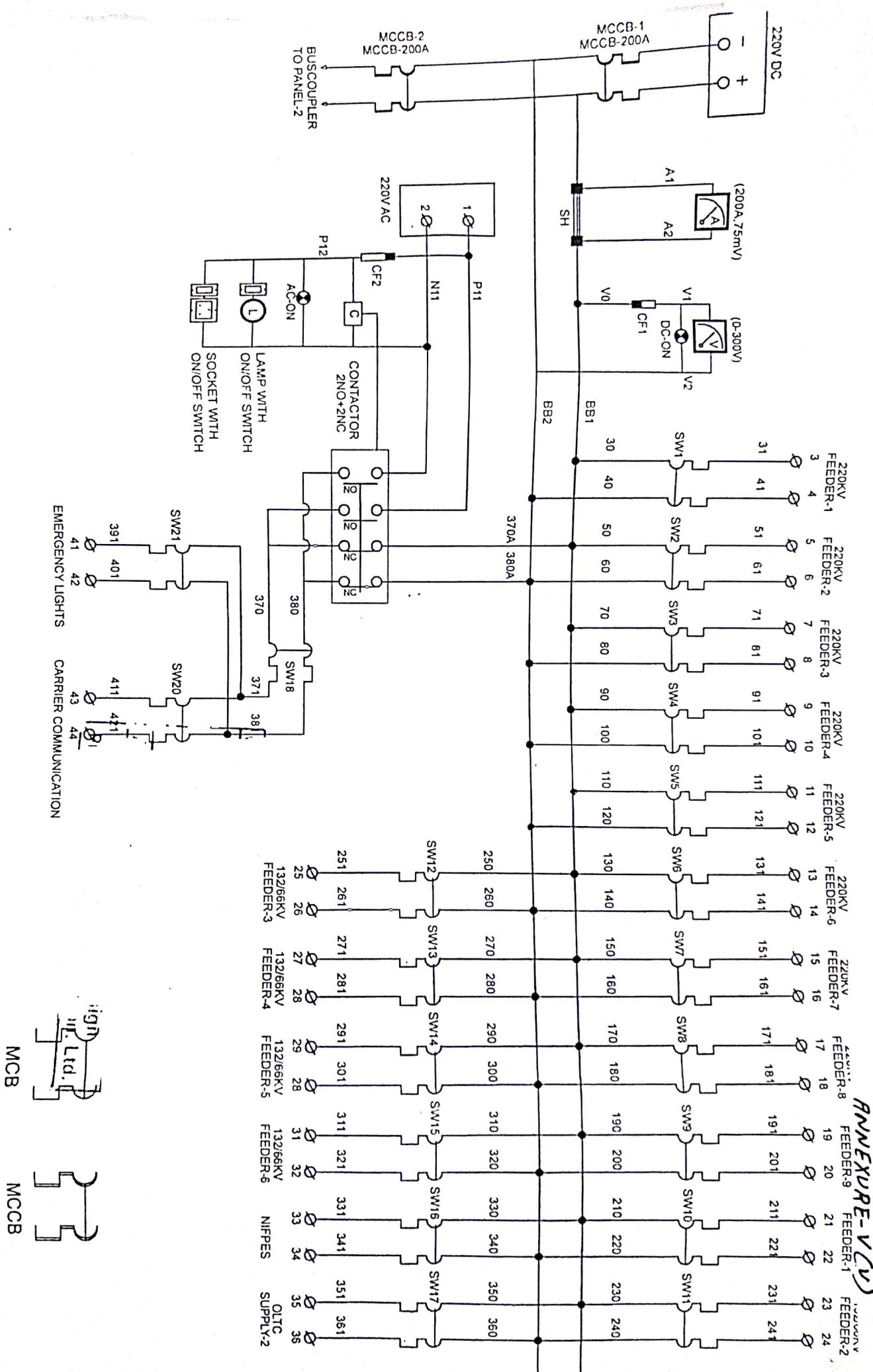
SLD OF DCDB OF EXISTING SOURCE-1

ANNEXURE-V(iv)

