

KARNATAKA POWER TRANSMISSION CORPORATION LIMITED

Corporate Identity Number (CIN) : U40109KA1999SGC025521

Off: 080- 22241955

080- 22123145

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Office of the

Chief Engineer, Electy.,(P&C)

Kaveri Bhavan, K.G Road

Bangalore - 560009

No. CEE(P&C)/SE(C)/KCO-118// 2023-24/

Date:

Encl;As stated in the letter

11880-95

4 DEC 2023

Circular

Sub:-	Revised standard drawings for providing RCC roof Shelter to the outdoor 11 kV Switchgears in sub-stations of KPTCL.
Ref:-	1. Standard Drg. no. CEE(P&C)/SE (Civil)/06-07 of AC roof shelter for outdoor switch gears 2. T.O note, approved by D(T), KPTCL dated 17.11.2023

-oOo-

Earlier, standard drawings for providing AC roof shelter with steel frame to accommodate outdoor 11 kV Switchgears was approved and is being implemented in the sub-stations of KPTCL (ref-1).

Due to health and environment hazards, use of AC sheets are restricted across the country. On the other hand, use of galvalume sheets in the station premises would be dangerous in case of any mishaps during windy days.

Hence, following construction drawings have been developed for providing shelter to the outdoor switchgears using RCC roof with RCC framed structures.

Sl. No.	Architectural and Structural drawings of RCC shelter for the configuration of.	Drawing No.
1	10/20 MVA Transformer - 1 no [1IC + 6F + 1/2CB]	KPTCL/CEE(P&C)/SE(C)/11kVSG/ CIVIL/2023-24/01 (6 Sheets)
2	31.5 MVA Transformer - 1no. [1 IC+9F+2CB]	KPTCL/CEE(P&C)/SE(C)/11kVSG/ CIVIL/2023-24/02 (6 Sheets)
3	10/20 MVA Transformers - 2 no. [2IC+12F+4CB+1BC]	KPTCL/CEE(P&C)/SE(C)/11kVSG/ CIVIL/2023-24/03 (6 Sheets)
4	31.5 MVA Transformers - 2 no. [2 IC+18F+4CB+ 1BC- oblong arrangement]	KPTCL/CEE(P&C)/SE(C)/11kVSG/ CIVIL/2023-24/04 (6 Sheets)
5	31.5 MVA Transformers - 2 no. [2 IC+18F+4CB+ 1BC- back to back arrangement]	KPTCL/CEE(P&C)/SE(C)/11kVSG/ CIVIL/2023-24/05 (6 Sheets)

The above Architectural and Structural drawings of RCC shelter shall be here after used as standard drawings for proving shelter to the outdoor switchgears to be installed in all the sub-stations of KPTCL.

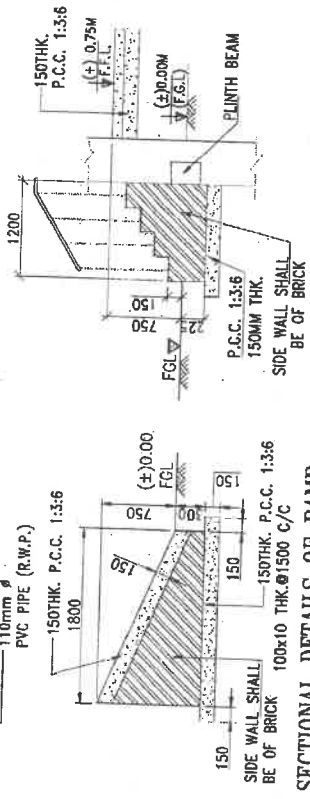
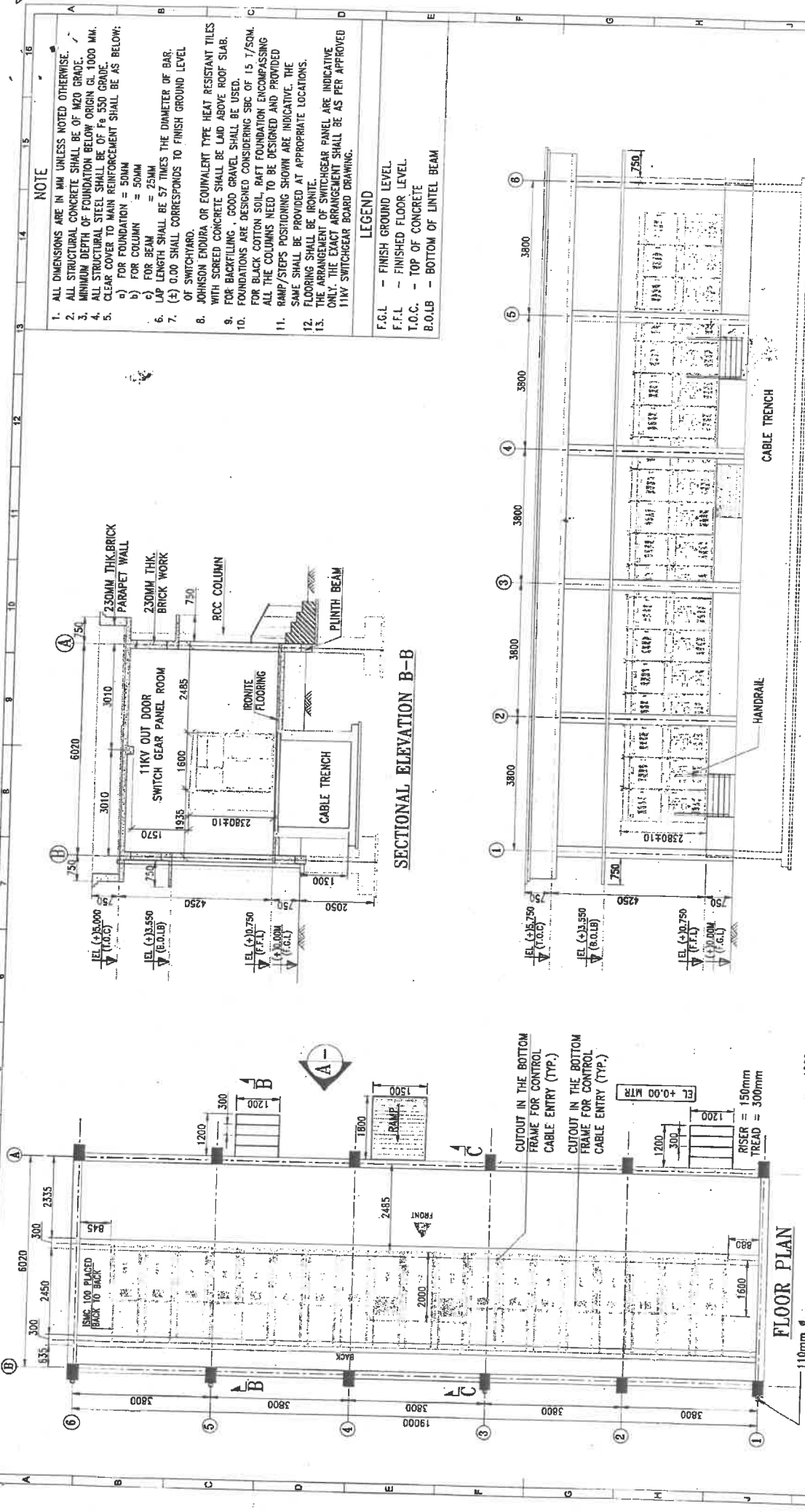
Omissions/suggestions, if any, in the drawings shall be brought to the notice of this office with suitable recommendations for consideration.






Chief Engineer Electy, (P&C)

Copy to:

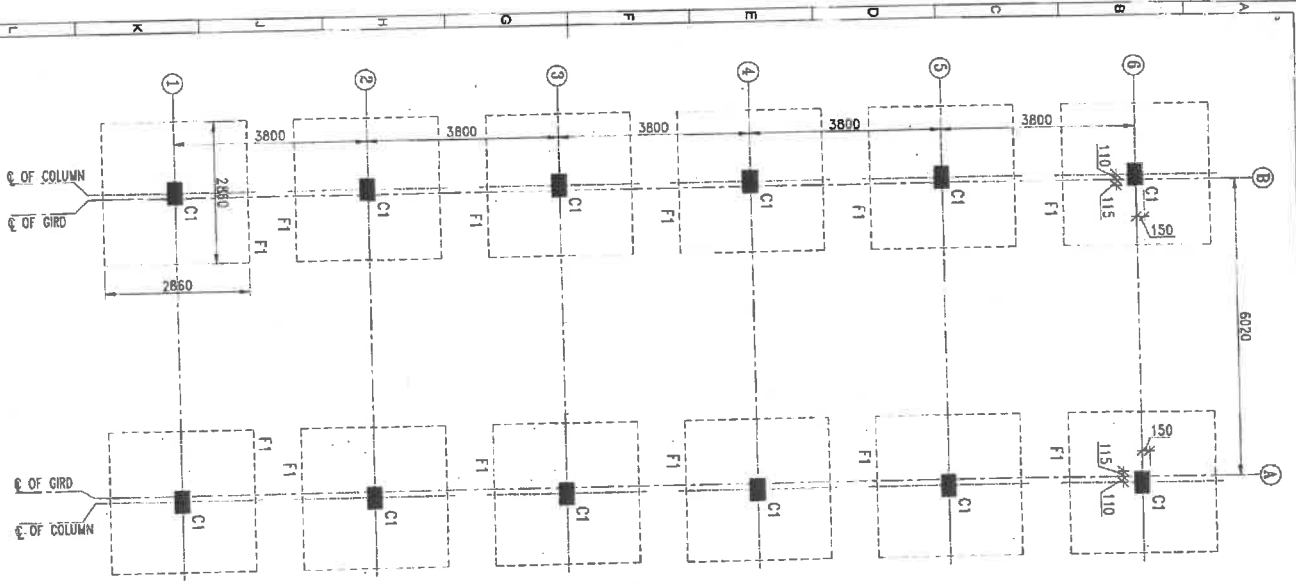
1. The General Manager (Tech), KPTCL, Kaveri Bhavan, Bengaluru.
2. The Chief Engineer Electy., TA&QC, KPTCL, Kaveri Bhavan, Bengaluru.
3. The Chief Engineer Electy., (T&P), KPTCL, Kaveri Bhavan, Bengaluru.
4. All Chief Engineers Electy., Transmission Zones, KPTCL.
5. The Superintending Engineer (Elecl)(Tech), KPTCL, Bengaluru .
6. The Superintending Engineer's (Ele), IT & MIS, KPTCL, Bengaluru to make arrangements for uploading the same on KPTCL website.
7. All Superintending Engineer's (Ele), Works/Transmission (W&M) Circle, KPTCL.
8. All Executive Engineers (Ele), Major Works Divisions/TL & SS Divisions.
9. The EA to D(T), Kaveri Bhavan, Bengaluru to place before the Ho'nble Director (Transmission), KPTCL for kind information.

MF/OC.

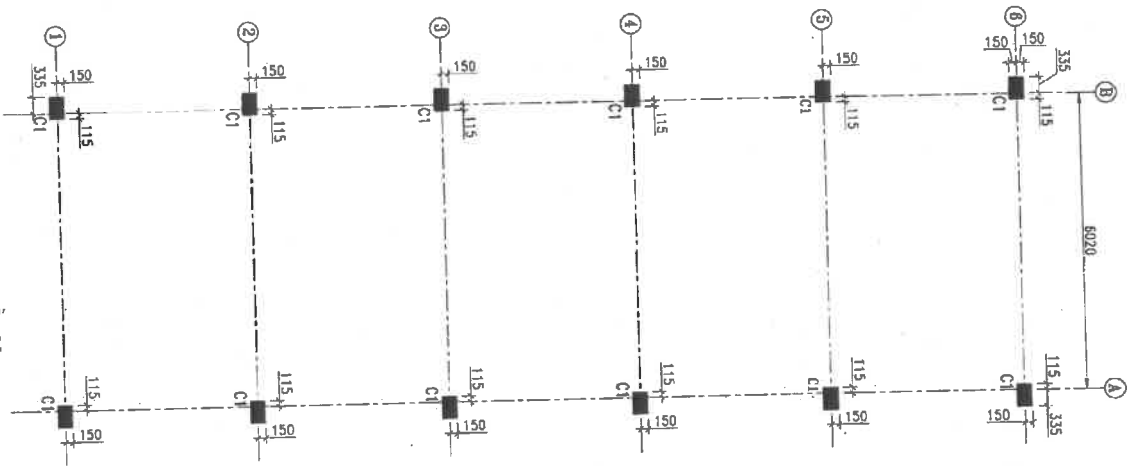


DRG. NO.:	KPTCL/CEE(P&C)/SE(C)11KVSG/CIVIL/2023-24/03		DATE	23-08-2023		KARNATAKA TRANSMISSION CORPORATION LIMITED	
					TITLE ARCHITECTURAL & STRUCTURAL DRAWINGS FOR 11KV OUT DOOR SWITCH GEARS (FOR 1020MVA TRANSFORMER -2NOS.) (2IC-12F+24CB+1BC) - PLAN, SECTION & ELEVATION		
AEE (CIVIL)	EE (CIVIL)	SE (CIVIL)	CEE (P&C)	REV. NO. 0			
				SHEET 1 OF 6			

FOUNDATION PLAN

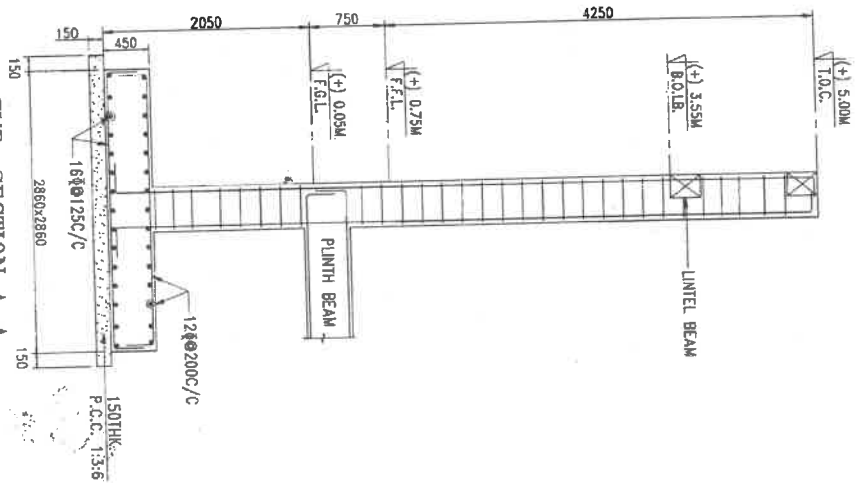


COLUMN PLAN

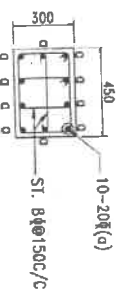


TYP. SECTION A-A

(SCALE 1:50)



COLUMN C1



DRG. NO.:

KPTC/CEE/P&C/SEC/11KVS/CIVIL/2023-2403

DATE

23-08-2023

KARNATAKA TRANSMISSION CORPORATION LIMITED

ARCHITECTURAL & STRUCTURAL DRAWINGS

FOR 11KV OUT DOOR SWITCH GEAR PANEL ROOM

(FOR 1022MVA TRANSFORMER - 2NOS.) (2IC*12*24CB+1BC)

REV NO.

0

SHEET

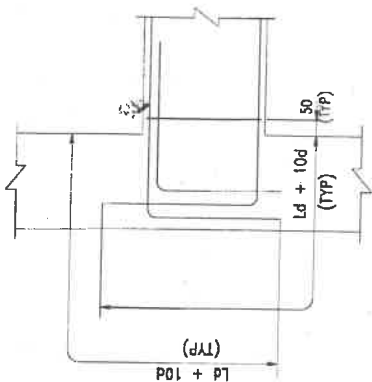
2 OF 6

AEE (CIVIL)

EE (CIVIL)

SE (CIVIL)

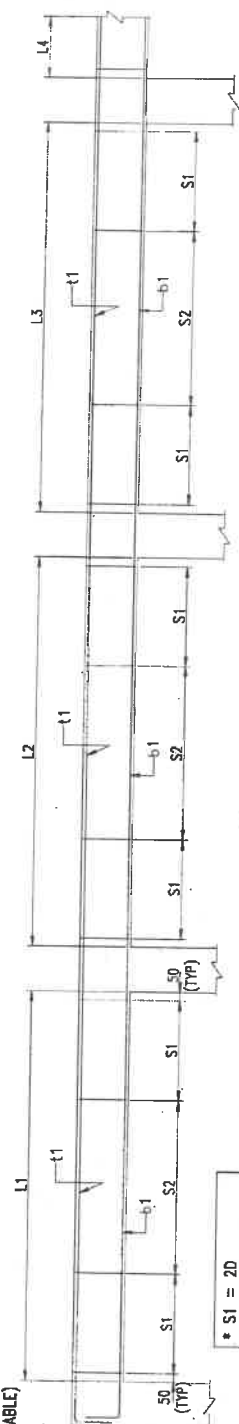
CEE (P&C)



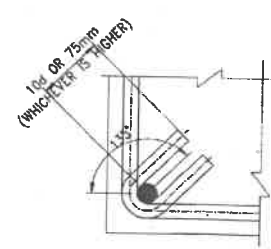
BEAM TYPE- I

* S1 = 2D
D = BEAM DEPTH

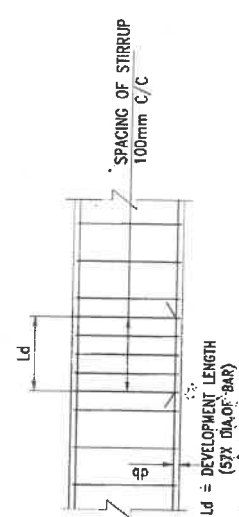
TYP. DETAIL - 'A'
(JUNCTION OF COLUMN & BEAM)



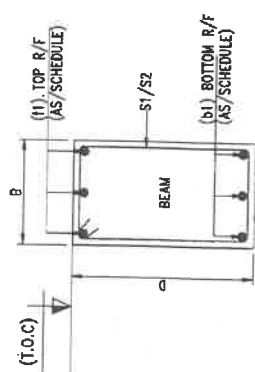
BEAM TYPE- II (MULTI SPAN BEAMS)



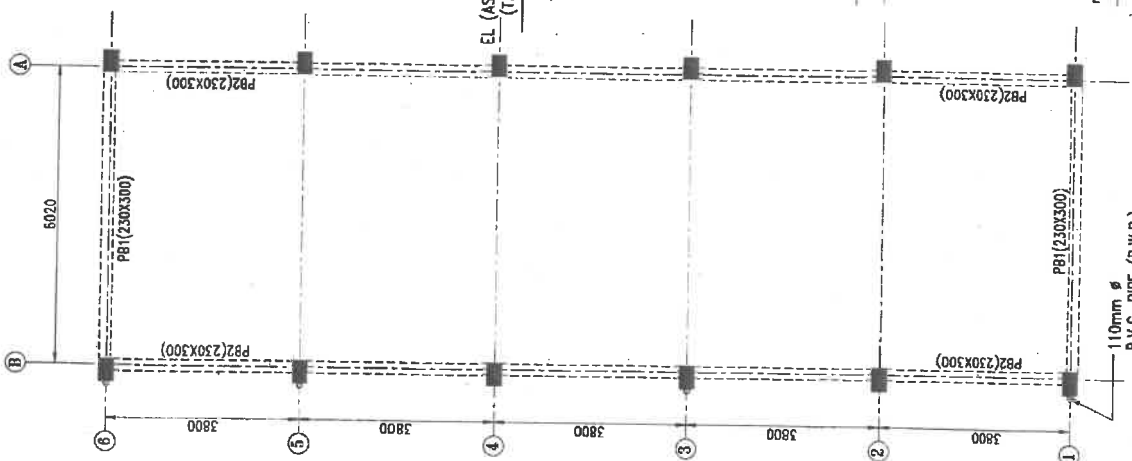
TYPICAL DETAIL OF
STIRRUPS WITH 135° HOOK



**TYPICAL DETAIL OF ARRANGEMENT OF
STIRRUPS AT SPLICE LOCATION IN BEAM**



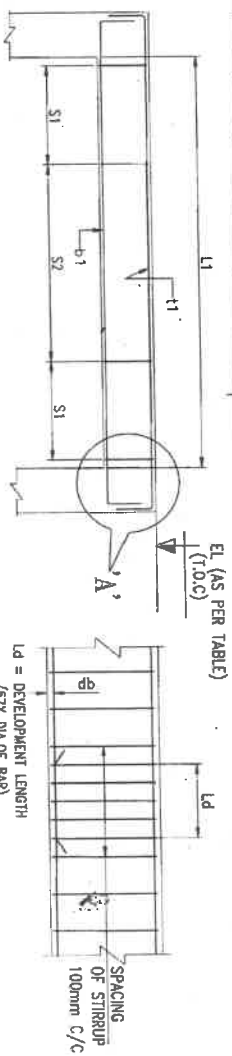
TYP. SECTION OF PLINTH BEAM



PLINTH BEAM LAYOUT

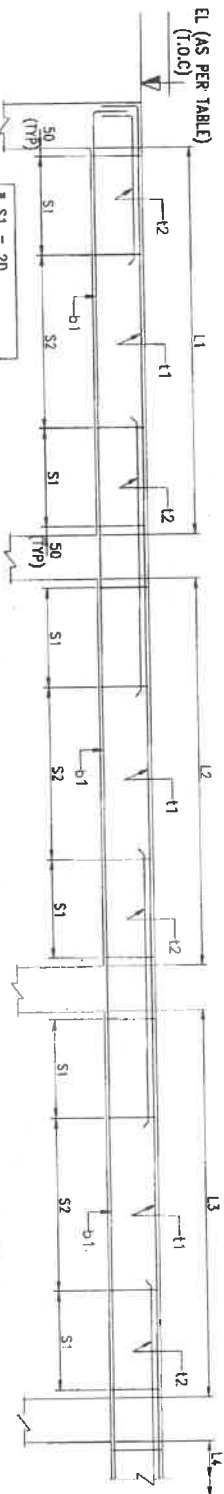
SCHEDULE OF PLINTH BEAMS									
BEAM MARKED	BEAM TYPE	SIZE		REINFORCEMENT (Ø)			STIRRUPS (Ø)		LEVELS (T.O.C)
							2 LEGGED		
		B	D	b1	t1	S1	S2		
PB1	I	230	300	3-16Ø	3-16Ø	8Ø100	8Ø150	(+).0.700M	
PB2	II	230	300	2-16Ø	2-16Ø	8Ø100	8Ø150	(+).0.150M	