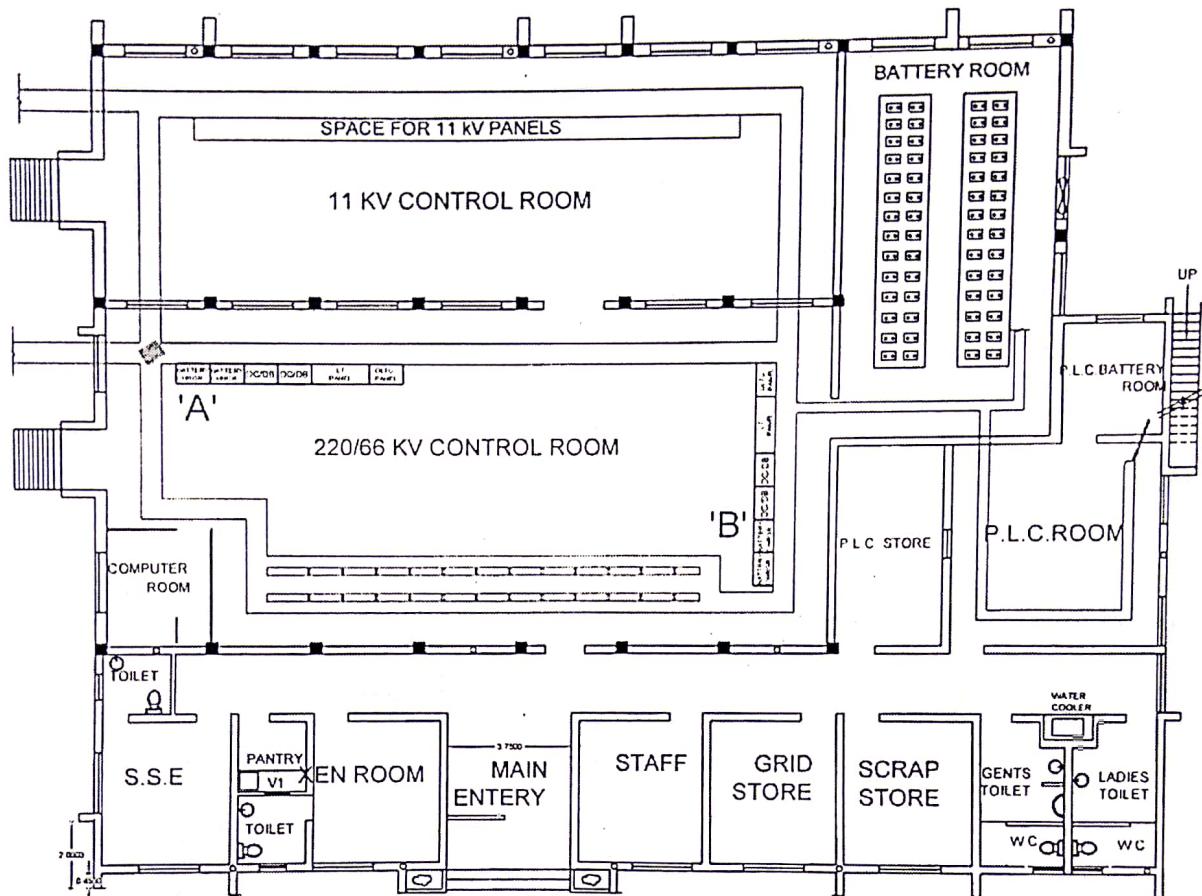


NAME PLATE DETAILS	
DCDB NO. : 01 to 15	
RATING : 220V-300A	
CLIENT : CEITS, PSTCL, PATIALA	
P.O. NO. : 5107 / Spec. No. 5074 dt. 05.04.2018	
YEAR OF MFG. : 2018	
MANUFACTURER : NEWTECH ELECTRONICS	
33, UDYOG NAGAR , HISAR.	
PH. 8199939104 mail : newtech33@gmail.com	