[illegible]

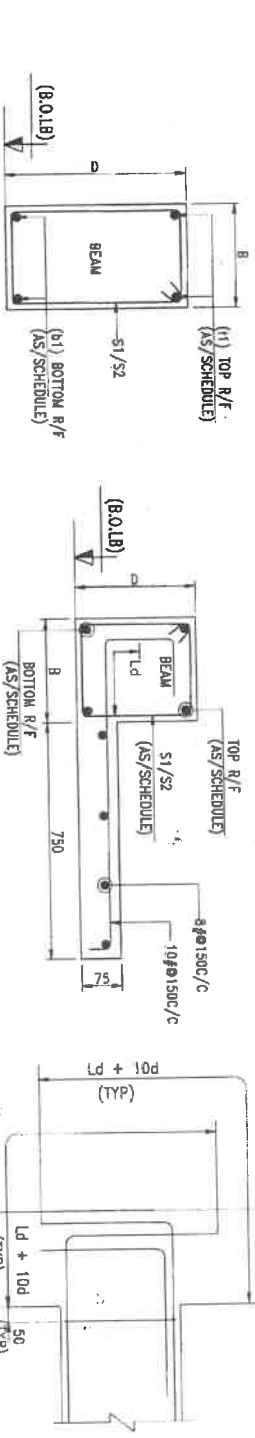


BEAM TYPE- I

TYPICAL DETAIL OF ARRANGEMENT OF STIRRUPS AT SPLICE LOCATION IN BEAM



BEAM TYPE- II (MULTI SPAN BEAMS)

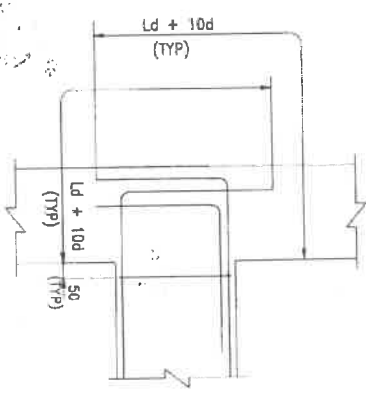


TYP. SECTION OF LINTEL BEAM

TYP. SECTION OF LINTEL BEAM (WITH SUNSHADE)

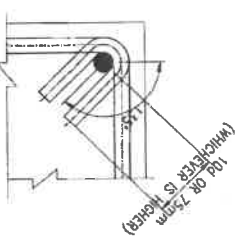
SCHEDULE OF LINTEL BEAMS					
BEAM MARKED	BEAM TYPE	SIZE		REINFORCEMENT (R)	
		B	D	BOTTOM BAR	TOP BAR
L81	I	230	450	2-16#	2-20# + 1-12#
L82	II	230	300	2-16#	2-16#

TYP. DETAIL - 'A' (JUNCTION OF COLUMN & BEAM)



110mm Ø P.V.C. PIPE (R.W.P.)

LINTEL BEAM LAYOUT



TYPICAL DETAIL OF STIRRUPS WITH 135° HOOK

DRG. NO.: KPTG/CEE(P&C)/SEC/11K/SG/CML/2023-24/03

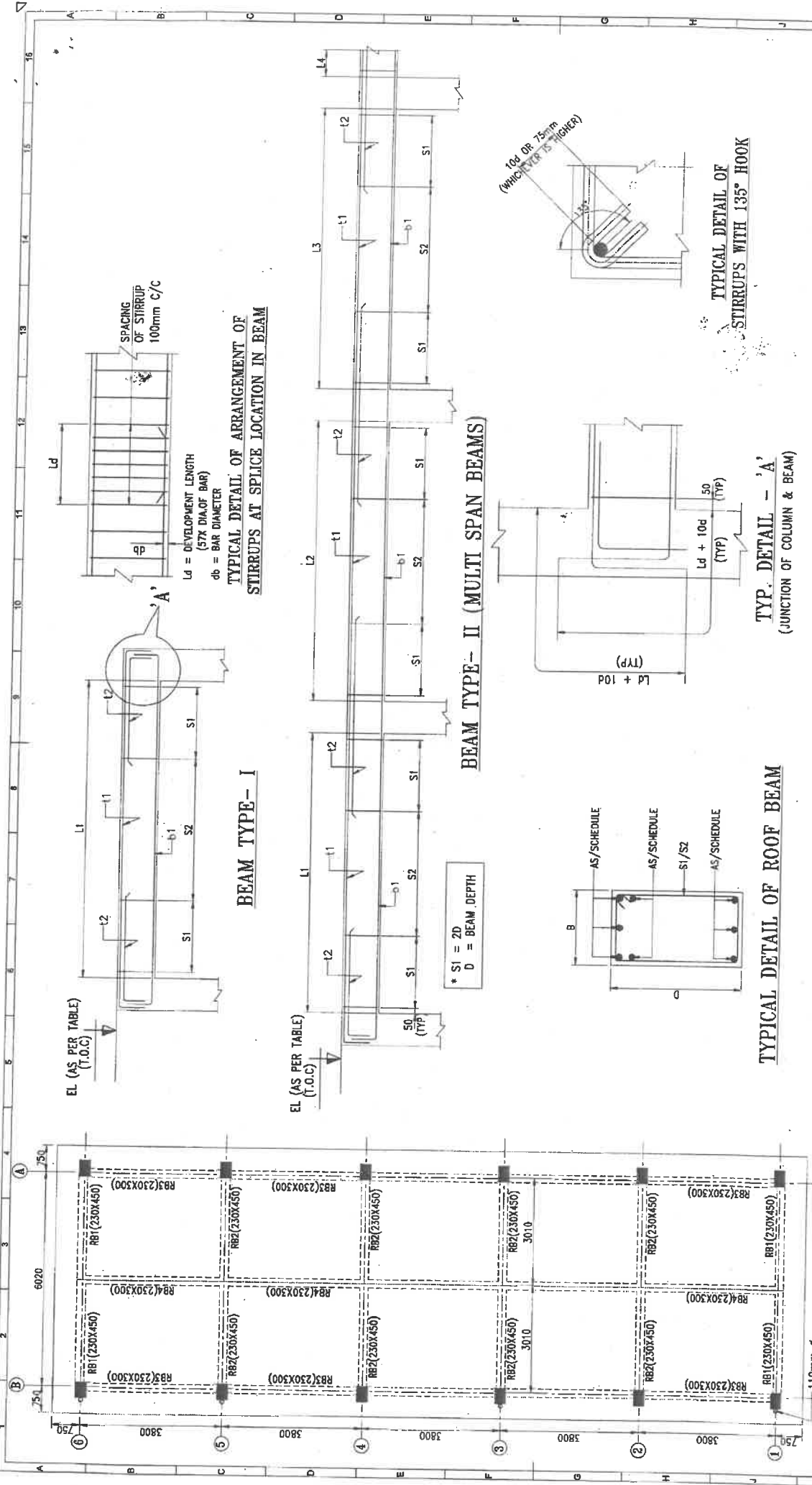
DATE: 23-06-2023

KARIVATAKA TRANSMISSION CORPORATION LIMITED

TITLE: ARCHITECTURAL & STRUCTURAL DRAWINGS FOR 11KV/OUT DOOR SWITCH GEAR PANEL ROOM (FOR 1020MVA TRANSFORMER - 2NOS.) (2IC+12F+24CB+18C) - LAYOUT & DETAIL OF LINTEL BEAMS

REV NO. 0

SHEET 4 OF 6



ROOF BEAM PLAN (+5.0M LVL.)

SCHEDULE OF ROOF BEAMS										
BEAM MARKED	BEAM TYPE	SIZE		REINFORCEMENT (Ø)			STIRRUPS (Ø)		LEVELS (T.O.C)	
		B	D	BOTTOM BAR	TOP BAR	2 LEGGED				
RB1	I	230	450	3-25Ø	2-20Ø+1-12Ø	2-20Ø+1-16Ø	8Ø100	8Ø150	(+5.000M)	
RB2	I	230	450	4-25Ø	2-20Ø+1-16Ø	2-25Ø	8Ø100	8Ø150	(+5.000M)	
RB3	II	230	300	3-16Ø	3-16Ø	-	8Ø100	8Ø150	(+5.000M)	
RB4	II	230	300	3-16Ø	3-16Ø	-	8Ø100	8Ø150	(+5.000M)	

DRG. NO.: KPT/CL/CEE(P&C)/SEC/11/KVSG/CIVIL/2023-24/03

DATE: 23-08-2023

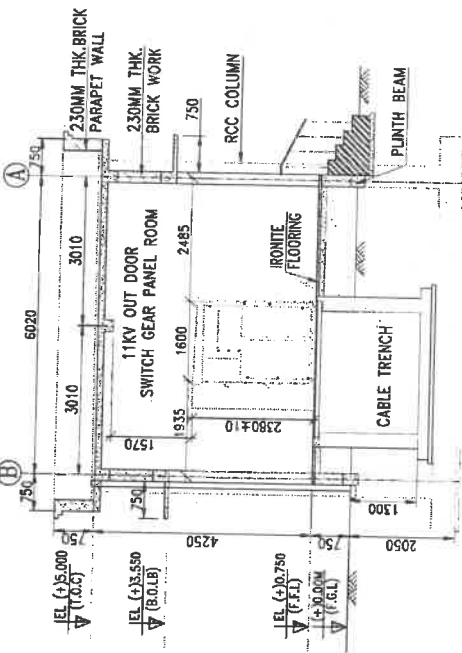
KARNATAKA TRANSMISSION CORPORATION LIMITED

EE (CIVIL) *[Signature]* SE (CIVIL) *[Signature]* CEE (P&C) *[Signature]*

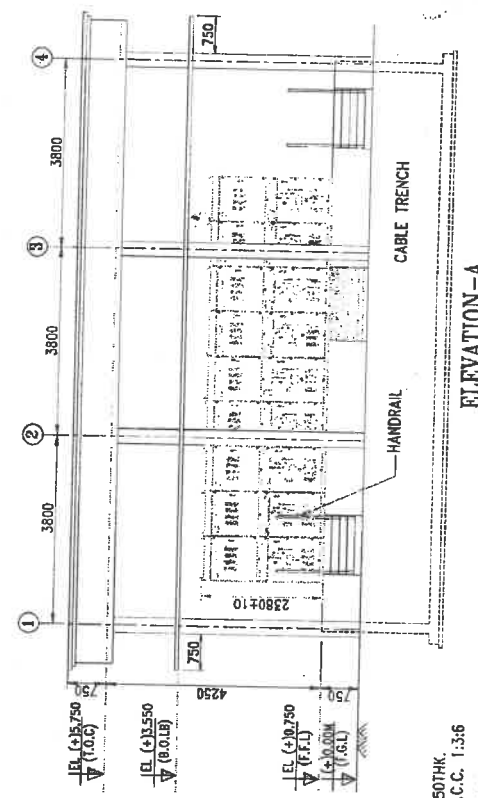
REV. NO. 0

SHEET 5 OF 6

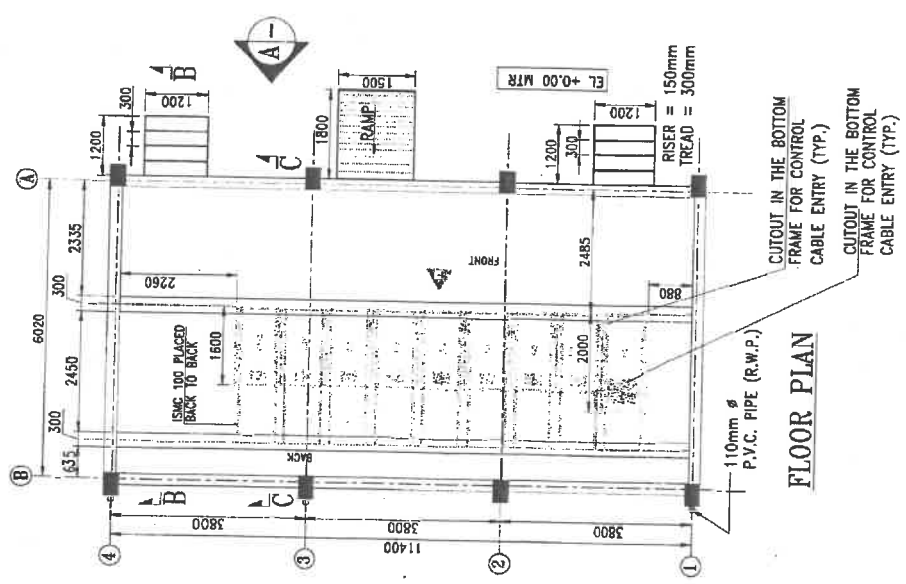
TITLE ARCHITECTURAL & STRUCTURAL DRAWINGS
FOR 11KV OUT DOOR SWITCH GEAR PANEL ROOM
(FOR 1020MVA TRANSFORMER-2NOS.) (2IC+12F+2ACB+18C)
- LAYOUT & DETAIL OF ROOF BEAMS



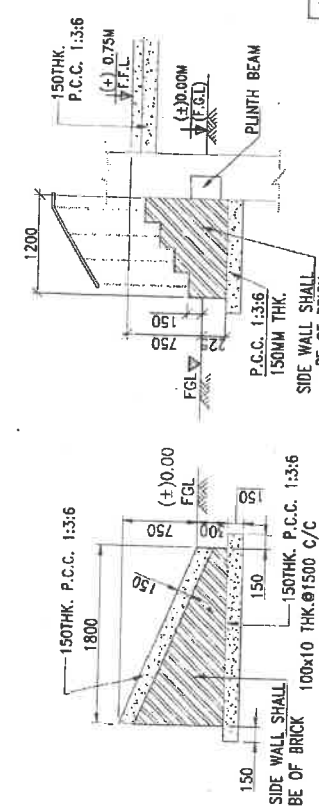
SECTIONAL ELEVATION B-B



ELEVATION-A



FLOOR PLAN







SECTIONAL DETAILS OF RAMP

SECTIONAL DETAILS OF STAIRCASE

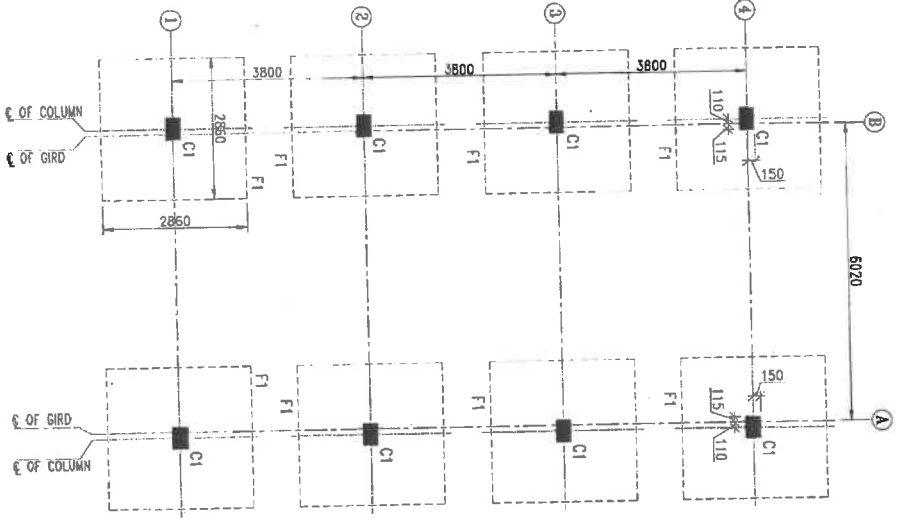
- NOTE**
- ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
 - ALL STRUCTURAL CONCRETE SHALL BE OF M20 GRADE.
 - MINIMUM DEPTH OF FOUNDATION BELOW ORIGIN GL 1000 MM.
 - ALL STRUCTURAL STEEL SHALL BE OF Fe 550 GRADE.
 - CLEAR COVER TO MAIN REINFORCEMENT SHALL BE AS BELOW:
a) FOR FOUNDATION = 50MM
b) FOR COLUMN = 50MM
c) FOR BEAM = 25MM
d) LAP LENGTH SHALL BE 57 TIMES THE DIAMETER OF BAR.
e) (±) 0.00 SHALL CORRESPONDS TO FINISH GROUND LEVEL OF SWITCHYARD.
 - JOHNSON ENDURA OR EQUIVALENT TYPE HEAT RESISTANT TILES WITH SCREED CONCRETE SHALL BE LAID ABOVE ROOF SLAB.
 - FOR BACKFILLING, GOOD GRAVEL SHALL BE USED.
 - FOUNDATIONS ARE DESIGNED CONSIDERING SBC OF 15 T/SOM. FOR BLACK COTTON SOIL RFT FOUNDATION ENCOMPASSING ALL THE COLUMNS NEED TO BE DESIGNED AND PROVIDED.
 - RAMP/STEPS POSITIONING SHOWN ARE INDICATIVE. THE SAME SHALL BE PROVIDED AT APPROPRIATE LOCATIONS.
 - FLOORING SHALL BE IRONITE.
 - THE ARRANGEMENT OF SWITCHGEAR PANEL ARE INDICATIVE ONLY. THE EXACT ARRANGEMENT SHALL BE AS PER APPROVED 11KV SWITCHGEAR BOARD DRAWING.

LEGEND

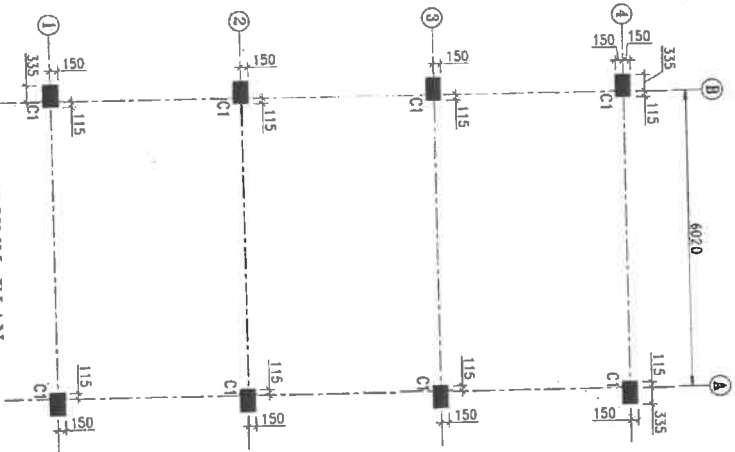
- F.G.L - FINISH GROUND LEVEL
- F.F.L - FINISHED FLOOR LEVEL
- T.O.C - TOP OF CONCRETE
- B.O.LB - BOTTOM OF UNTEL BEAM

DRG. NO.:		KPTCL/CEE(P&C)/SE(C)/11KVSG/CIVIL/2023-24/01		DATE		23-08-2023			
AEE (CIVIL)								KARNATAKA TRANSMISSION CORPORATION LIMITED	
				SE (CIVIL)		CEE (P&C)		TITLE	
								ARCHITECTURAL & STRUCTURAL DRAWINGS	
								FOR 11KV OUT DOOR SWITCH GEARS	
								(FOR 10/20MVA TRANSFORMER - INO.) (1IC + 6F + 1/2CB)	
								- PLAN, SECTION & ELEVATION	
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FOUNDATION PLAN

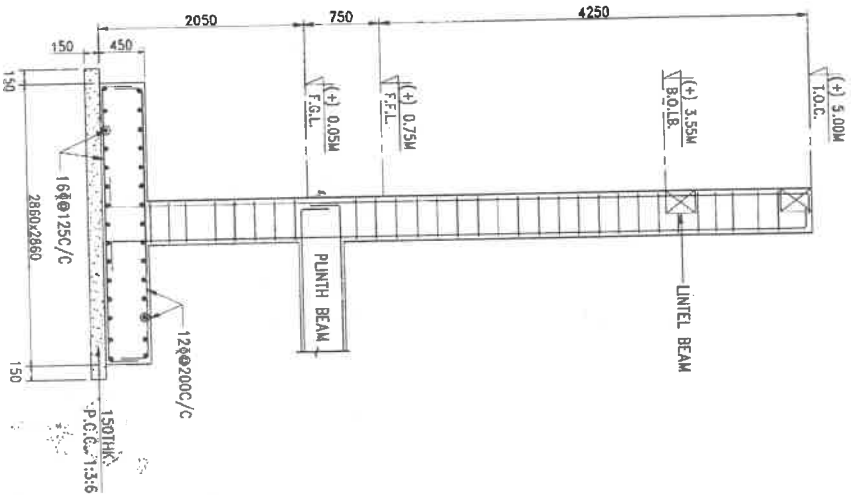


COLUMN PLAN

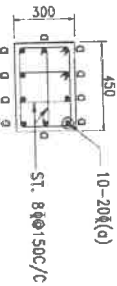


TYP. SECTION A-A

(SCALE 1:50)



COLUMN C1



DRG. NO.:

KPTC/CEE(P&C)/SE(C)/11KVS/CIVIL/2023-24/01

DATE

23-08-2023

KARNATAKA TRANSMISSION CORPORATION LIMITED



TITLE ARCHITECTURAL & STRUCTURAL DRAWINGS

FOR 11KV OUT DOOR SWITCH GEAR PANEL ROOM
(FOR 10/20MVA TRANSFORMER - 1NO.) (11C + 6F + 1/2CB)

- LAYOUT & DETAIL OF FOUNDATIONS & COLUMNS

REV NO.

0

SHEET

2 OF 6

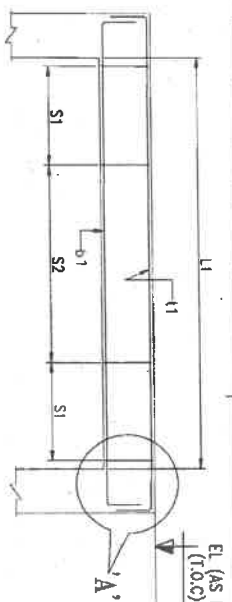
AEE (CIVIL)

EE (CIVIL)

SE (CIVIL)

CEE (P&C)

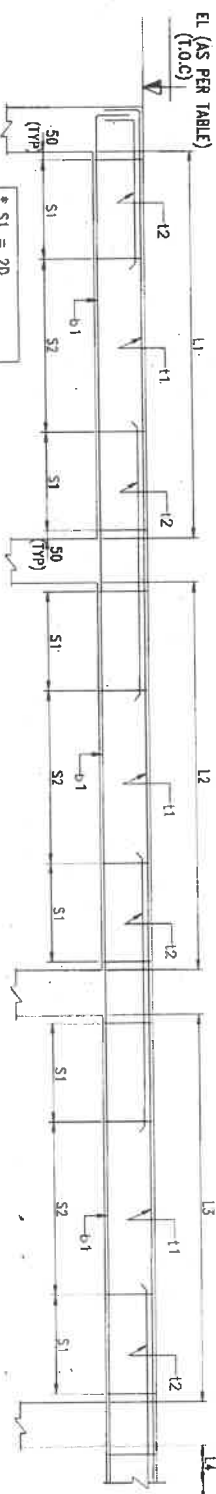
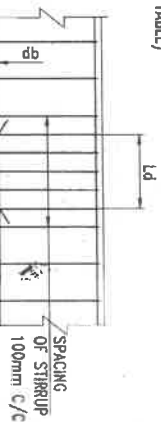




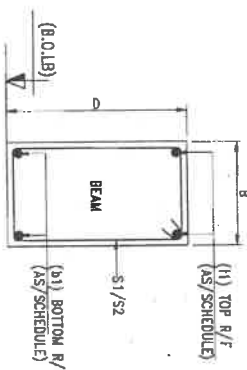
BEAM TYPE-I

TYPICAL DETAIL OF ARRANGEMENT OF STIRRUPS AT SPLICE LOCATION IN BEAM

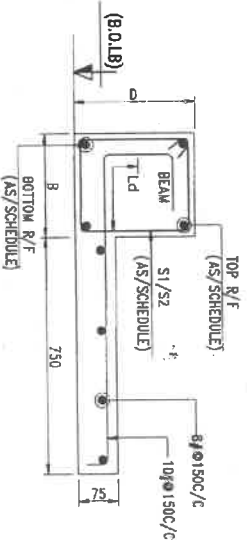
Ld = DEVELOPMENT LENGTH (57X DIA. OF BAR)
db = BAR DIAMETER



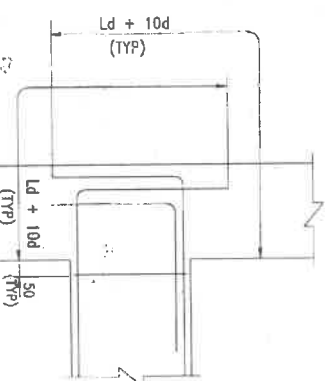
BEAM TYPE-II (MULTI SPAN BEAMS)



TYP. SECTION OF LINTEL BEAM

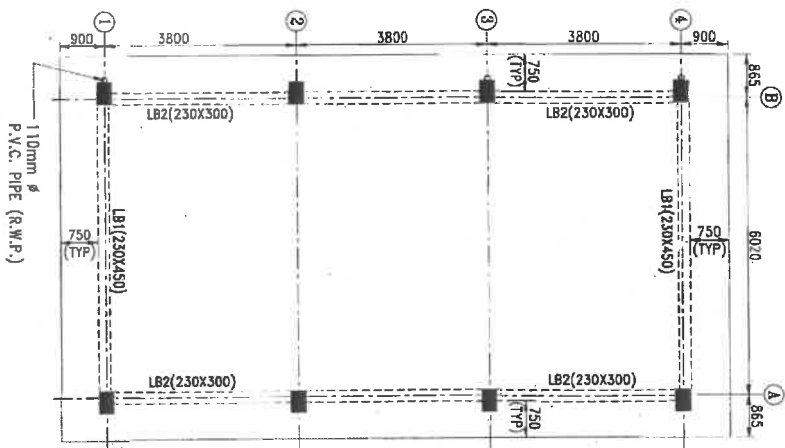


TYP. SECTION OF LINTEL BEAM (WITH SUNSHADE)

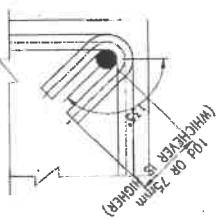


TYP. DETAIL - 'A' (JUNCTION OF COLUMN & BEAM)

LINTEL BEAM LAYOUT



TYPICAL DETAIL OF STIRRUPS WITH 135° HOOK



SCHEDULE OF PLINTH BEAMS

BEAM MARKED	BEAM TYPE	SIZE		REINFORCEMENT (4)		STIRRUPS (8)		LEVELS (B.O.LB)		SUNSHADE DESCRIPTION
		B	D	BOTTOM BAR	TOP BAR	2 LEGGED	S1	S2		
LBT	I	230	450	2-16#	2-20# + 1-12#	8#100	8#100	8#150	(+3.550M)	WITH SUNSHADE
LB2	II	230	300	2-16#	2-16#	8#100	8#100	8#150	(+3.550M)	WITH SUNSHADE

DRG. NO.:

KPTC/CEE(P&C)/SEC/11KVS/CIVIL/2023-24/01

DATE

23-08-2023

KARNATAKA TRANSMISSION CORPORATION LIMITED

TITLE ARCHITECTURAL & STRUCTURAL DRAWINGS

FOR 11KV OUT DOOR SWITCH GEAR PANEL ROOM (FOR 1020MVA TRANSFORMER - 1NO.) (1IC + 6F + 1/2CB)

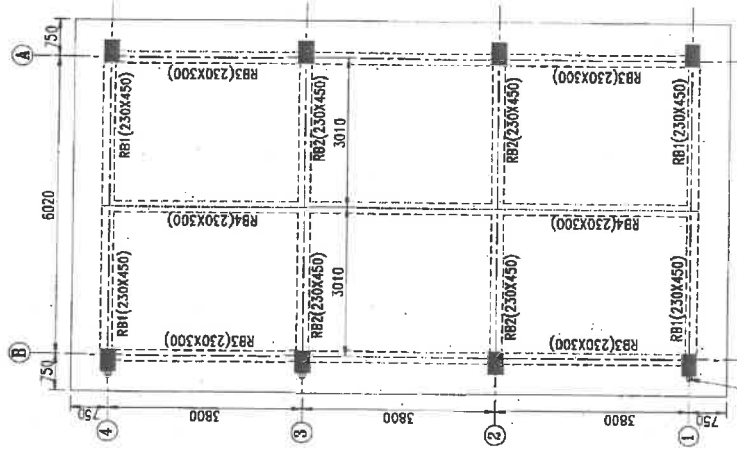
- LAYOUT & DETAIL OF LINTEL BEAMS

REV. NO.

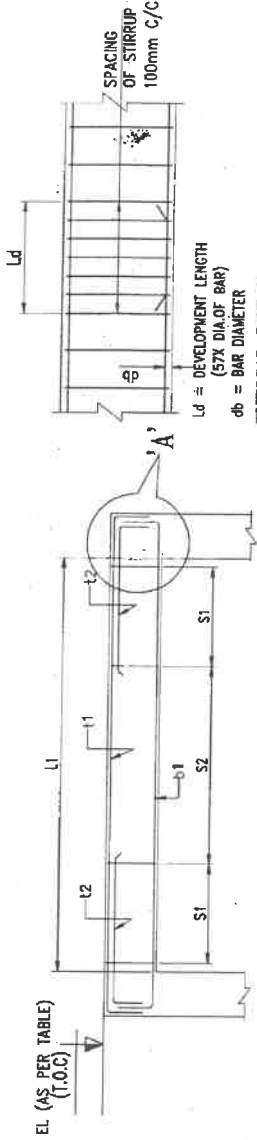
0

SHEET

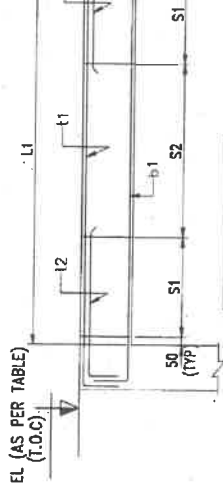
4 OF 6



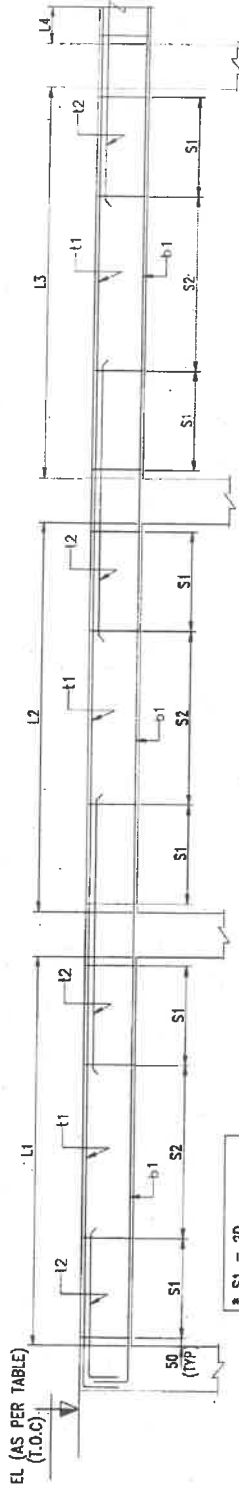
ROOF BEAM PLAN (+5.0M LVL.)



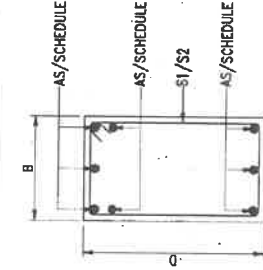
TYPICAL DETAIL OF ARRANGEMENT OF STIRRUPS AT SPLICE LOCATION IN BEAM



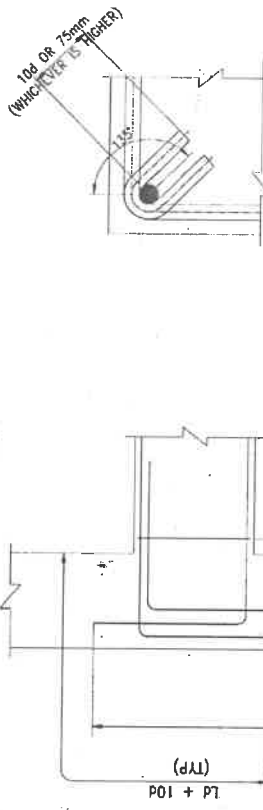
BEAM TYPE- I



BEAM TYPE- II (MULTI SPAN BEAMS)



TYPICAL DETAIL OF ROOF BEAM



TYPICAL DETAIL OF STIRRUPS WITH 135° HOOK

SCHEDULE OF ROOF BEAMS										
BEAM MARKED	BEAM TYPE	SIZE		REINFORCEMENT (ϕ)				STIRRUPS (ϕ) 2 LEGGED		LEVELS (T.O.C)
				BOTTOM BAR		TOP BAR				
		B	D	b1		t1	i2	S1	S2	
RB1	I	230	450	3-25ϕ	2-20ϕ+1-12ϕ	2-20ϕ+1-16ϕ	8ϕ@100	8ϕ@150	(+5.000M	
RB2	I	230	450	4-25ϕ	2-20ϕ+1-16ϕ	2-25ϕ	8ϕ@100	8ϕ@150	(+5.000M	
RB3	II	230	300	3-16ϕ	3-16ϕ	-	8ϕ@100	8ϕ@150	(+5.000M	
RB4	II	230	300	3-16ϕ	3-16ϕ	-	8ϕ@100	8ϕ@150	(+5.000M	

SCHEDULE OF ROOF BEAMS

DRG. NO.:

KPTCL/CEE(P&C)/SE(C)/11K/SG/CIVIL/2023-24/01

DATE

23-08-2023

KARNATAKA TRANSMISSION CORPORATION LIMITED

REV NO.

0

SHEET

5 OF 6

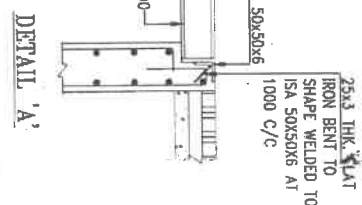
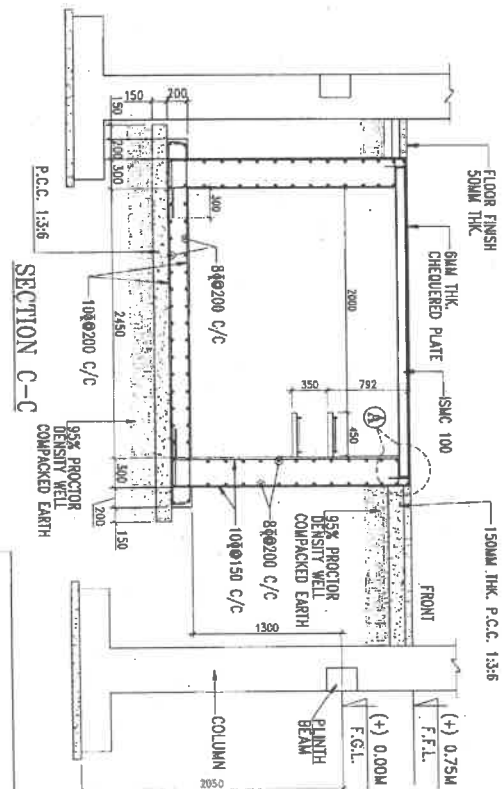
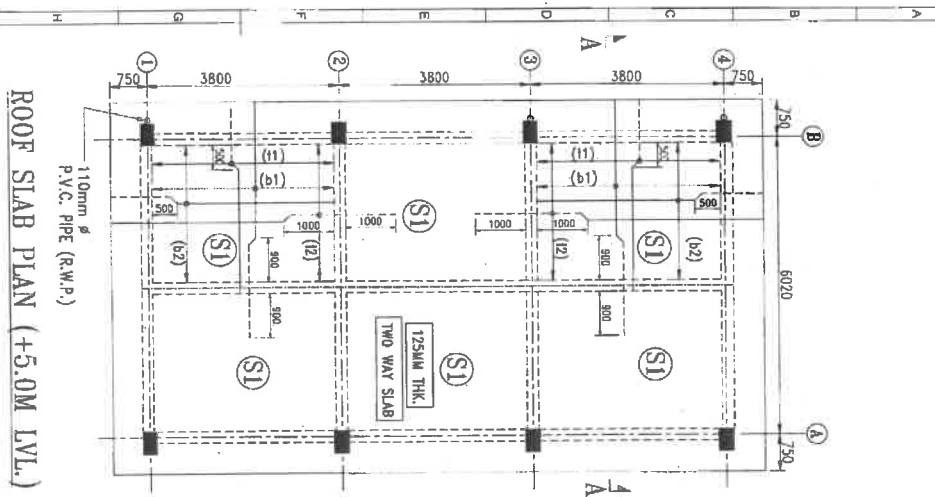
TITLE

ARCHITECTURAL & STRUCTURAL DRAWINGS

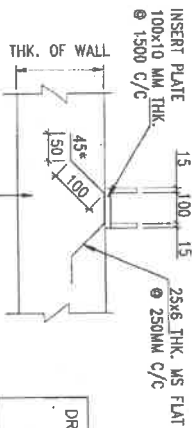
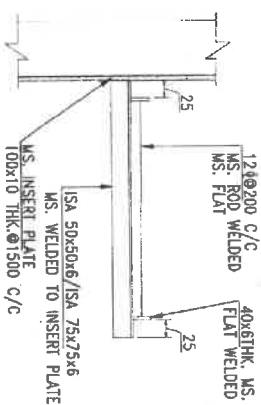
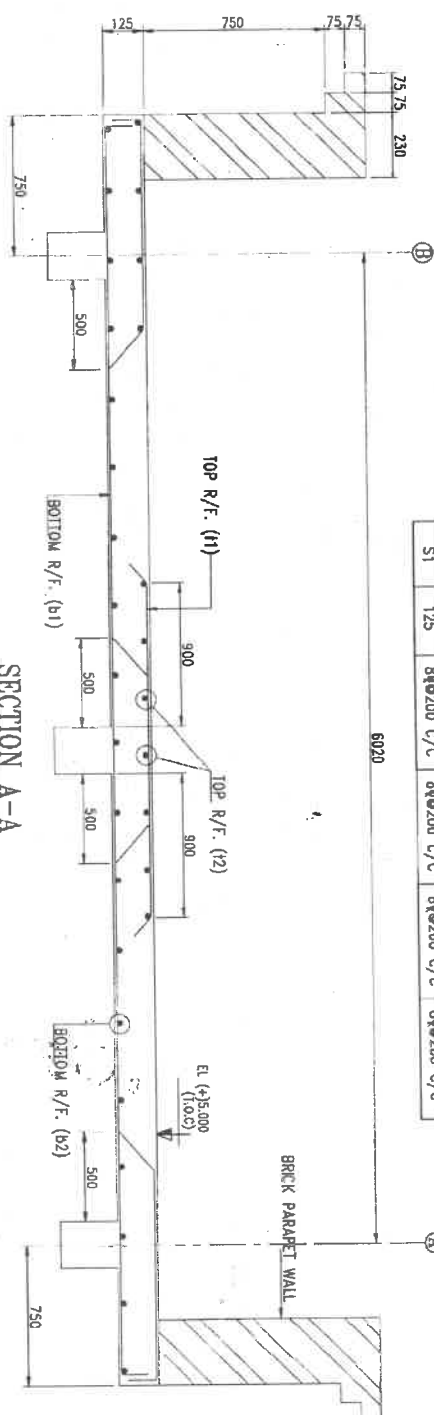
FOR 11KV OUT DOOR SWITCH GEAR PANEL ROOM






(FOR 1020MVA TRANSFORMER - 1NO.) (1C + 6F + 12CB)

- LAYOUT & DETAIL OF ROOF BEAMS



SLAB REINFORCEMENT					
SLAB MARKED	DEPTH	SHORTER		LONGER	
		SPAN (b1)	SUPPOINT (t1)	SPAN (b2)	SUPPORT (t2)
S1	125	8ft0200 c/c	8ft0200 c/c	8ft0200 c/c	8ft0200 c/c



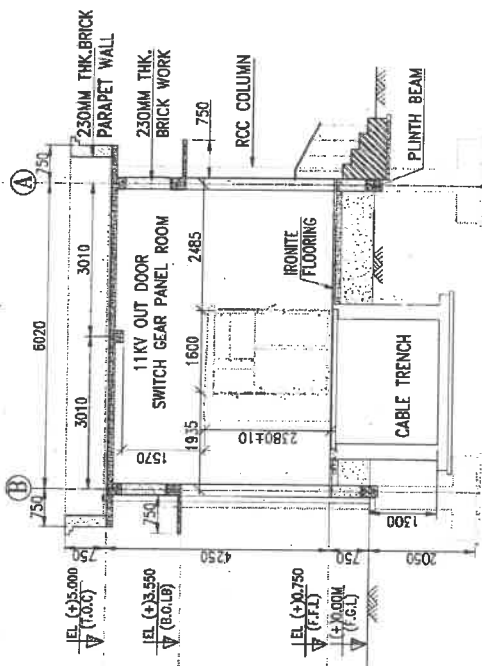
DRG. NO.:	DATE	
KPTCL/CEE/P&C/SEC/11KVS/CIVIL/2023-24/01	23-08-2023	
AEE (CIVIL)  EE (CIVIL)  SE (CIVIL)  CEE (P&C) 	TITLE ARCHITECTURAL & STRUCTURAL DRAWINGS FOR 11KV OUT DOOR SWITCH GEAR PANEL ROOM (FOR 10/20MVA TRANSFORMER - INO.) (1/C + 6F + 1/2CB) - DETAIL OF ROOF SLAB & CABLE TRENCH	
REV NO.	0	
SHEET	6 OF 6	

NOTE

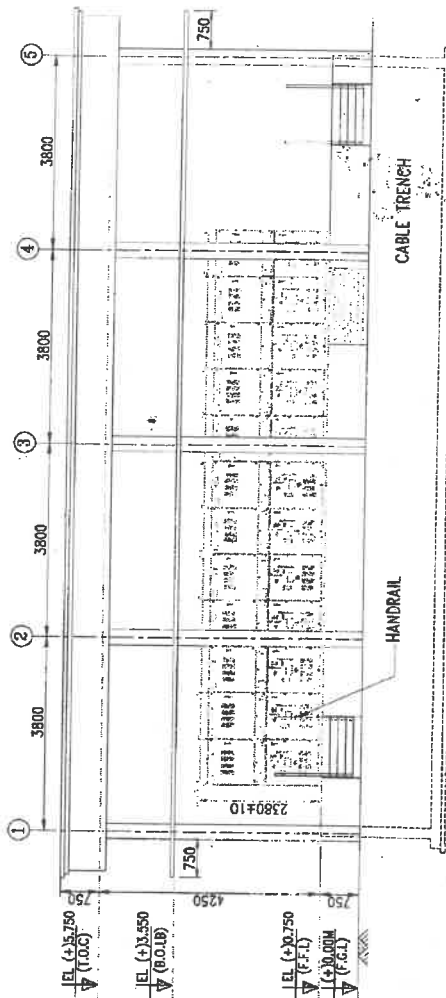
- ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
- ALL STRUCTURAL CONCRETE SHALL BE OF M20 GRADE.
- MINIMUM DEPTH OF FOUNDATION BELOW ORIGIN CL 1000 MM.
- ALL STRUCTURAL STEEL SHALL BE OF Fe 550 GRADE.
- CLEAR COVER TO MAIN REINFORCEMENT SHALL BE AS BELOW:
a) FOR FOUNDATION = 50MM
b) FOR COLUMN = 25MM
c) FOR BEAM = 25MM
- LAP LENGTH SHALL BE 57 TIMES THE DIAMETER OF BAR.
- (4) 0.00 SHALL CORRESPONDS TO FINISH GROUND LEVEL OF SWITCHYARD.
- JOHNSON ENDURA OR EQUIVALENT TYPE HEAT RESISTANT TILES WITH SCREED CONCRETE SHALL BE LAID ABOVE ROOF SLAB.
- FOR BACKFILLING, GOOD GRAVEL SHALL BE USED.
- FOUNDATIONS ARE DESIGNED CONSIDERING SBC OF 15 T/SQM. FOR BLACK COTTON SOIL, RAFT FOUNDATION ENCOMPASSING ALL THE COLUMNS NEED TO BE DESIGNED AND PROVIDED.
- RAMP/STEPS POSITIONING SHOWN ARE INDICATIVE. THE SAME SHALL BE PROVIDED AT APPROPRIATE LOCATIONS.
- FLOORING SHALL BE IRONITE.
- THE ARRANGEMENT OF SWITCHGEAR PANEL ARE INDICATIVE ONLY. THE EXACT ARRANGEMENT SHALL BE AS PER APPROVED 11KV SWITCHGEAR BOARD DRAWING.