SCHEMATIC DIAGRAM OF NEW PROPOSED DCDB SOURCE-2

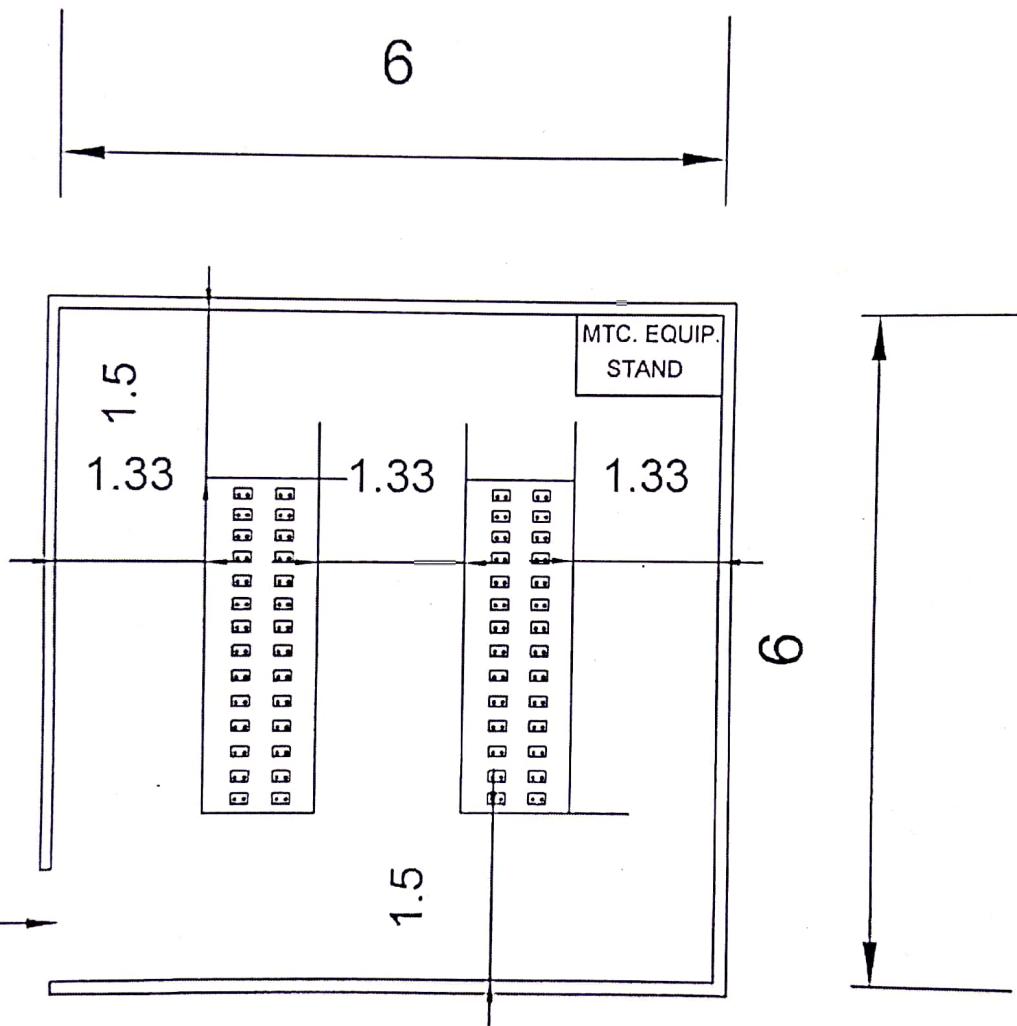


ANNEXURE-VI (i)



NOTE: LOCATIONS OF BATTERY CHARGER AND DCDB MAY VARY AS PER SPACE AVAILABLE IN SWITCH HOUSE BUILDING. TWO LOCATIONS MARKED AS 'A' AND 'B' HAVE BEEN SHOWN IN THE DRAWING ABOVE FOR YOUR REFERENCE PLEASE.