LEGEND

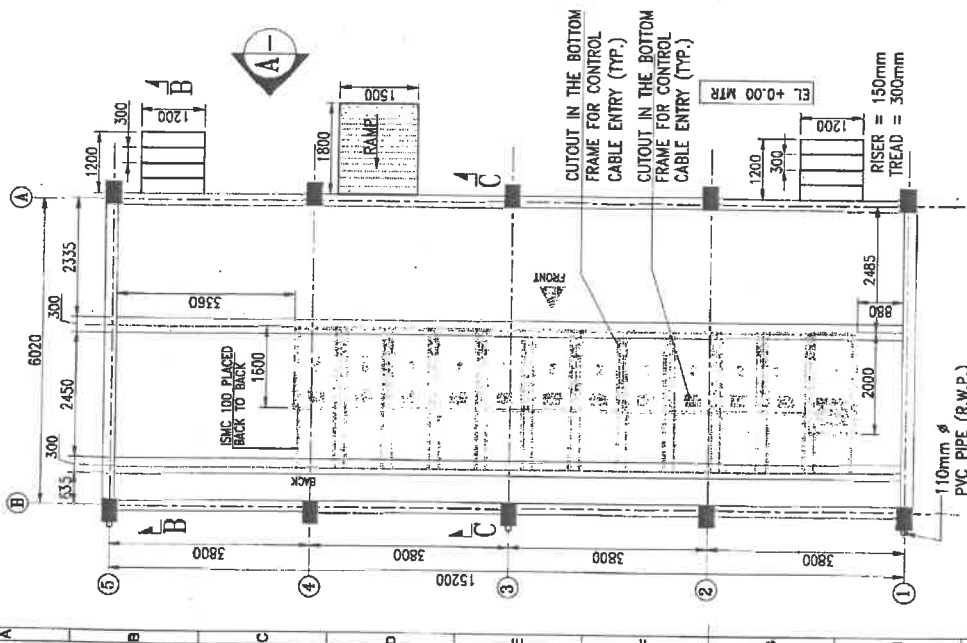
F.G.L	- FINISH GROUND LEVEL
F.F.L	- FINISHED FLOOR LEVEL
T.O.C	- TOP OF CONCRETE
B.O.LB	- BOTTOM OF UNTEL BEAM



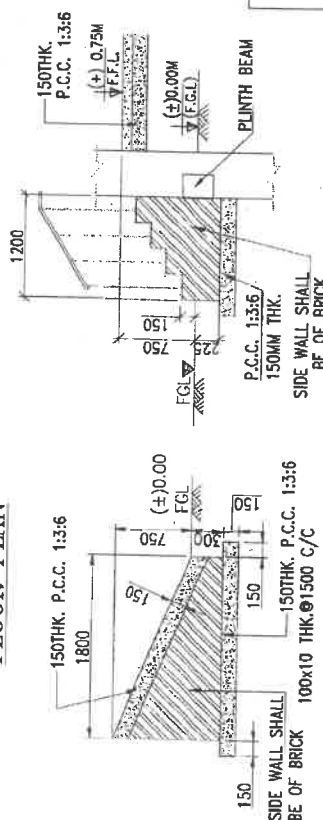
SECTIONAL ELEVATION B-B



ELEVATION-A



FLOOR PLAN



DRG. NO.:

DATE

KARNATAKA TRANSMISSION CORPORATION LIMITED

KPTCL/CEE(P&C)/SE(C)/11KV/SG/CIVIL/2023-24/02

SECTIONAL DETAILS OF STAIRCASE

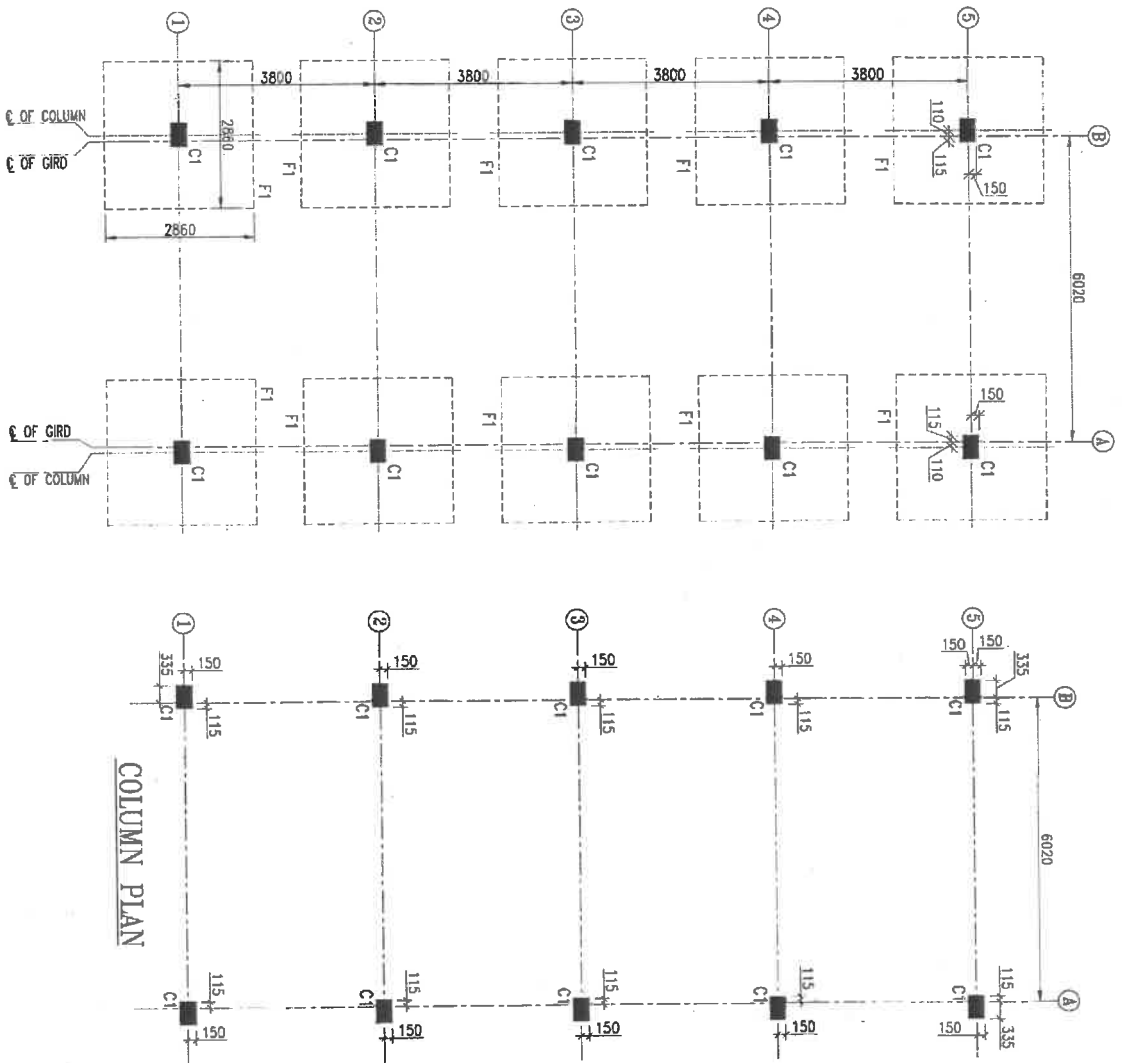
SECTIONAL DETAILS OF RAMP

DRG. NO.:	DATE	TITLE
KPTCL/CEE(P&C)/SE(C)/11KV/SG/CIVIL/2023-24/02	23-08-2023	KARNATAKA TRANSMISSION CORPORATION LIMITED
DRG. NO.:	DATE	TITLE
KPTCL/CEE(P&C)/SE(C)/11KV/SG/CIVIL/2023-24/02	23-08-2023	KARNATAKA TRANSMISSION CORPORATION LIMITED

REV NO. 0

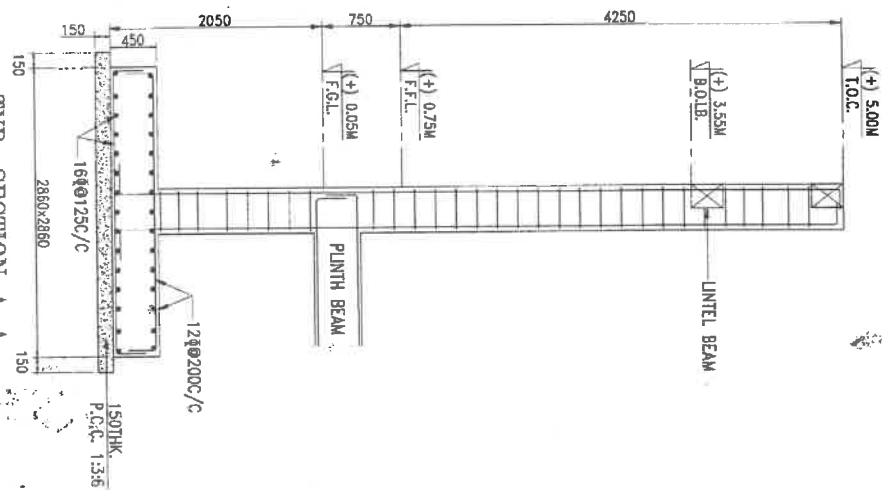
ARCHITECTURAL & STRUCTURAL DRAWINGS
FOR 11KV OUT DOOR SWITCH GEARS
(FOR 31.5MVA TRANSFORMER - 1NO.) (11/C + 9F + 2CB)
- PLAN, SECTION & ELEVATION

SHEET 1 OF 6

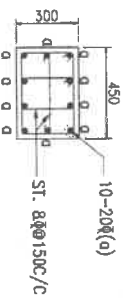


COLUMN PLAN

TYP. SECTION A-A
(SCALE 1:50)



COLUMN C1



FOUNDATION PLAN

DRG. NO.:

KPTCL/CEE(P&C)/SE(C)/11KVS/G/CML/2023-24/02

DATE

28-11-2023

KARNATAKA TRANSMISSION CORPORATION LIMITED



TITLE ARCHITECTURAL & STRUCTURAL DRAWINGS

FOR 11KV/OUT DOOR SWITCH GEAR PANEL ROOM
(FOR 31.5MVA TRANSFORMER - 1NO.) (11C + 9F + 2CB)
- LAYOUT & DETAIL OF FOUNDATIONS & COLUMNS

REV NO.

0

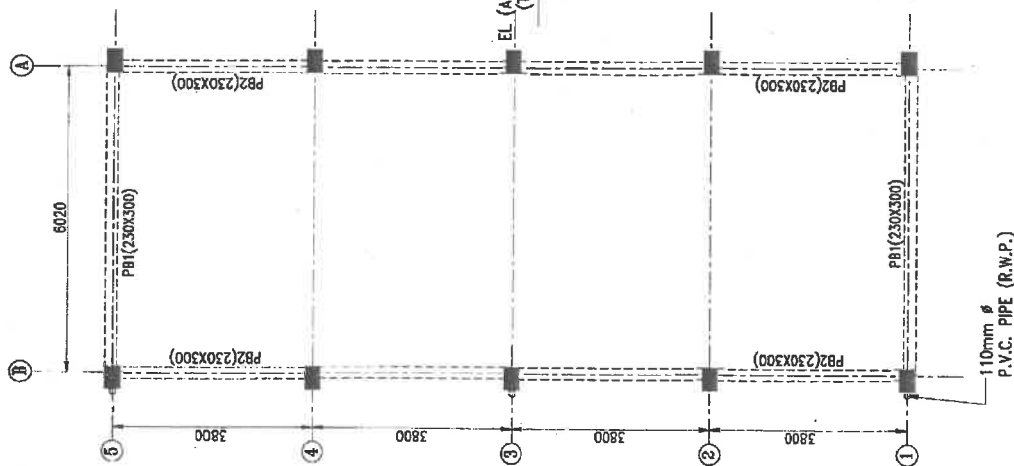
SHEET
2 OF 6

AEE (CML)

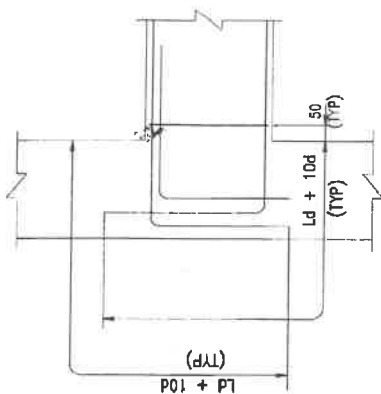
EE (CML)

SE (CML)

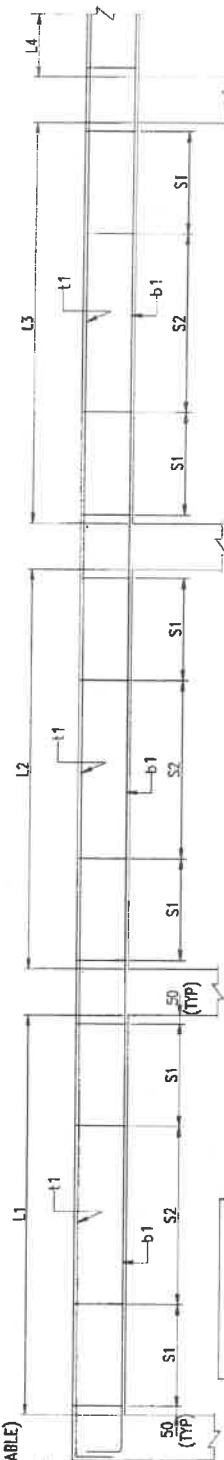
CEE (P&C)



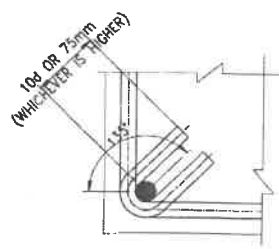
* S1 = 2D
D = BEAM DEPTH



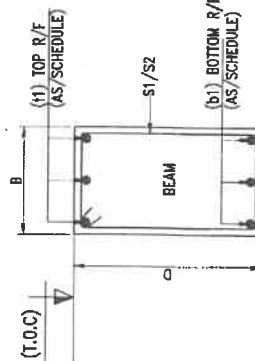
TYP. DETAIL - 'A'
(JUNCTION OF COLUMN & BEAM)



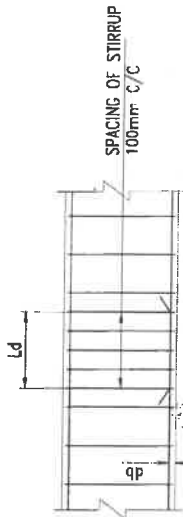
BEAM TYPE- II (MULTI SPAN BEAMS)



TYPICAL DETAIL OF
STIRRUPS WITH 135° HOOK



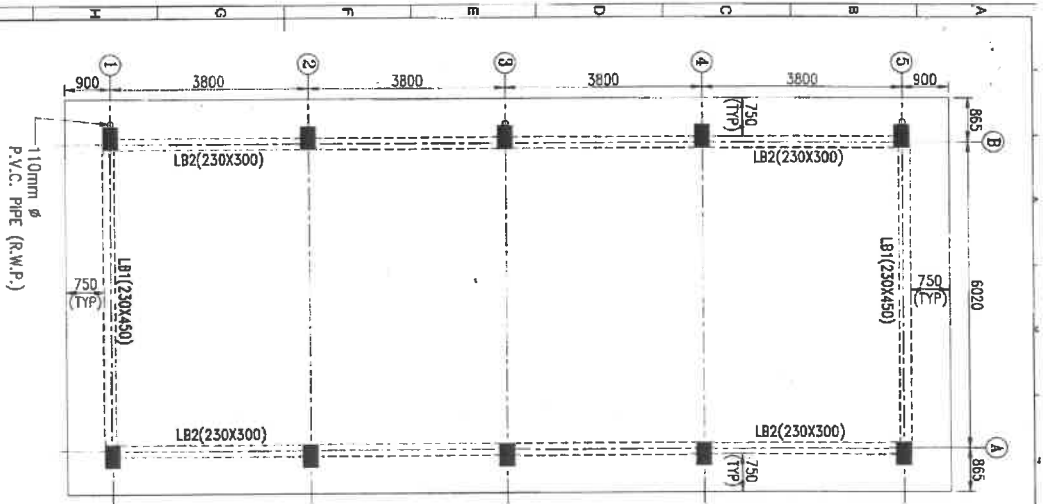
TYP. SECTION OF PLINTH BEAM



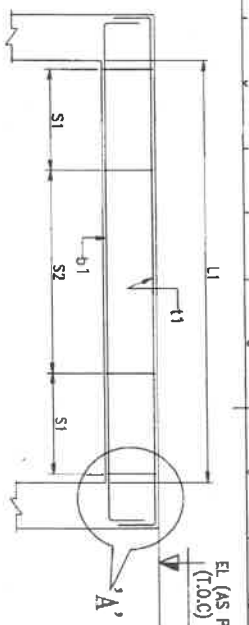
TYPICAL DETAIL OF ARRANGEMENT OF
STIRRUPS AT SPLICE LOCATION IN BEAM

SCHEDULE OF PLINTH BEAMS									
BEAM MARKED	BEAM TYPE	SIZE		REINFORCEMENT (Ø)		STIRRUPS (Ø)		LEVELS (T.O.C)	
		B	D	BOTTOM BAR	TOP BAR	2 LEGGED	S2		
PB1	I	230	300	3-16Ø	3-16Ø	8Ø@100	8Ø@150	(+)-0.700M	
PB2	II	230	300	2-16Ø	2-16Ø	8Ø@100	8Ø@150	(+)-0.150M	

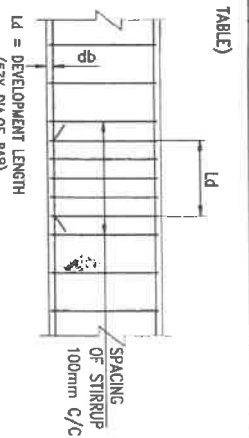
DRG. NO.:	DATE	KARNATAKA TRANSMISSION CORPORATION LIMITED		REV NO.
KPTCL/CEE(P&C)/SE(C)/11KVSG/CIVIL/2023-24/02	28-11-2023	TITLE		0
		ARCHITECTURAL & STRUCTURAL DRAWINGS FOR 11KV OUT DOOR SWITCH GEAR PANEL ROOM (FOR 31.5MVA TRANSFORMER - 1NO.) (1IC + 9F + 2OB) - LAYOUT & DETAIL OF PLINTH BEAMS		SHEET
				3 OF 6