BATTERY ROOM LAYOUT



NOTE:

1. THIS IS THE TOP VIEW. HENCE, ONLY 56 CELLS ARE VISIBLE IN THIS VIEW. REMAINING 54 CELLS PLACED AT LOWER BERTH OF THE STAND ARE NOT VISIBLE IN THIS DRG.
2. ALL THE DIMENSIONS ARE IN METERS.

**Date of commissioning details of 220KV & 132 KV Substations
covered under second phase of 2nd DC Source scheme.**

Sr. No	Name of substation	Date of Commissioning
	220KV S/Stns.	
1	220 KV Passiana	05.07.2013
2	220 KV Kakrala	30.08.2013
3	220 KV Sandhaur	30.09.2014
4	220 KV Bangan	19.07.2013
5	220 KV Banur	16.08.2013
6	220 KV Rajla	04.02.2005
7	220 KV Maur	09.09.1974
8	220 KV Ferozepur	29.06.1991
9	220 KV Jhuneer	22.05.2011
10	220 KV Kot Karor	24.10.1976
11	220 KV Sadiq	24.03.1987
12	220 KV Baghapurana	12.06.1984
13	220 KV Sultanpur	29.05.1989
14	220 KV Badshahpur	09.03.2013
15	220 KV Banga	24.09.1984
16	220 KV Civil Lines, Amritsar	13.06.1997
17	220 KV Kotli Surat Malhi	07.02.2005
18	220 KV Chohla Sahib	06.02.2012
19	220 KV Majitha	23.06.2009
20	220 KV Tibber	09.05.2006
21	220 KV Chogawan	06.07.2013
22	220 KV Udhoke	18.03.2013
23	220 KV Ferozepur road, Ludhiana	01.04.2011
24	220 KV Ikolaha	06.03.2013
25	220 KV Humbran	14.07.1997
26	220 KV Amloh	06.04.2000
27	220 KV Badhni Kalan	12.03.2019
28	220 KV Badal	25.06.1998
	132KV S/Stns.	
1	132 KV Chamkaur sahib	16.12.1988
2	132 KV Gholia Kalan	30.05.09
3	132 KV Panjgraian	08.06.1993
4	132 KV Kotkapura-1	12.04.1972
5	132 KV Malout	26.06.1969
6	132 kV Muktsar	11.07.1971
7	132 KV Ferozshah	08.07.1983
8	132 KV Gidderbaha	06.06.1998
9	132 KV Samadh Bhai	05.01.1986
10	132 KV Faridkot	18.04.1996
11	132 KV Jallalabad	18.06.1980

12	132 KV Manasingh Wala	20.02.04
13	132 KV Moga-2	27.01.01
14	132 KV Kotkapura-2	28.07.01
15	132 KV Soshan	06.12.07
16	132 KV Focal Point	29.06.2012
17	132 KV Chohal	02.12.1986
18	132 KV Beas	18.02.1995
19	132 KV Sri Hargobindpur	13.09.1982
20	132 KV Ekkal gadda	15.05.1999
21	132 KV Kapurthala	30.09.1972
22	132 KV Tangra	05.09.1992
23	132 KV Nakodar	09/1972
24	132 KV Khera Mandir	27.07.1989
25	132 KV Jandiala	1984
26	132 KV PIMS Jalandhar	17.05.2007
27	132 KV Power Colony, Amritsar	19.08.1997
28	132 KV Mamoon	11.08.1997
29	132 KV Saktri Bagh	30.08.2004
30	132 KV Hakima Gate	04.12.1995
31	132 KV Batala	03.07.1977
32	132 KV GT Road, Amritsar	12.09.1989
33	132 KV Pakharpur	19.03.1989
34	132 KV Tarn Taran	18.01.1975
35	132 KV Verka	22.07.1973
36	132 KV Bhikhiwind	30.06.1986
37	132 KV Kathunangal	18.09.1986
38	132 KV Dhariwal	1933
39	132 KV Mall Mandi, Amritsar	20.07.1989
40	132 KV Samashpur	14.10.1997
41	132 KV Seh	27.05.2009
42	132 KV Bilaspur	27.07.1994
43	132 KV Sihora	25.07.1994
44	132 KV Asron	22.11.1976

Abstract Cost Estimate Substation (Rs. In Lacs)															
Sl. No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Name of Substation	220 KV SS Peshawar	220 KV SS Gurdaspur	220 KV SS Sialkot	220 KV SS Lahore	220 KV SS Rawalpindi	220 KV SS Multan	220 KV SS Faisalabad	220 KV SS Sialkot	220 KV SS Sahiwal	220 KV SS Lahore	220 KV SS Faisalabad	220 KV SS Sahiwal	220 KV SS Lahore	220 KV SS Sahiwal	220 KV SS Lahore
Cost of 220V 200A(1C) Batteries	895164.13	895164.13	895164.13	895164.13	895164.13	895164.13	895164.13	895164.13	895164.13	895164.13	895164.13	895164.13	895164.13	895164.13	895164.13
Cost of 220V 200A(1C) Battery Charger	162444.70	162444.70	162444.70	162444.70	162444.70	162444.70	162444.70	162444.70	162444.70	162444.70	162444.70	162444.70	162444.70	162444.70	162444.70
Cost of 220V 200A(1C) MTR 100	81331.60	81331.60	81331.60	81331.60	81331.60	81331.60	81331.60	81331.60	81331.60	81331.60	81331.60	81331.60	81331.60	81331.60	81331.60
Cust. Net Charges	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00
Cust. C Control Chars	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00
Institution & Commissioning Charges*	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00
Total Cost	167580.43	167580.43	167580.43	167580.43	167580.43	167580.43	167580.43	167580.43	167580.43	167580.43	167580.43	167580.43	167580.43	167580.43	167580.43
Sub. No.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Name of Substation	220 KV SS Gujranwala	220 KV SS Okara	220 KV SS Dera Ismail Khan	220 KV SS Rajanpur	220 KV SS Mianwali	220 KV SS Jhang	220 KV SS Sheikhupura	220 KV SS Kot Lakhpati	220 KV SS Rahim Yar Khan	220 KV SS Nankana Sahib	220 KV SS Jhelum	220 KV SS Amritsar	220 KV SS Bahawalpur	220 KV SS Balochistan	220 KV SS Bannu
Cost of 220V 200A(1C) Batteries	895164.13	895164.13	895164.13	895164.13	895164.13	895164.13	895164.13	895164.13	895164.13	895164.13	895164.13	895164.13	895164.13	895164.13	895164.13
Cost of 220V 200A(1C) Battery Charger	162444.70	162444.70	162444.70	162444.70	162444.70	162444.70	162444.70	162444.70	162444.70	162444.70	162444.70	162444.70	162444.70	162444.70	162444.70
Cost of 220V 200A(1C) MTR 100	81331.60	81331.60	81331.60	81331.60	81331.60	81331.60	81331.60	81331.60	81331.60	81331.60	81331.60	81331.60	81331.60	81331.60	81331.60
Cust. Work Charges	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00
Cost of Central Cables	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00
Institution & Commissioning Charges*	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00
Total Cost	167580.43	167580.43	167580.43	167580.43	167580.43	167580.43	167580.43	167580.43	167580.43	167580.43	167580.43	167580.43	167580.43	167580.43	167580.43
Sub. No.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Name of Substation	132 KV SS Chittorgarh	132 KV SS Akola	132 KV SS Dang	132 KV SS Malerkotla	132 KV SS Multan	132 KV SS Muzaffargarh	132 KV SS Gujrat	132 KV SS Sialkot	132 KV SS Mandi Bahadur	132 KV SS Jhelum	132 KV SS Amritsar	132 KV SS Lahore	132 KV SS Sialkot	132 KV SS Lahore	132 KV SS Sialkot
Cost of 220V 200A(1C) Batteries	665195.52	665195.52	665195.52	665195.52	665195.52	665195.52	665195.52	665195.52	665195.52	665195.52	665195.52	665195.52	665195.52	665195.52	665195.52