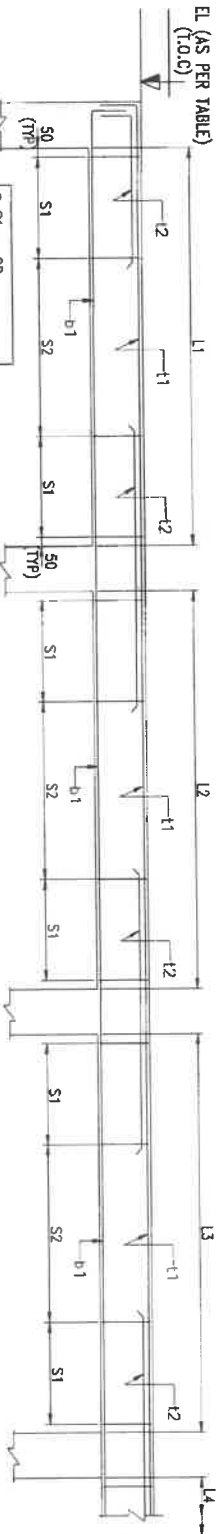
LINTEL BEAM LAYOUT



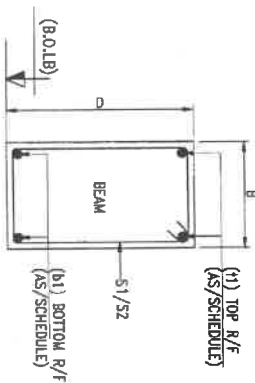
BEAM TYPE-I



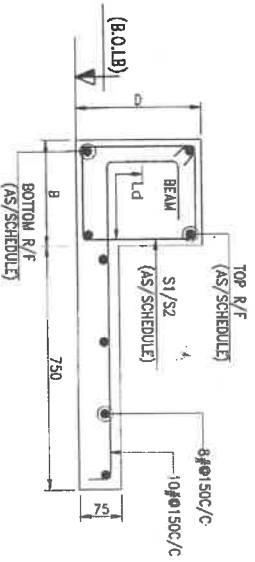
TYPICAL DETAIL OF ARRANGEMENT OF STIRRUPS AT SPLICE LOCATION IN BEAM



BEAM TYPE-II (MULTI SPAN BEAMS)

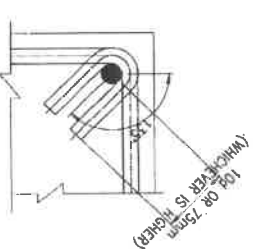


TYP. SECTION OF LINTEL BEAM



TYP. SECTION OF LINTEL BEAM (WITH SUNSHADE)

TYP. DETAIL - 'A' (JUNCTION OF COLUMN & BEAM)



TYPICAL DETAIL OF STIRRUPS WITH 135° HOOK

BEAM MARKED	BEAM TYPE	SIZE		REINFORCEMENT (#)		STIRRUPS (#)		LENGHS (B.O.L.B)		SUNSHADE DESCRIPTION
		B	D	Bottom Bar	Top Bar	S1	S2	(+)	(-)	
LB1	I	230	450	2-16#	2-20# + 1-2#	8# @ 100	8# @ 150	(+)	3.550M	WITH SUNSHADE
LB2	II	230	300	2-16#	2-16#	8# @ 100	8# @ 150	(+)	3.550M	WITH SUNSHADE

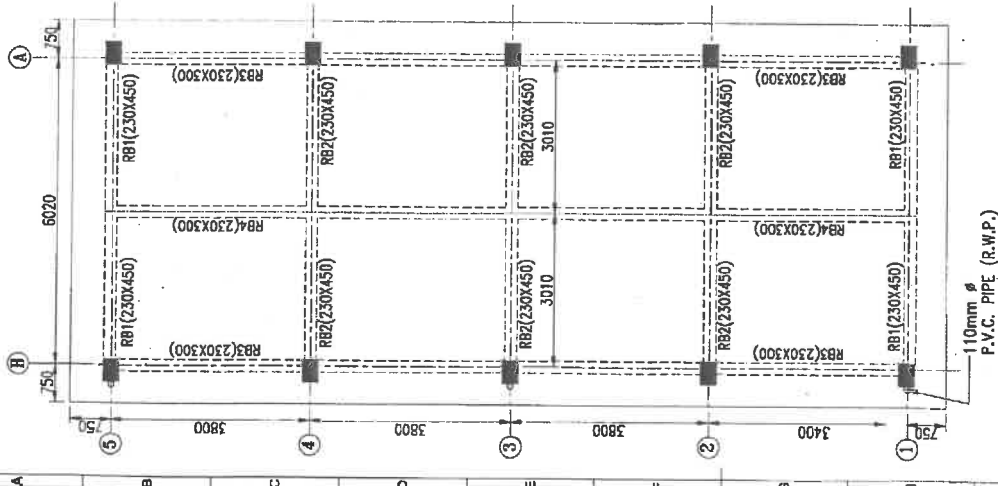
SCHEDULE OF PLINTH BEAMS

DRG. NO.: KPTOLCEE(P&C)SE(C)11KWSG/CIVIL/2023-24/02 DATE: 28-11-2023



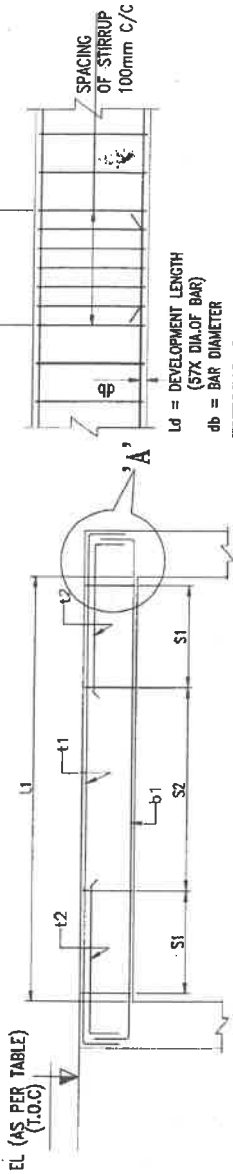
TITLE: ARCHITECTURAL & STRUCTURAL DRAWINGS FOR 11KV OUT DOOR SWITCH GEAR PANEL ROOM (FOR 31.5MVA TRANSFORMER - INO.) (11C + 9F + 2CB) - LAYOUT & DETAIL OF LINTEL BEAMS

REV NO. 0 SHEET 4 OF 6

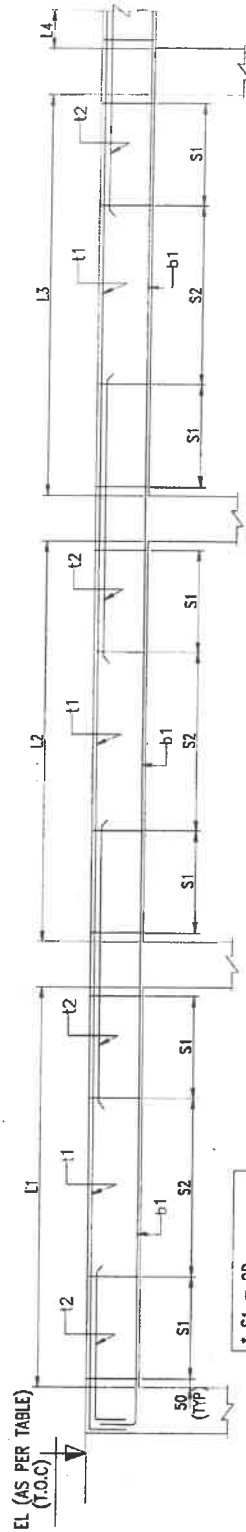


ROOF BEAM PLAN (+5.0M LVL.)

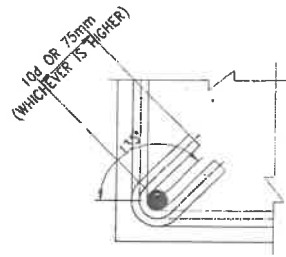
SCHEDULE OF ROOF BEAMS													
BEAM MARKED	BEAM TYPE	SIZE			REINFORCEMENT (Ø)			STIRRUPS (Ø)		LEVELS (T.O.C)			
		B			D			TOP BAR			2 LEGGED		
RB1	I	230	450	3-25Ø	2-20Ø+1-12Ø	2-20Ø+1-16Ø	8Ø100	8Ø150	(+5.000M)				
RB2	I	230	450	4-25Ø	2-20Ø+1-16Ø	2-25Ø	8Ø100	8Ø150	(+5.000M)				
RB3	II	230	300	3-16Ø	3-16Ø	-	8Ø100	8Ø150	(+5.000M)				
RB4	II	230	300	3-16Ø	3-16Ø	-	8Ø100	8Ø150	(+5.000M)				



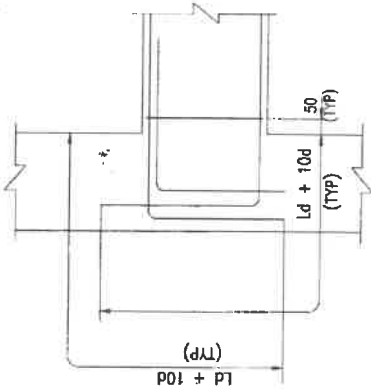
BEAM TYPE- I



BEAM TYPE- II (MULTI SPAN BEAMS)



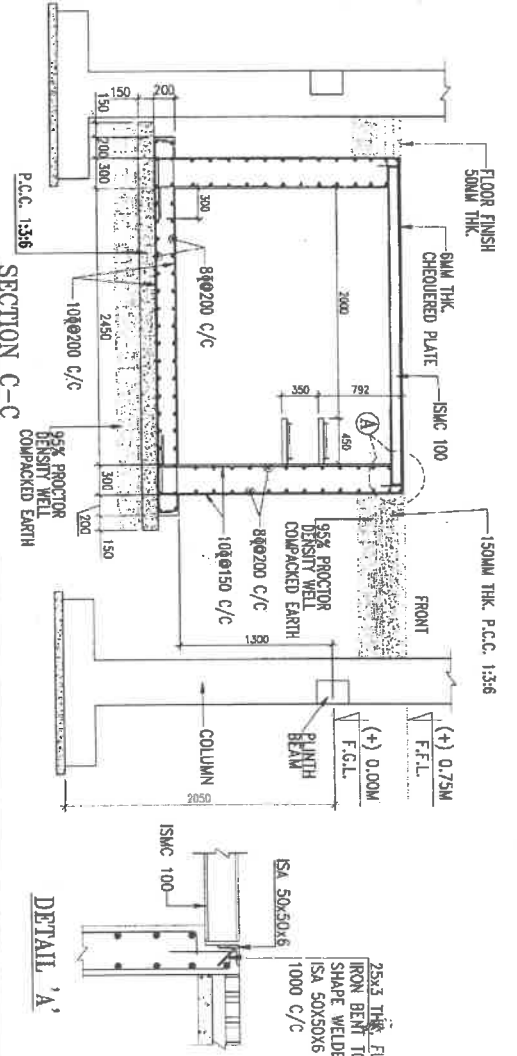
TYPICAL DETAIL OF STIRRUPS WITH 135° HOOK



TYP. DETAIL - 'A' (JUNCTION OF COLUMN & BEAM)

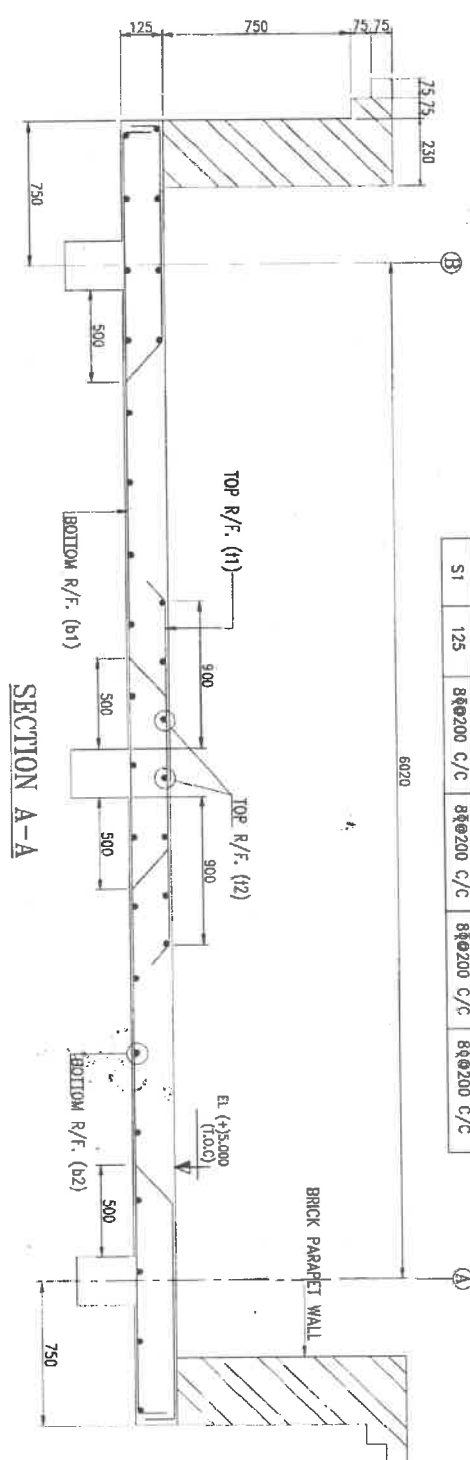
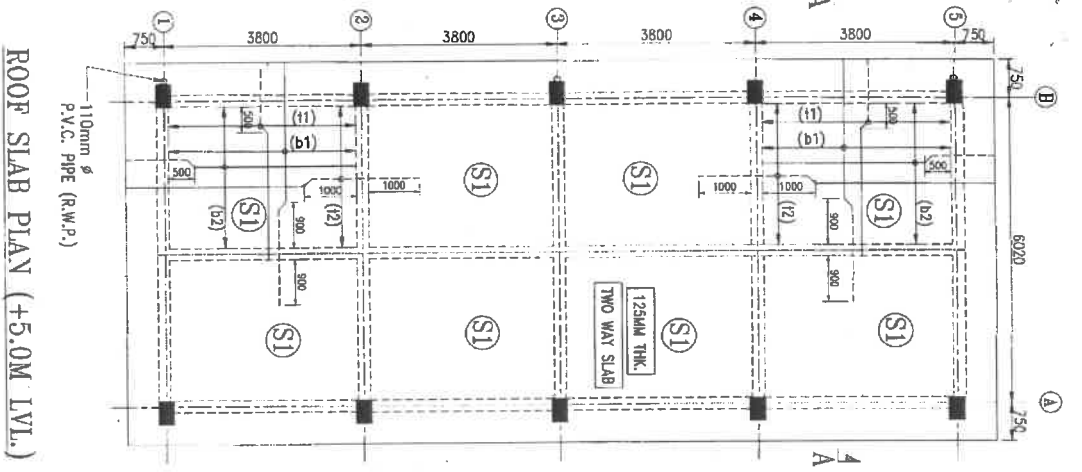
TYPICAL DETAIL OF ROOF BEAM

DRG. NO.:	KPTCL/CEE(P&C)SE(CY)11KVG/CIVIL/2023-24/02	DATE	28-11-2023	KARNATAKA TRANSMISSION CORPORATION LIMITED	REV. NO.	0	SHEET	5 OF 6
TITLE					ARCHITECTURAL & STRUCTURAL DRAWINGS FOR 11KV OUT DOOR SWITCH GEAR PANEL ROOM (FOR 31.5MVA TRANSFORMER - 1NO.) (11C + 9F + 2CB) - LAYOUT & DETAIL OF ROOF BEAMS			

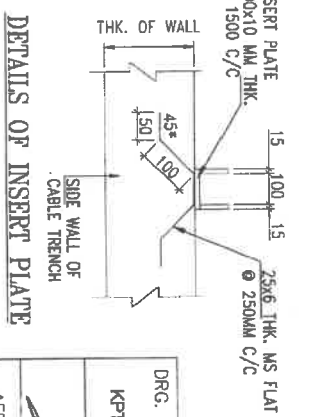
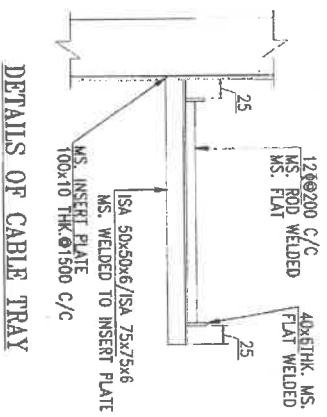


DETAIL 'A'

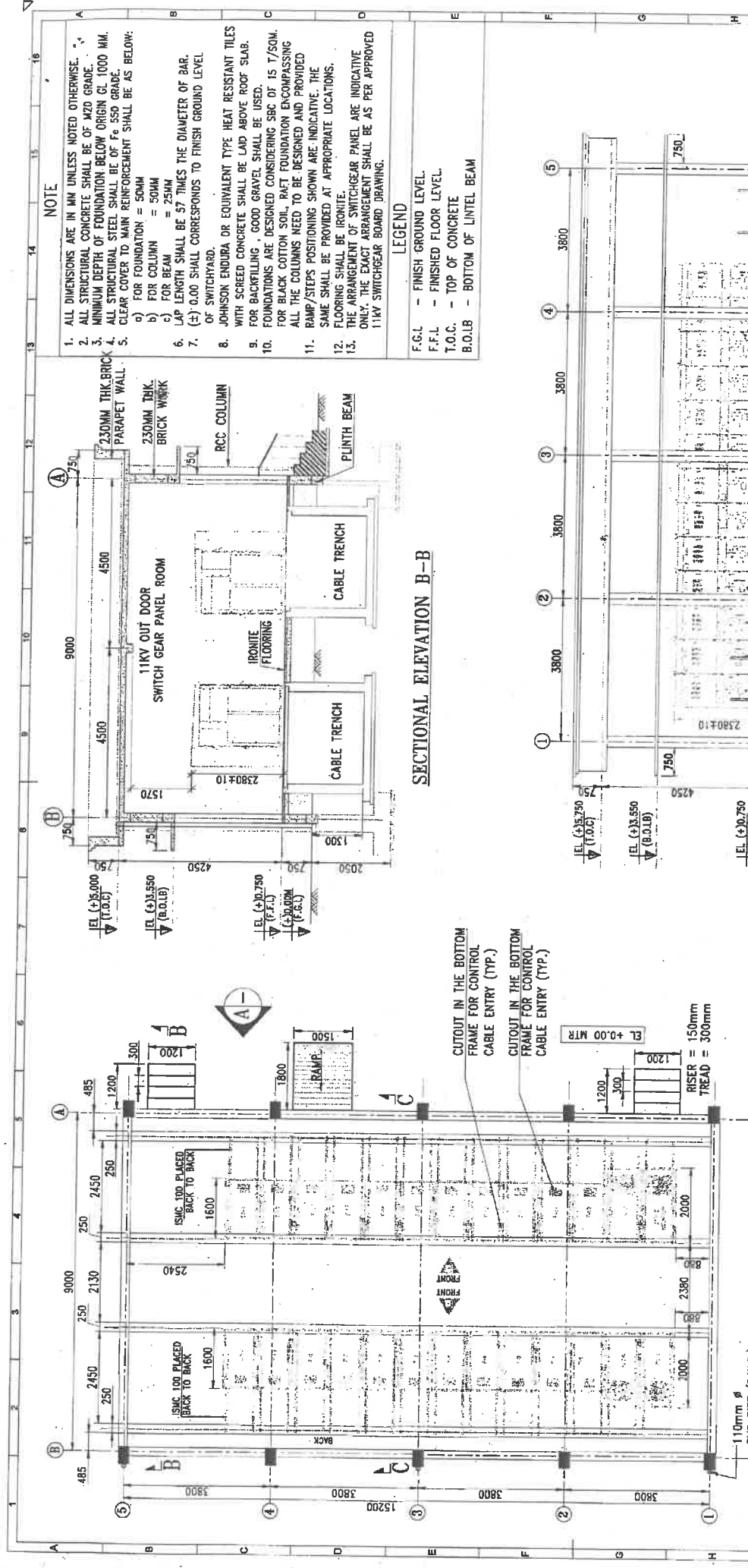
SLAB MARKED	DEPTH	SHORTER		LONGER	
		SPAN (b1)	SUPPORT (t1)	SPAN (b2)	SUPPORT (t2)
S1	125	8@200 C/C	8@200 C/C	8@200 C/C	8@200 C/C



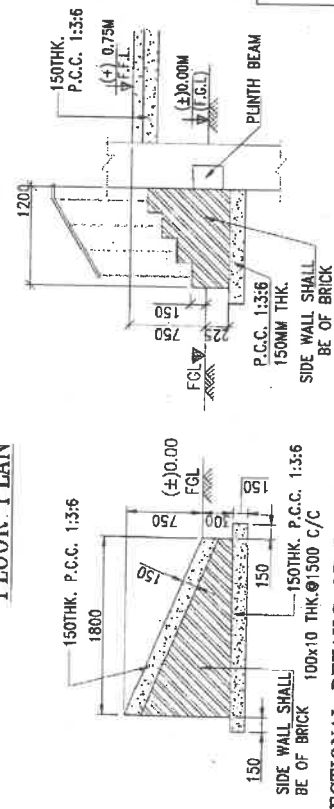
ROOF SLAB PLAN (+5.0M LVL.)



DRG. NO.:		DATE		TITLE	
KPTC/CEEP&C/SEC/11K1VSG/CIVIL/2023-24/02		28-11-2023		KARNATAKA TRANSMISSION CORPORATION LIMITED	
AEE (CIVIL)	EE (CIVIL)	SE (CIVIL)	CEE (P&C)	ARCHITECTURAL & STRUCTURAL DRAWINGS FOR 31KV OUT DOOR SWITCH GEAR PANEL ROOM (FOR 31.5MVA TRANSFORMER - 1NO.) (11C + 9F + 2CB) - DETAIL OF ROOF SLAB & CABLE TRENCH	
				REV NO.	SHEET
				0	6 OF 6



FLOOR PLAN



SECTIONAL DETAILS OF STAIRCASE

SECTIONAL DETAILS OF RAMP

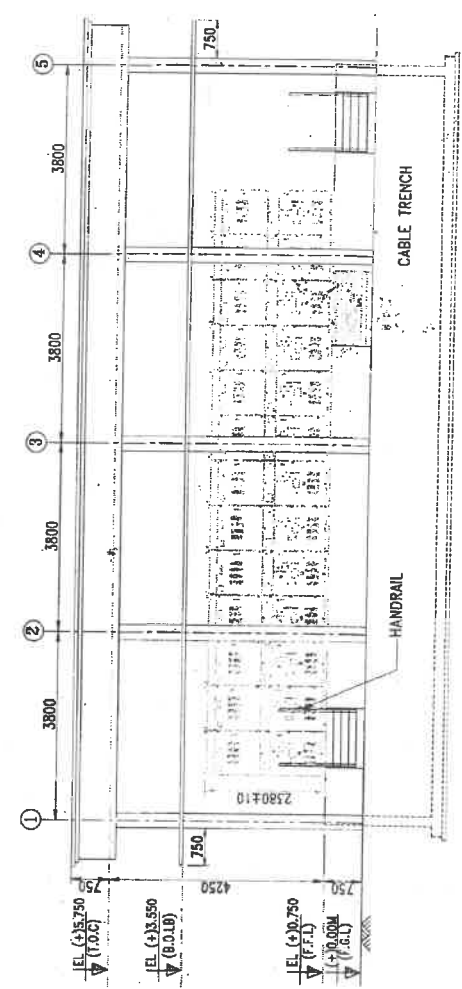
NOTE

1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
2. ALL STRUCTURAL CONCRETE SHALL BE OF M20 GRADE.
3. MINIMUM DEPTH OF FOUNDATION BELOW ORIGIN CL 1000 MM.
4. ALL STRUCTURAL STEEL SHALL BE OF Fe 550 GRADE.
5. CLEAR COTER TO MAIN REINFORCEMENT SHALL BE AS BELOW:
 - a) FOR FOUNDATION = 50MM
 - b) FOR COLUMN = 50MM
 - c) FOR BEAM = 25MM
6. LAP LENGTH SHALL BE 37 TIMES THE DIAMETER OF BAR.
7. (±) 0.00 SHALL CORRESPONDS TO FINISH GROUND LEVEL OF SWITCHYARD.
8. JOHNSON ENDURA OR EQUIVALENT TYPE HEAT RESISTANT TILES WITH SCREED CONCRETE SHALL BE LAID ABOVE ROOF SLAB.
9. FOR BACKFILLING , GOOD GRAVEL SHALL BE USED.
10. FOUNDATIONS ARE DESIGNED CONSIDERING SBC OF 15 T/SOM. FOR BLACK COTTON SOIL. RAFT FOUNDATION ENCOMPASSING ALL THE COLUMNS NEED TO BE DESIGNED AND PROVIDED RAMP/STEPS POSITIONING SHOWN ARE INDICATIVE. THE SAME SHALL BE PROVIDED AT APPROPRIATE LOCATIONS.
11. FLOORING SHALL BE IRONITE.
12. THE ARRANGEMENT OF SWITCHGEAR PANEL ARE INDICATIVE ONLY. THE EXACT ARRANGEMENT SHALL BE AS PER APPROVED 11KV SWITCHGEAR BOARD DRAWING.
- 13.

LEGEND

- LEGEND**
- | | |
|--------|-------------------------|
| F.G.L | - FINISH GROUND LEVEL. |
| F.F.L | - FINISHED FLOOR LEVEL. |
| T.O.C. | - TOP OF CONCRETE |
| B.O.B | - BOTTOM OF LINTEL BEAM |

SECTIONAL ELEVATION B-B



ELEVATION - A

DRG. NO.:

DATE _____

KPTCL/CEE(P&C)/SE(C)/11KVS/CIM/L/2023-24/05

[Signature]

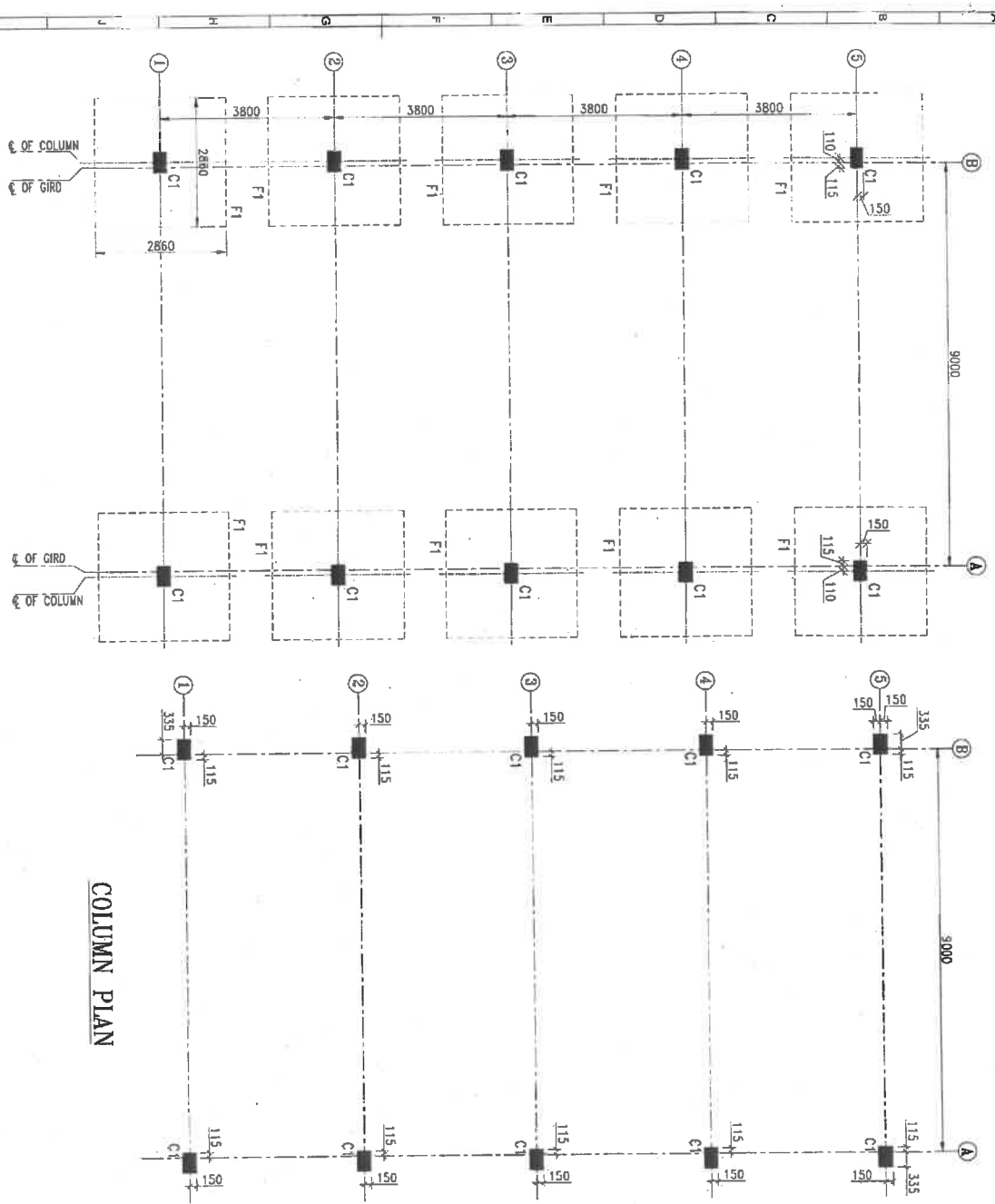
10/1/2011

AEE (CIVIL)	EE (CIVIL)	SE (CIVIL)
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KARNATAKA TRANSMISSION CORPORATION LIMITED

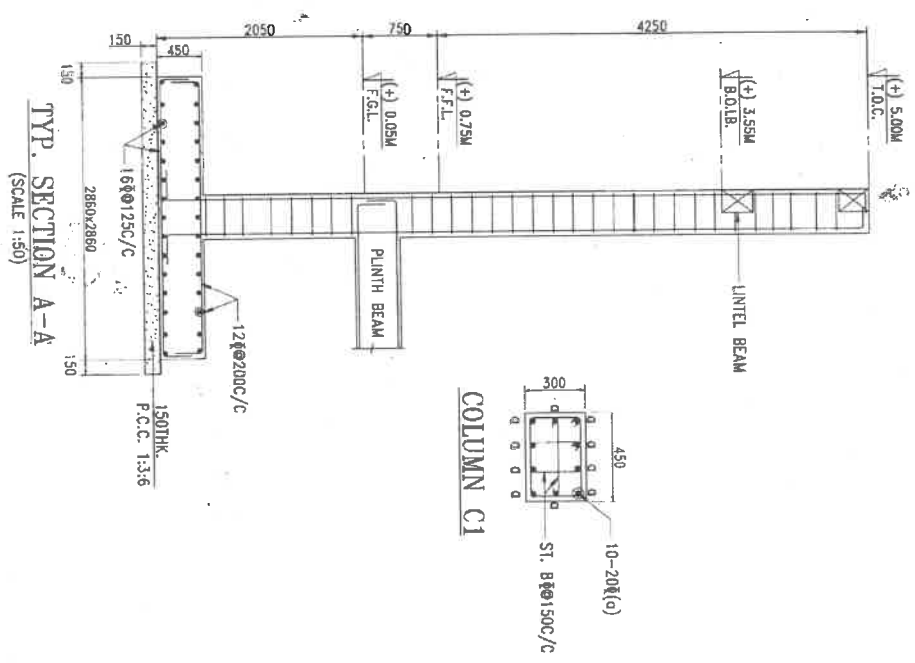
TITLE ARCHITECTURAL & STRUCTURAL DRAWINGS
FOR 11KV OUT DOOR SWITCH GEARS
(FOR 31.5MVA TRANSFORMER - 2NOS.) (2UC+18F+4CB+1BC)
- PLAN, SECTION & ELEVATION

U
SHEET
1 OF 8



FOUNDATION PLAN

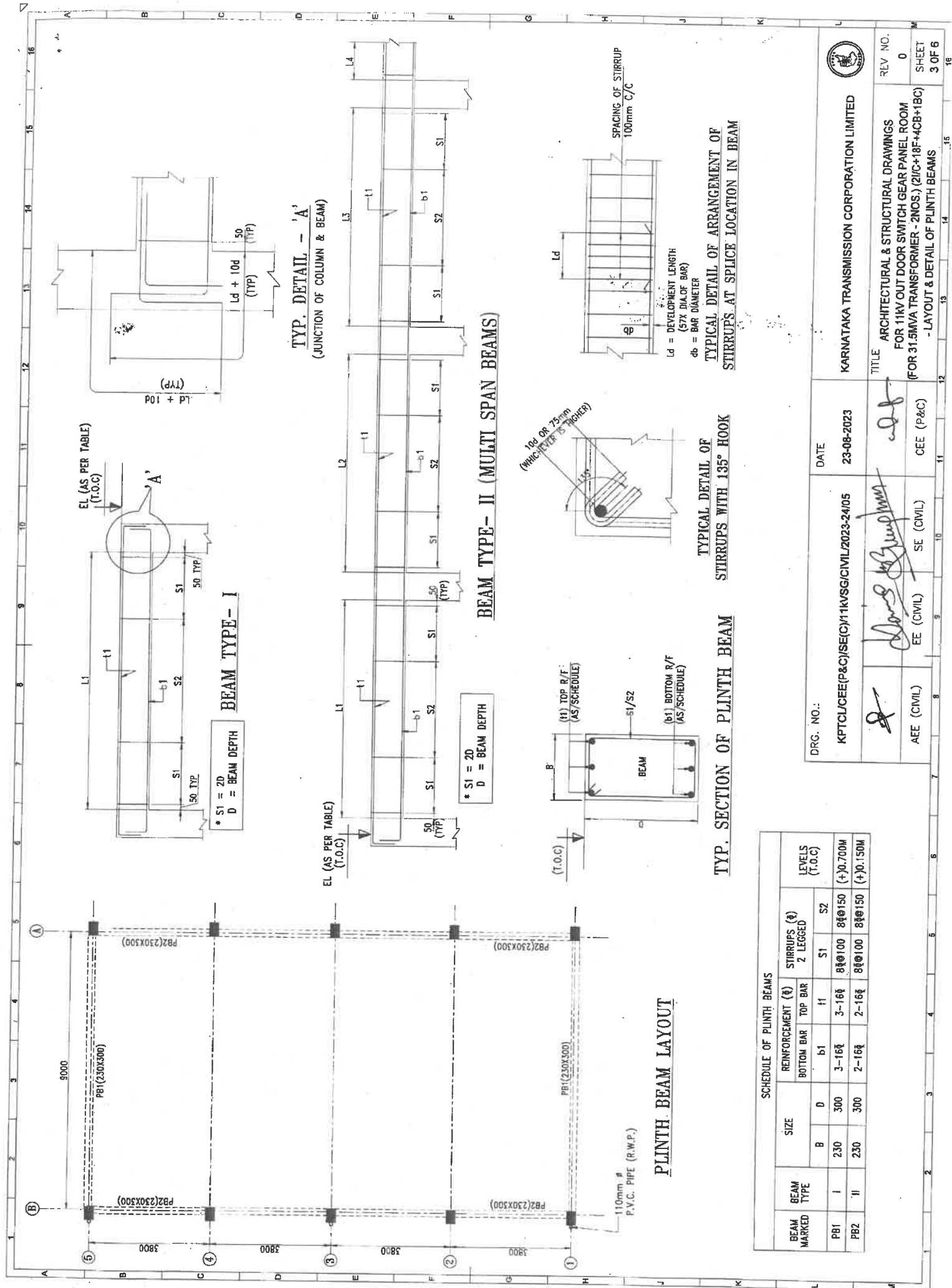
COLUMN PLAN



COLUMN C1

DRG. NO.:	KPTCL/CEE(P&C)/SE(C)/11KVS/CIVIL/2023-24/05	DATE:	23-08-2023	TITLE:	KARNATAKA TRANSMISSION CORPORATION LIMITED	REV NO.:	0
AEE (CIVIL)	<i>[Signature]</i>	EE (CIVIL)	<i>[Signature]</i>	CEE (P&C)	<i>[Signature]</i>	SHEET	2 OF 6
ARCHITECTURAL & STRUCTURAL DRAWINGS FOR 11KV OUT DOOR SWITCH GEAR PANEL ROOM (FOR 31.5MVA TRANSFORMER - 2NOS.) (23C*18F*4CB*1BC) LAYOUT & DETAIL OF FOUNDATIONS & COLUMNS							





BEAM MARKED	BEAM TYPE	SIZE	REINFORCEMENT (Ø)		STIRRUPS (Ø)		LEVELS (T.O.C)
			BOTTOM BAR	TOP BAR	2 LEGGED	2 LEGGED	
PB1	I	230	3-16Ø	3-16Ø	8Ø100	8Ø150	(+0.700M)
PB2	II	230	2-16Ø	2-16Ø	8Ø100	8Ø150	(+0.150M)

DRG. NO.: KPTCJCEE(P&C)/SE(CV)11KVS/CIVIL/2023-24/05

DATE: 23-08-2023

TITLE: ARCHITECTURAL & STRUCTURAL DRAWINGS FOR 11KV OUT DOOR SWITCH GEAR PANEL ROOM (FOR 31.5MVA TRANSFORMER - 2NOS.) (2/C-18F+4CB+1BC) - LAYOUT & DETAIL OF PLINTH BEAMS

REV NO. 0

SHEET 3 OF 6

KARNATAKA TRANSMISSION CORPORATION LIMITED

DRG. NO.: KPTCJCEE(P&C)/SE(CV)11KVS/CIVIL/2023-24/05

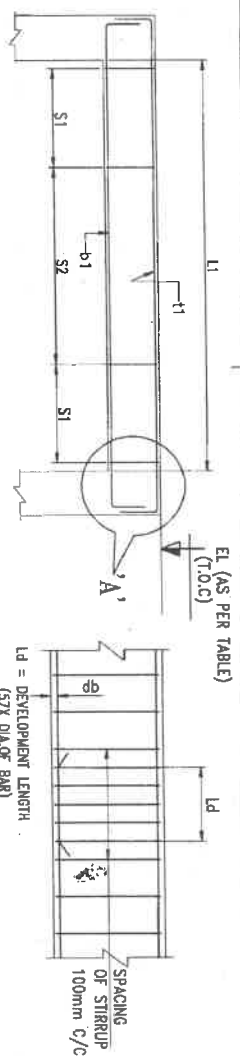
DATE: 23-08-2023

TITLE: ARCHITECTURAL & STRUCTURAL DRAWINGS FOR 11KV OUT DOOR SWITCH GEAR PANEL ROOM (FOR 31.5MVA TRANSFORMER - 2NOS.) (2/C-18F+4CB+1BC) - LAYOUT & DETAIL OF PLINTH BEAMS

REV NO. 0

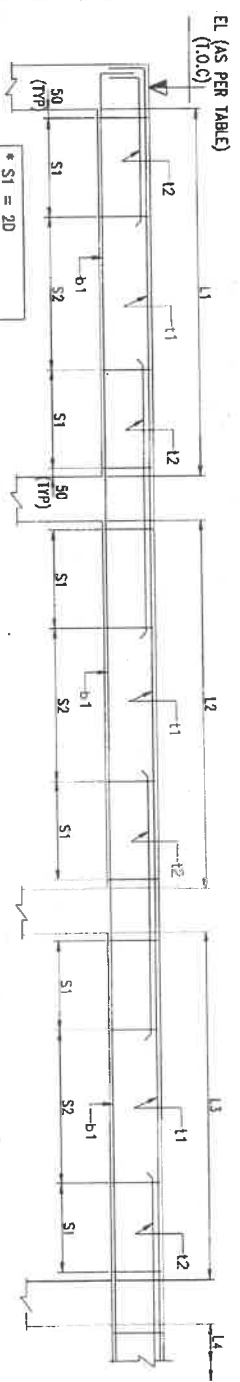
SHEET 3 OF 6

KARNATAKA TRANSMISSION CORPORATION LIMITED

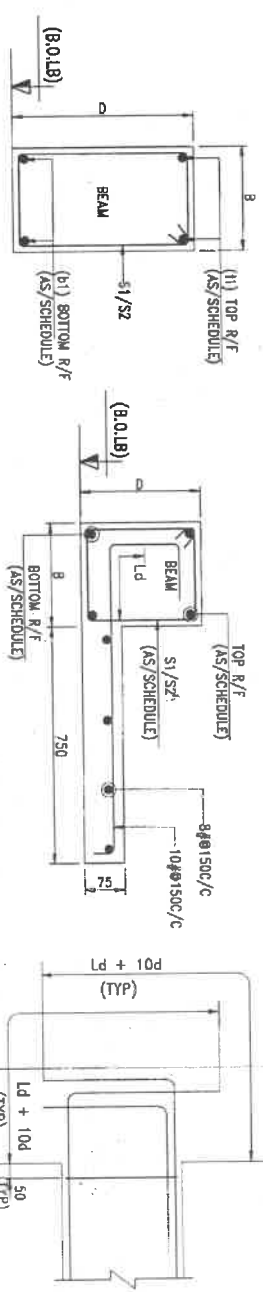


BEAM TYPE- I

TYPICAL DETAIL OF ARRANGEMENT OF STIRRUPS AT SPLICE LOCATION IN BEAM



BEAM TYPE- II (MULTI SPAN BEAMS)



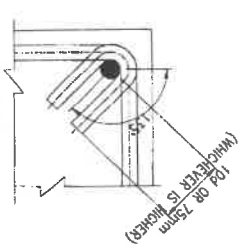
TYP. SECTION OF LINTEL BEAM

TYP. SECTION OF LINTEL BEAM (WITH SUNSHADE)

TYP. DETAIL - 'A' (JUNCTION OF COLUMN & BEAM)

LINTEL BEAM LAYOUT

110mm ϕ
P.V.C. PIPE (R.W.P.)