Cost of 220V 200A(1C) Battery Charger	154676.17	154676.17	154676.17	154676.17	154676.17	154676.17	154676.17	154676.17	154676.17	154676.17	154676.17	154676.17	154676.17	154676.17	154676.17
Cost of 220V 200A(1C) MTR 100	80735.60	80735.60	80735.60	80735.60	80735.60	80735.60	80735.60	80735.60	80735.60	80735.60	80735.60	80735.60	80735.60	80735.60	80735.60
Cust. Work Charges	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00
Cost of Central Cables	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00
Institution & Commissioning Charges*	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00
Total Cost	152147.29	152147.29	152147.29	152147.29	152147.29	152147.29	152147.29	152147.29	152147.29	152147.29	152147.29	152147.29	152147.29	152147.29	152147.29
Sub. No.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Name of Substation	132 KV SS Faisalabad	132 KV SS Dera Ismail Khan	132 KV SS Sialkot	132 KV SS Srinagar	132 KV SS Jammu	132 KV SS Jammu	132 KV SS Jammu	132 KV SS Jammu	132 KV SS Jammu	132 KV SS Jammu	132 KV SS Jammu	132 KV SS Jammu	132 KV SS Jammu	132 KV SS Jammu	132 KV SS Jammu
Cost of 220V 200A(1C) Batteries	665195.52	665195.52	665195.52	665195.52	665195.52	665195.52	665195.52	665195.52	665195.52	665195.52	665195.52	665195.52	665195.52	665195.52	665195.52
Cost of 220V 200A(1C) Battery Charger	154676.17	154676.17	154676.17	154676.17	154676.17	154676.17	154676.17	154676.17	154676.17	154676.17	154676.17	154676.17	154676.17	154676.17	154676.17
Cost of 220V 200A(1C) MTR 100	80735.60	80735.60	80735.60	80735.60	80735.60	80735.60	80735.60	80735.60	80735.60	80735.60	80735.60	80735.60	80735.60	80735.60	80735.60
Cust. Work Charges	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00
Cost of Central Cables	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00
Institution & Commissioning Charges*	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00
Total Cost	152147.29	152147.29	152147.29	152147.29	152147.29	152147.29	152147.29	152147.29	152147.29	152147.29	152147.29	152147.29	152147.29	152147.29	152147.29
Sub. No.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Name of Substation	132 KV SS Bhatinda	132 KV SS Amritsar	132 KV SS Jalandhar	132 KV SS Ludhiana	132 KV SS Fazilka	132 KV SS Bathinda	132 KV SS Sialkot	132 KV SS Sambrial	132 KV SS Sialkot	132 KV SS Bhatinda	132 KV SS Amritsar	132 KV SS Lahore	132 KV SS Sialkot	132 KV SS Lahore	132 KV SS Sialkot
Cost of 220V 200A(1C) Batteries	665195.52	665195.52	665195.52	665195.52	665195.52	665195.52	665195.52	665195.52	665195.52	665195.52	665195.52	665195.52	665195.52	665195.52	665195.52
Cost of 220V 200A(1C) Battery Charger	154676.17	154676.17	154676.17	154676.17	154676.17	154676.17	154676.17	154676.17	154676.17	154676.17	154676.17	154676.17	154676.17	154676.17	154676.17
Cost of 220V 200A(1C) MTR 100	80735.60	80735.60	80735.60	80735.60	80735.60	80735.60	80735.60	80735.60	80735.60	80735.60	80735.60	80735.60	80735.60	80735.60	80735.60
Cust. Work Charges	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00	500000.00
Cost of Central Cables	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00	79340.00
Institution & Commissioning Charges*	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00	47200.00
Total Cost	152147.29	152147.29	152147.29	152147.29	152147.29	152147.29	152147.29	152147.29	152147.29	152147.29	152147.29	152147.29	152147.29	152147.29	152147.29
Grand Total	Rs. 11,64,88,739/-														