TYPICAL DETAIL OF STIRRUPS WITH 135° HOOK

SCHEDULE OF PLINTH BEAMS					
BEAM MARKED	BEAM TYPE	SIZE		REINFORCEMENT (#)	
		B	D	BOTTOM BAR	TOP BAR
LBI	I	230	450	2-16 ϕ	2-20 ϕ +1-12 ϕ
LB2	II	230	300	2-16 ϕ	2-16 ϕ

DRG. NO.: KPTCL/CEE(P&C)/SEC/11K/SG/CIVIL/2023-24/05

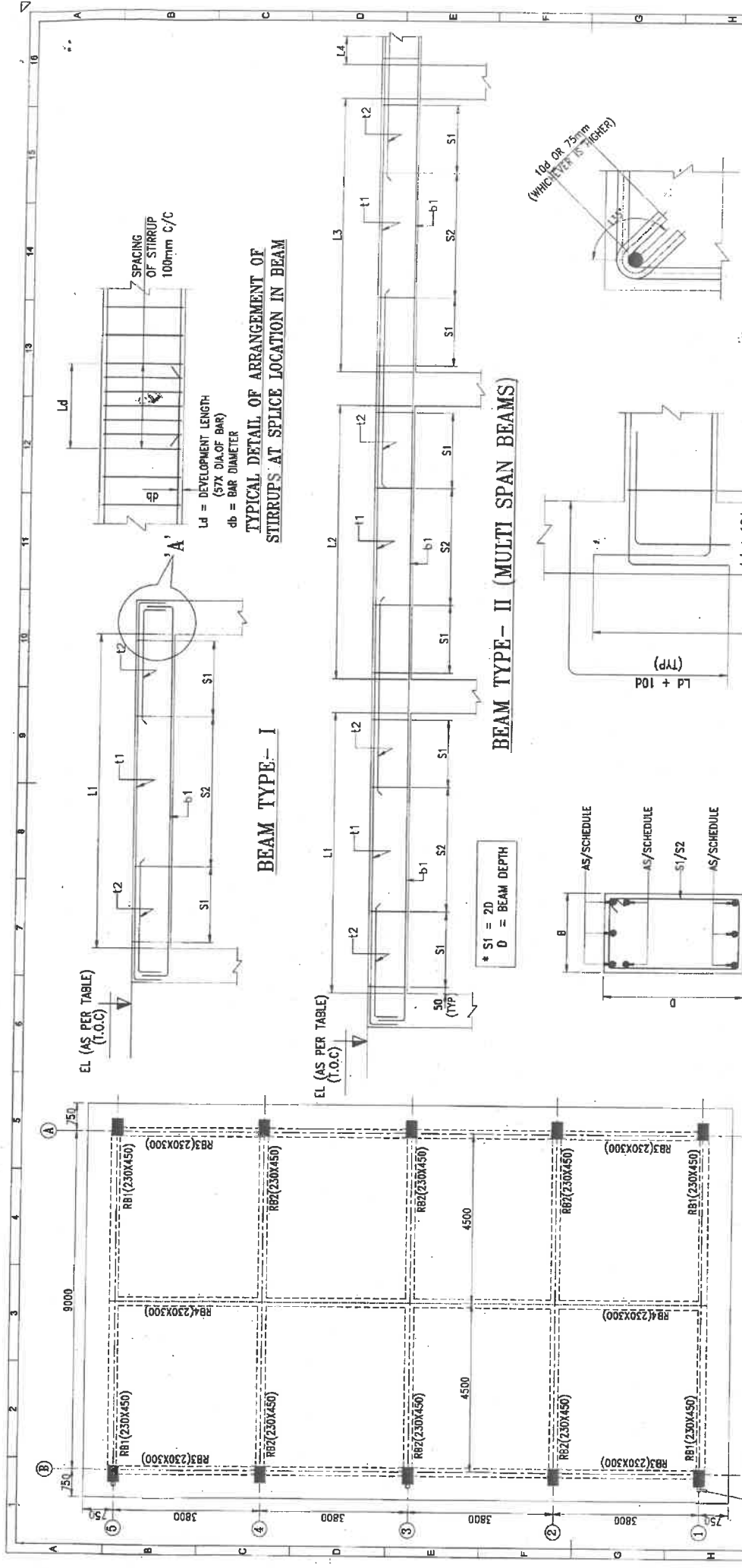
DATE: 23-08-2023

KARNATAKA TRANSMISSION CORPORATION LIMITED

ARCHITECTURAL & STRUCTURAL DRAWINGS
FOR 11KV OUT DOOR SWITCH GEAR PANEL ROOM
(FOR 31.5MVA TRANSFORMER - 2NOS.) (21C+18F+4CB+18C)
- LAYOUT & DETAIL OF LINTEL BEAMS

REV NO. 0

SHEET 4 OF 6



TYPICAL DETAIL OF ROOF BEAM

ROOF BEAM PLAN (+5.0M LVL.)

SCHEDULE OF ROOF BEAMS											
BEAM MARKED	BEAM TYPE	SIZE			REINFORCEMENT (t)			STIRRUPS (t) 2 LEGGED		LEVELS (T.O.C)	
		B			D	BOTTOM BAR	TOP BAR		S1		S2
							t1	t2			
RB1	I	230	450	3-25t	2-20t+1-12t	2-20t+1-16t	8t@100	8t@150	(+)5.000M		
RB2	I	230	450	4-25t	2-20t+1-16t	2-25t	8t@100	8t@150	(+)5.000M		
RB3	II	230	300	3-16t	3-16t	-	8t@100	8t@150	(+)5.000M		
RB4	II	230	300	3-16t	3-16t	-	8t@100	8t@150	(+)5.000M		

DRG. NO.: KPT/CL/CEE(P&C)/SE/C/11KVSG/CIVIL/2023-24/05

DATE: 23-08-2023

TITLE: ARCHITECTURAL & STRUCTURAL DRAWINGS FOR 11KV OUT DOOR SWITCH GEAR PANEL ROOM (FOR 31.5MVA TRANSFORMER - 2 NOS.) / 21C+18F+4CB+1BC

- LAYOUT & DETAIL OF ROOF BEAMS

REV. NO. 0

SHEET 5 OF 6

KARNATAKA TRANSMISSION CORPORATION LIMITED

DRG. NO.: KPT/CL/CEE(P&C)/SE/C/11KVSG/CIVIL/2023-24/05

DATE: 23-08-2023

TITLE: ARCHITECTURAL & STRUCTURAL DRAWINGS FOR 11KV OUT DOOR SWITCH GEAR PANEL ROOM (FOR 31.5MVA TRANSFORMER - 2 NOS.) / 21C+18F+4CB+1BC

- LAYOUT & DETAIL OF ROOF BEAMS

REV. NO. 0

SHEET 5 OF 6

KARNATAKA TRANSMISSION CORPORATION LIMITED

DRG. NO.: KPT/CL/CEE(P&C)/SE/C/11KVSG/CIVIL/2023-24/05

DATE: 23-08-2023

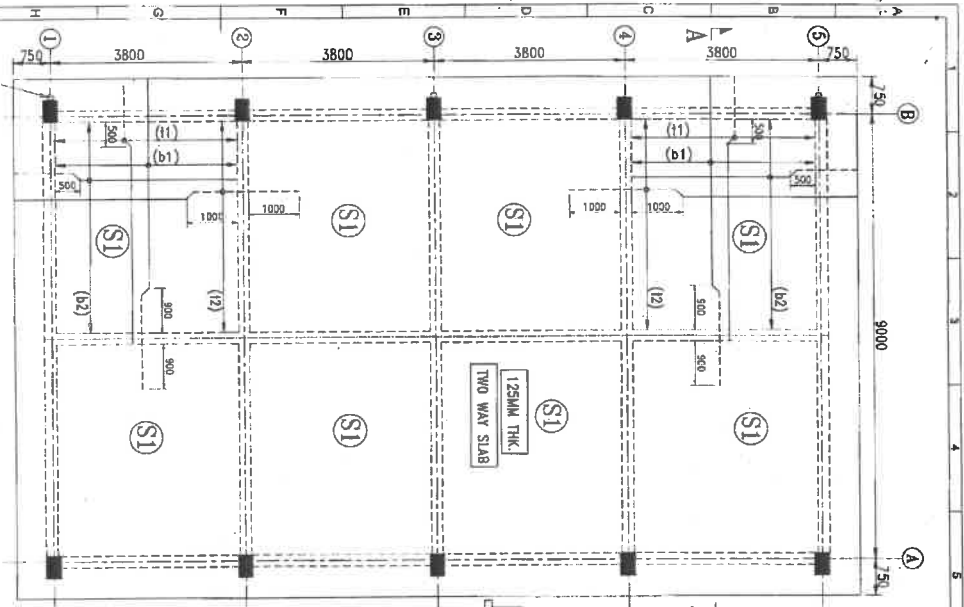
TITLE: ARCHITECTURAL & STRUCTURAL DRAWINGS FOR 11KV OUT DOOR SWITCH GEAR PANEL ROOM (FOR 31.5MVA TRANSFORMER - 2 NOS.) / 21C+18F+4CB+1BC

- LAYOUT & DETAIL OF ROOF BEAMS

REV. NO. 0

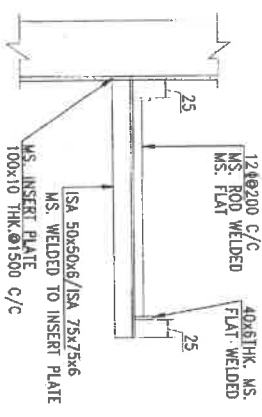
SHEET 5 OF 6

KARNATAKA TRANSMISSION CORPORATION LIMITED

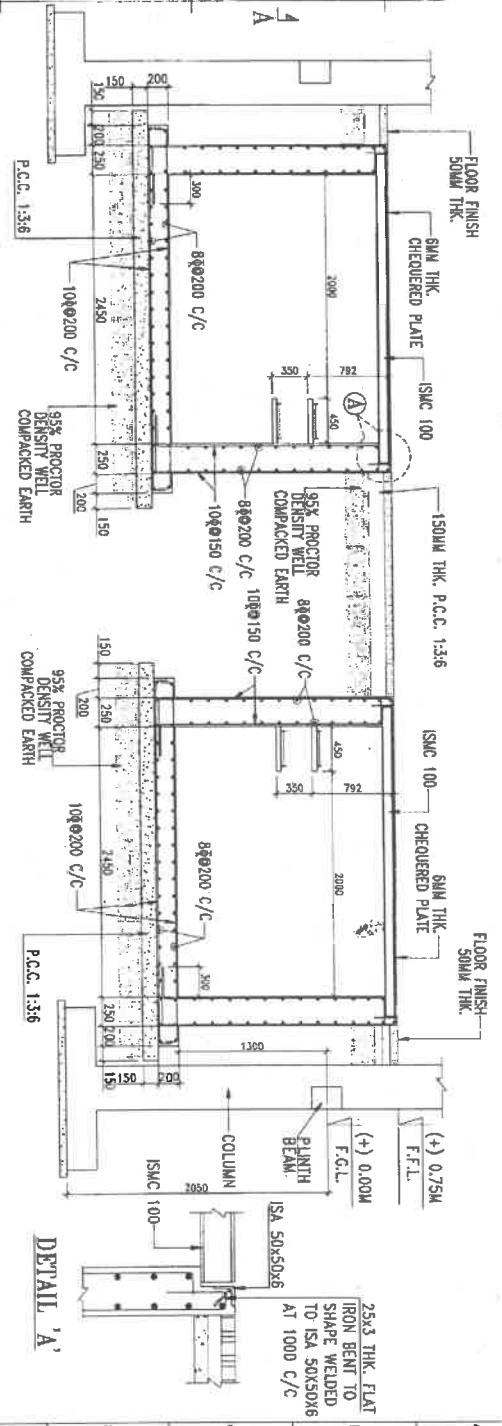
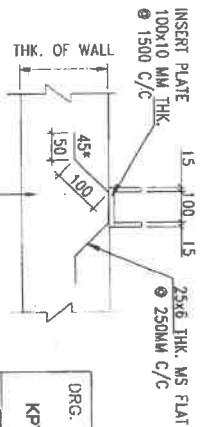


ROOF SLAB PLAN (+5.0M LVL.)

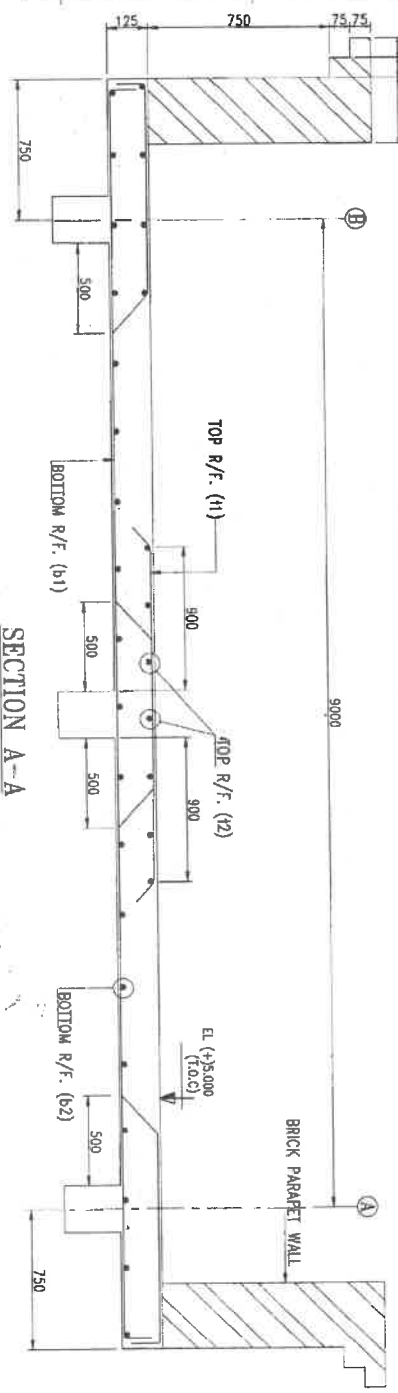
DETAILS OF CABLE TRAY



DETAILS OF INSERT PLATE



SECTION C-C



SECTION A-A

SLAB MARKED	DEPTH	SLAB REINFORCEMENT			
		SHORTER	LONGER		
SI	125	8mm 200 c/c	8mm 200 c/c	8mm 200 c/c	8mm 200 c/c

DRG. NO.: KPT/C/EE/PAC/SEC/CM/TKVSG/CIVIL/2023-24/05	DATE: 23-08-2023	TITLE: ARCHITECTURAL & STRUCTURAL DRAWINGS FOR 11KV OUT DOOR SWITCH GEAR PANEL ROOM (FOR 31.5MVA TRANSFORMER - 2NOS.) (2/C+18F+4CB+1BC)		REV. NO. 0
AEE (CIVIL)	EE (CIVIL)	SE (CIVIL)	CEE (P&C)	SHEET 6 OF 6
KARNATAKA TRANSMISSION CORPORATION LIMITED				

NOTE

1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
2. ALL STRUCTURAL CONCRETE SHALL BE OF M20 GRADE.
3. MINIMUM DEPTH OF FOUNDATION BELOW ORIGIN CL 1000 MM.
4. ALL STRUCTURAL STEEL SHALL BE OF Fe 550 GRADE.
5. CLEAR COVER TO MAIN REINFORCEMENT SHALL BE AS BELOW:

- a) FOR FOUNDATION = 50MM
 - b) FOR COLUMN = 50MM
 - c) FOR BEAM = 25MM
6. LAP LENGTH SHALL BE 57 TIMES THE DIAMETER OF BAR.
7. (4) D.O.O SHALL CORRESPONDS TO FINISH GROUND LEVEL OF SWITCHYARD.

8. JOHNSON ENDURA OR EQUIVALENT TYPE HEAT RESISTANT TILES WITH SCREED CONCRETE SHALL BE LAID ABOVE ROOF SLAB.
9. FOR BACKFILLING, GOOD GRAVEL SHALL BE USED.

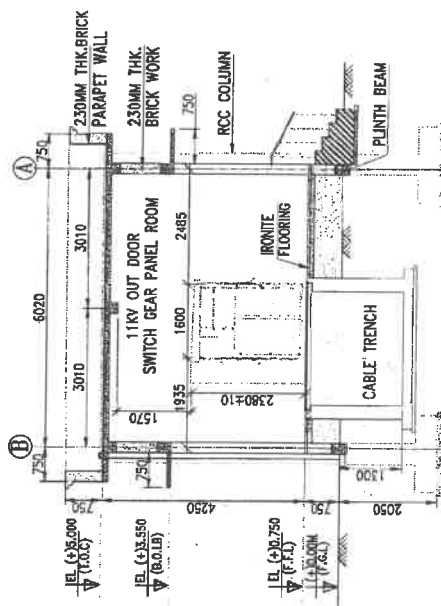
- FOUNDATIONS ARE DESIGNED CONSIDERING SBC OF 15 T/SQM. FOR BLACK COTTON SOIL, RAFT FOUNDATION ENCOMPASSING ALL THE COLUMNS NEED TO BE DESIGNED AND PROVIDED

1. RAMP/STEPS POSITIONING SHOWN ARE INDICATIVE, THE SAME SHALL BE PROVIDED AT APPROPRIATE LOCATIONS.
2. FLOORING SHALL BE IRONITE.

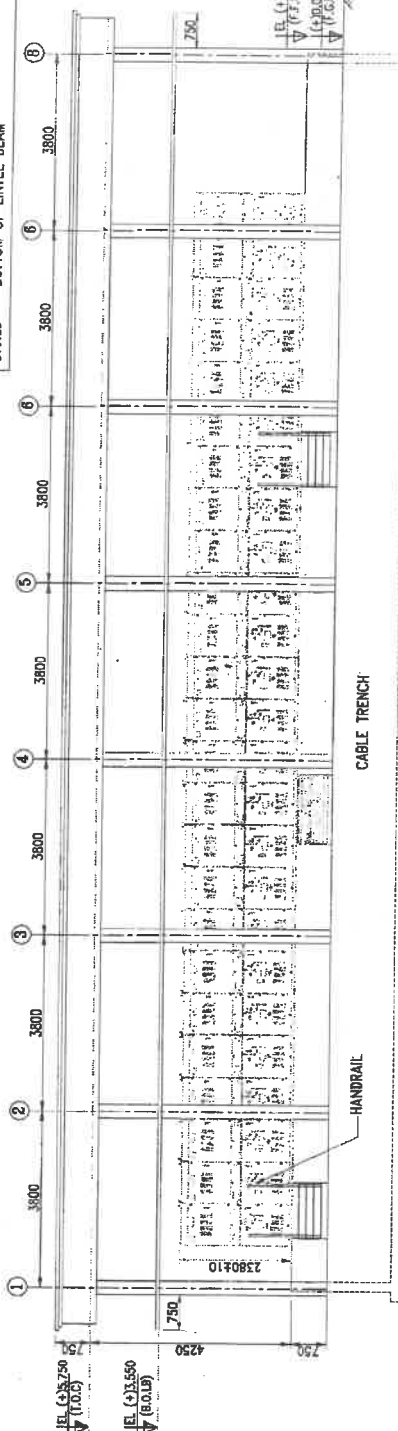
3. THE ARRANGEMENT OF SWITCHGEAR PANEL ARE INDICATIVE ONLY. THE EXACT ARRANGEMENT SHALL BE AS PER APPROVED 11KV SWITCHGEAR BOARD DRAWING.

LEGEND

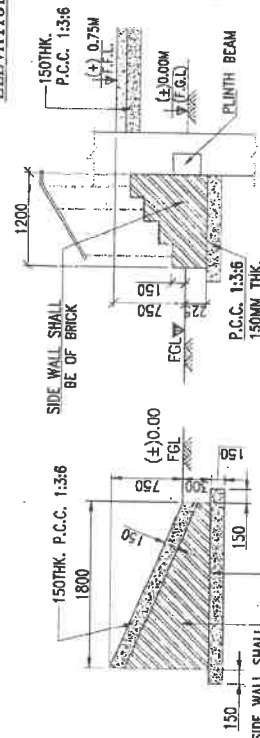
- SECOND
- | | |
|--------|-------------------------|
| F.G.L | - FINISH GROUND LEVEL |
| F.F.L | - FINISHED FLOOR LEVEL. |
| I.O.C. | - TOP OF CONCRETE |
| B.O.LB | - BOTTOM OF LINTEL BEAM |



SECTIONAL ELEVATION B-B

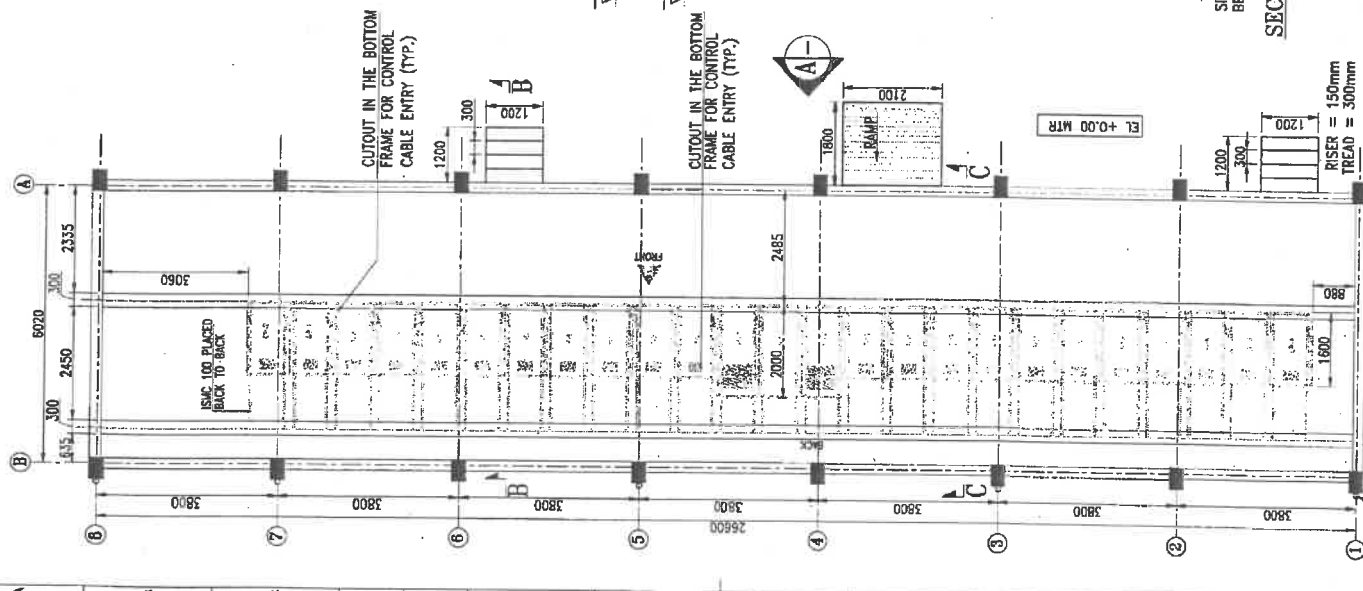


ELEVATION-A



SECTIONAL DETAILS OF STAIRCASE

SECTIONAL DETAILS OF RAMP



FLOOR PLAN

110mm ϕ
PVC PIPE (R.W.P.)

ORG. NO.:	DATE
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DRG. NO.: KPTCL/CEE(P&C)/SE(C)/11KVSG/CIVIL/2023-24/04

DATE _____

KARNATAKA TRANSMISSION CORPORATION LIMITED

TITLE

TITLE ARCHITECTURAL & STRUCTURAL DRAWINGS
FOR 11KV OUT DOOR SWITCH GEARS

EE (CIVIL)	SE (CIVIL)	CEE (P&C)
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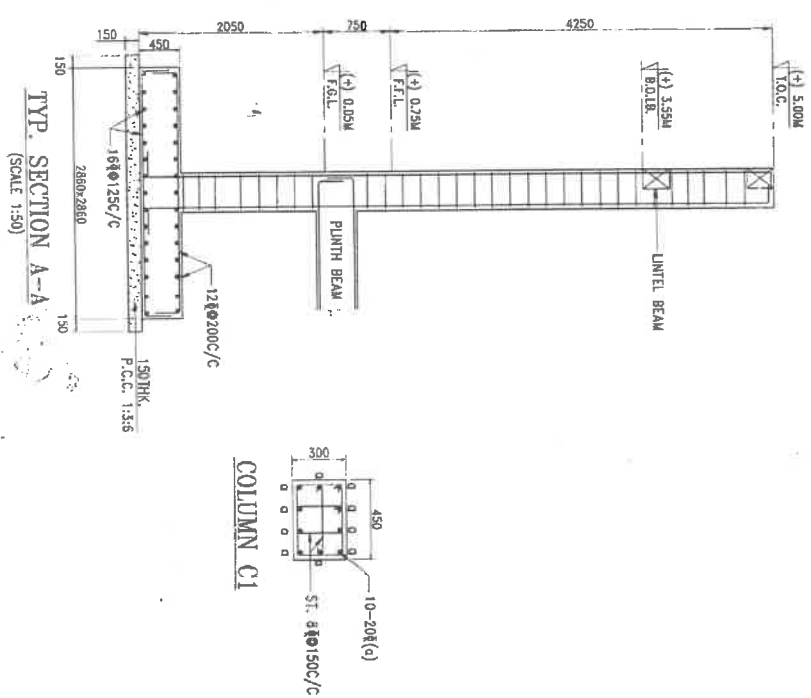
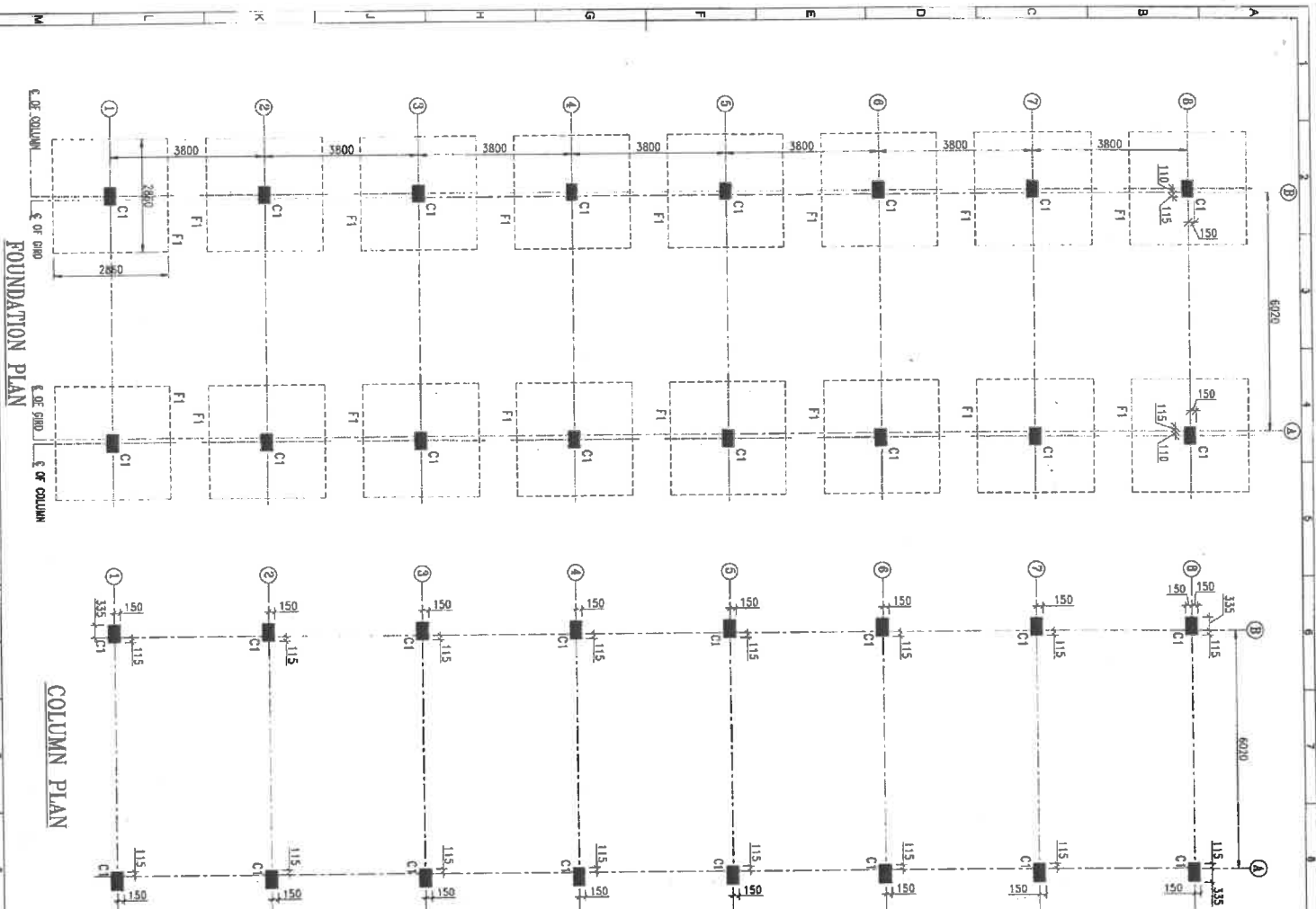
~~SECRET~~ AEE (CN)

Z

100F

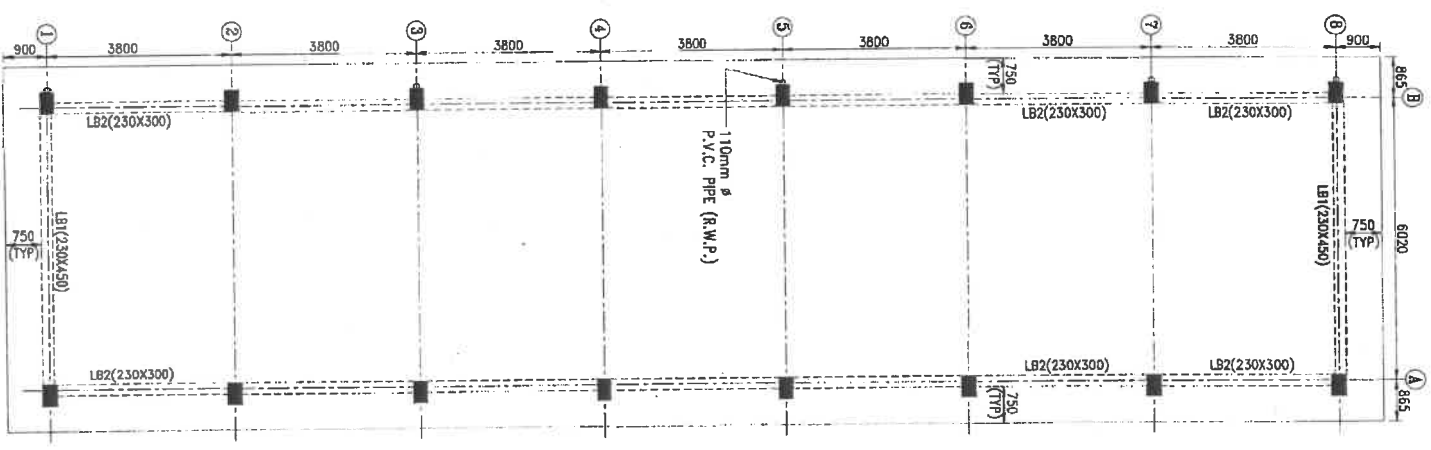
W.P.)

11
PV
M

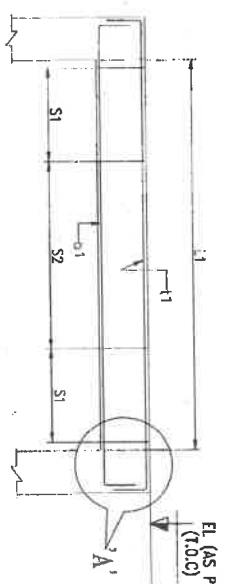


DRG. NO.:	KPTCLCEEP(AC)/SEC/11KWSG/CIVIL/2023-24/04	DATE	28-11-2023	TITLE	KARNATAKA TRANSMISSION CORPORATION LIMITED	REV NO.	0
ACE (CIVIL)	EE (CIVIL)	SE (CIVIL)	CCE (P&C)	ARCHITECTURAL & STRUCTURAL DRAWINGS	FOR 11KV OUT DOOR SWITCH GEAR PANEL ROOM	SHEET	2 OF 6
				- LAYOUT & DETAIL OF FOUNDATIONS & COLUMNS			

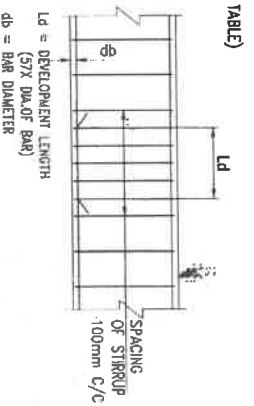
INTEL BEAM LAYOUT



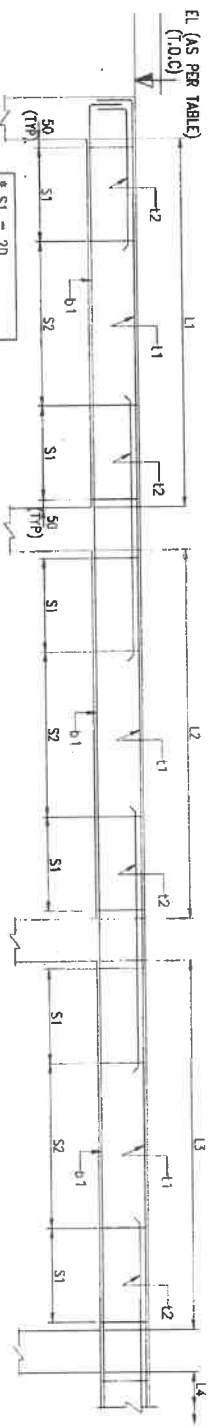
BEAM TYPE- I



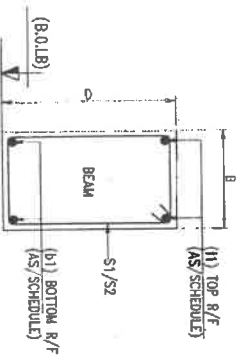
TYPICAL DETAIL OF ARRANGEMENT OF STIRRUPS AT SPICE LOCATION IN BEAM



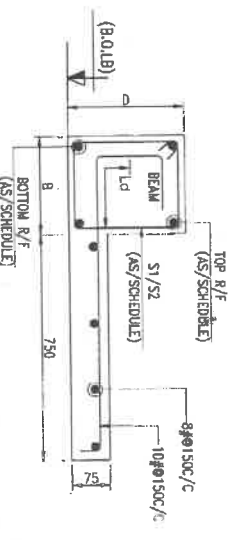
BEAM TYPE- II (MULTI SPAN BEAMS)



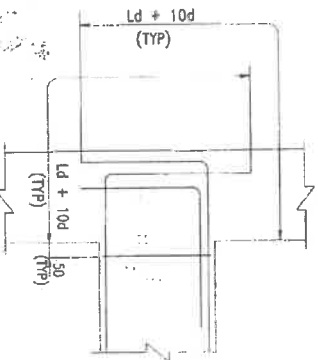
TYP. SECTION OF INTEL BEAM



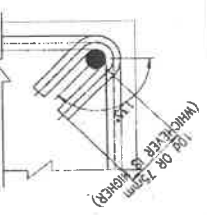
TYP. SECTION OF INTEL BEAM (WITH SUNSHADE)



TYP. DETAIL - 'A' (JUNCTION OF COLUMN & BEAM)



TYPICAL DETAIL OF STIRRUPS WITH 135° HOOK

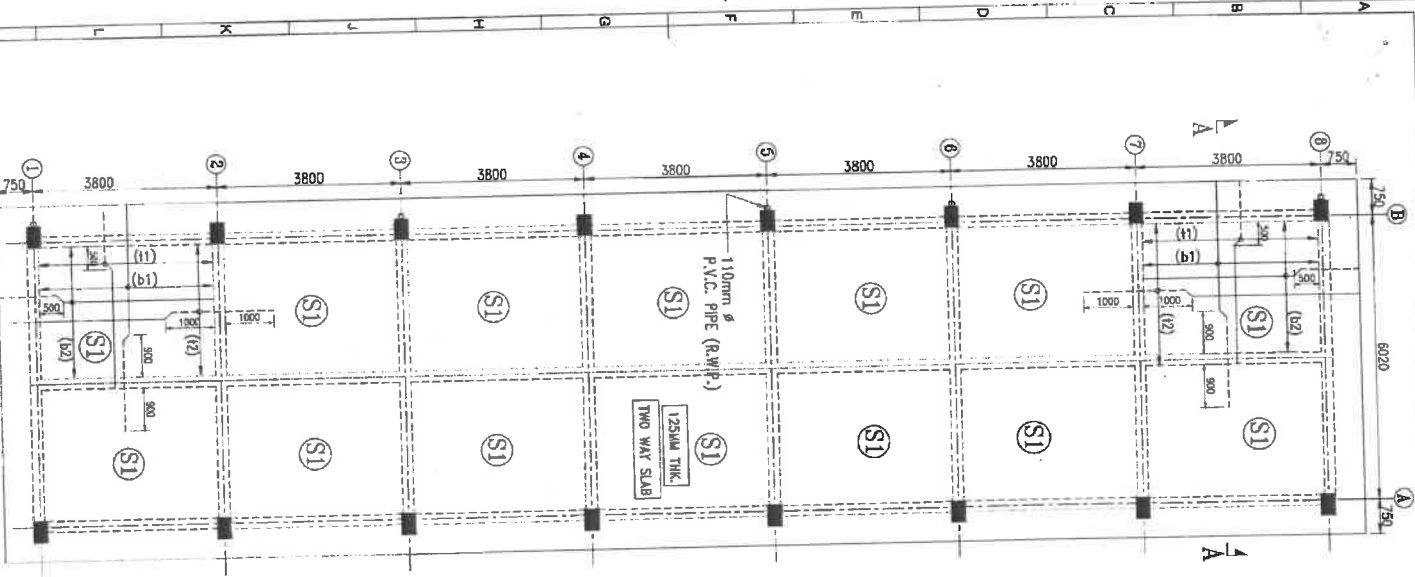


SCHEDULE OF PLINTH BEAMS									
BEAM MARKED	BEAM TYPE	SIZE		REINFORCEMENT (t)		STIRRUPS (t)		SUNSHADE DESCRIPTION	
				BOTTOM BAR	TOP BAR	2 LEGGED	LEVELS (B.O.L.B)		
		8	D	b1	t1	S1	S2		
LB1	I	230	450	2-16g	2-20g+1-12g	8g@100	8g@150	(+)-3.550M	WITH SUNSHADE
LB2	II	230	300	2-16g	2-16g	8g@100	8g@150	(+)-3.550M	WITH SUNSHADE

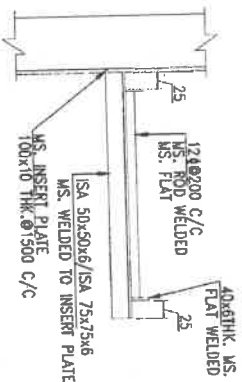
DRG. NO.:	DATE:	REV NO.:
KPTCL/CEE(P&C)/SE(C)/TKVSG/CIVIL/2023-24/04	28-11-2023	0
AEE (CML)	EE (CML)	SE (CML)
CEE (P&C)		
TITLE: ARCHITECTURAL & STRUCTURAL DRAWINGS FOR TKV OUT DOOR SWITCH GEAR PANEL ROOM (FOR 31.5MVA TRANSFORMER - 2NOS.) (20C+18F+4CB+1BC) - LAYOUT & DETAIL OF INTEL BEAMS		
KARNATAKA TRANSMISSION CORPORATION LIMITED		



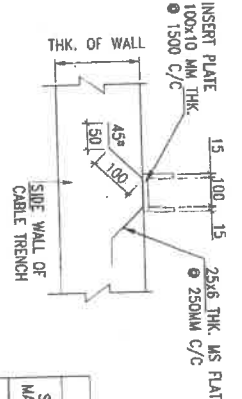
ROOF SLAB PLAN (+5.0M LVL.)



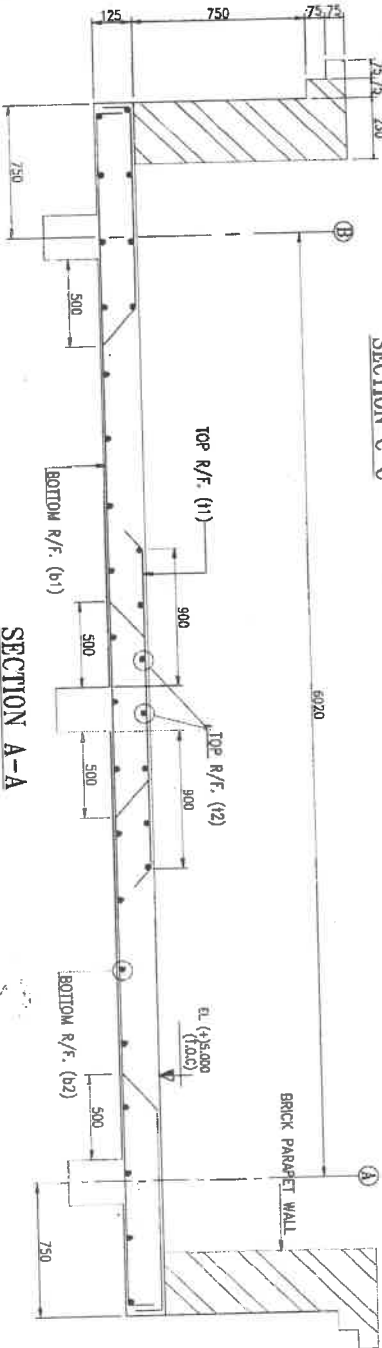
DETAILS OF CABLE TRAY



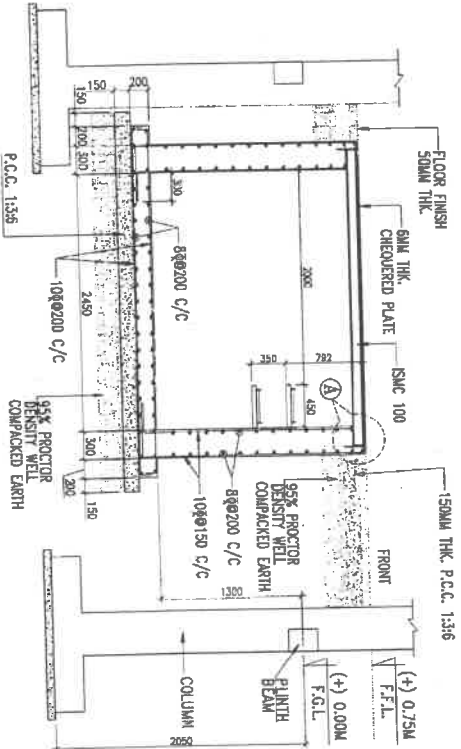
DETAILS OF INSERT PLATE



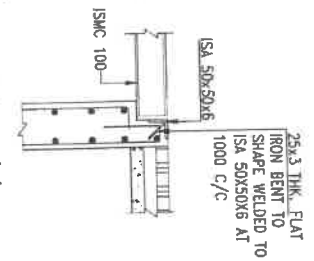
SECTION A-A



SECTION C-C



DETAIL 'A'



SLAB MARKED	DEPTH	SHORTER				LONGER			
		SPAN (b1)	SUPPORT (t1)	SPAN (b2)	SUPPORT (t2)	SPAN (b1)	SUPPORT (t1)	SPAN (b2)	SUPPORT (t2)
S1	125	8400 C/C	8400 C/C	8400 C/C	8400 C/C	8400 C/C	8400 C/C	8400 C/C	8400 C/C

DRG. NO.:

KPTOL/CEE(P&C)/SEC/TKVSG/CIVIL/2023-24/04

DATE

28-11-2023

KARNATAKA TRANSMISSION CORPORATION LIMITED

ARCHITECTURAL & STRUCTURAL DRAWINGS

FOR 11KV OUT DOOR SWITCH GEAR PANEL ROOM

(FOR 31.5MVA TRANSFORMER - 2NOS.) (21C-1BF+4CB+1BC)

-DETAIL OF ROOF SLAB & CABLE TRENCH



REV NO.

0

SHEET

6 OF 6