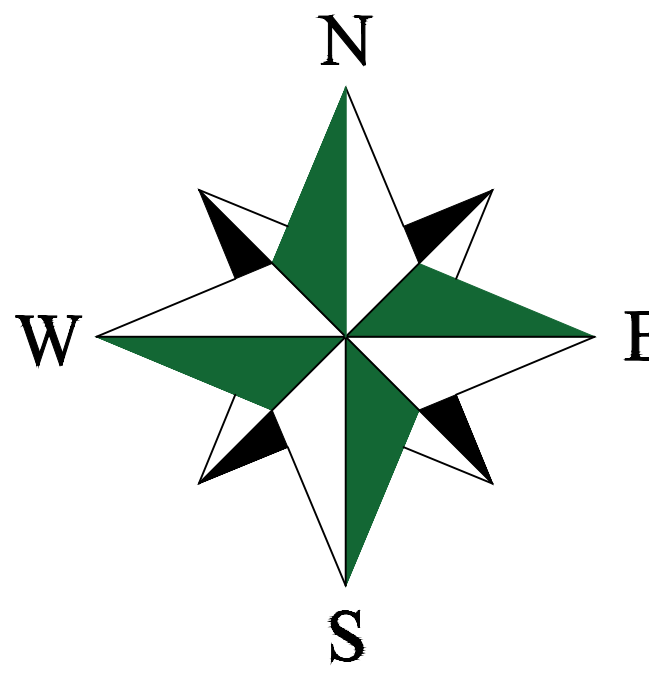
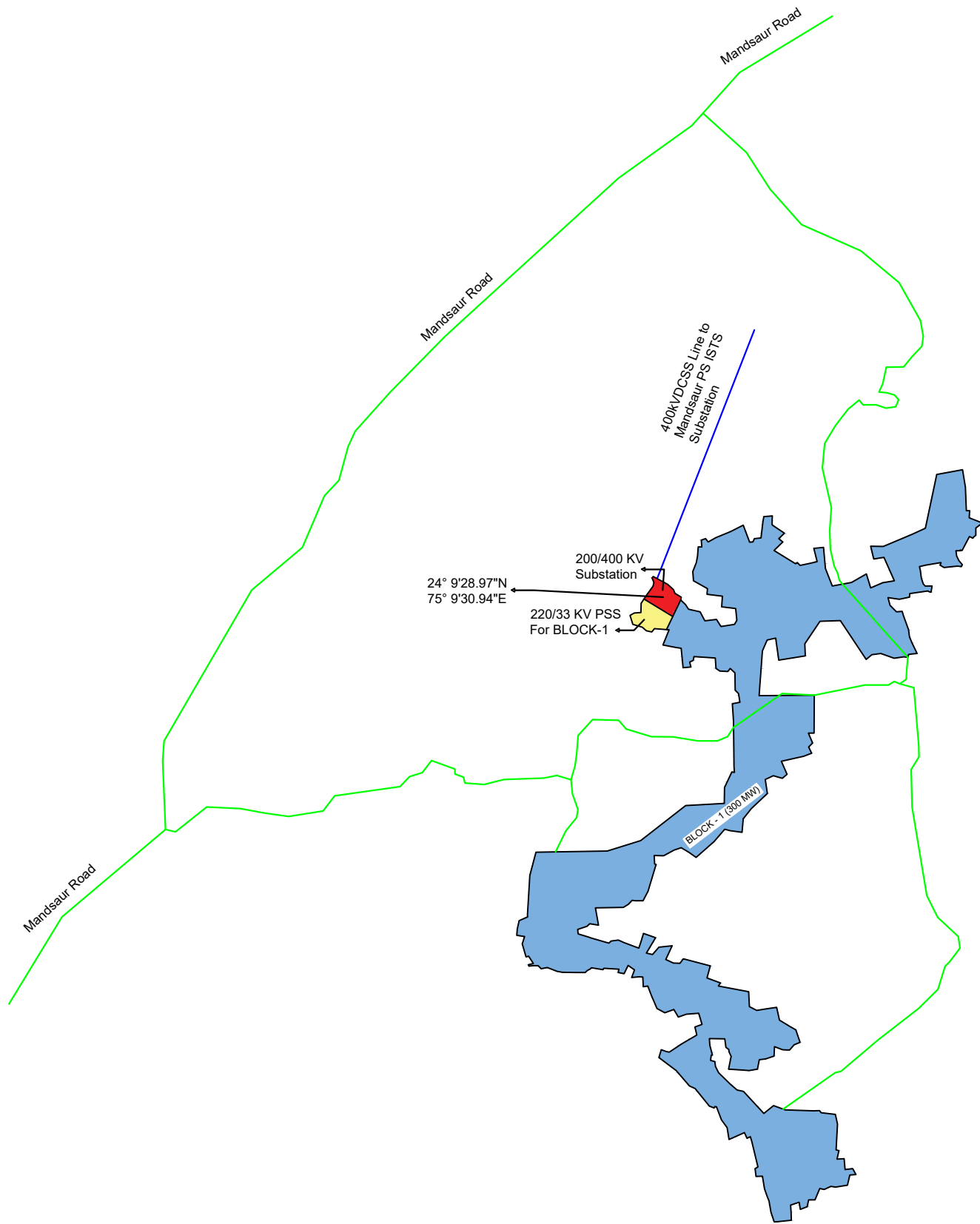


LEGEND:-

- BLOCK-1 (300 MW)
- 200/400 KV Substation
- 220/33 KV PSS For BLOCK-1
- 220kV Transmission line in scope of Owner
- Approach Roads (Existing Public Roads)



Notes:

1. General
- a)The tender drawings shall be read in conjunction with the provision of Technical Specifications.
- b)The details show in drawing are indicative and for tender purpose only.
- c)Levelling of land (wherever required) would be done in parallel by owner and same shall not be considered as prerequisite for Engg. Design, procurement and construction at site.
- d)The Boundary demarcation is for reference purpose only however the actual boundary may vary to some extent.
- e)Certain land parcels from the indicated overall layout may be excluded at a later stage.
- f)Further some existing roads/village roads may be required to be retained, accordingly same may be excluded from project layout at a later stage. However, land equivalent to a minimum of 4.75 Acres per MW of the awarded capacity shall be made available to the BOS Contractor for execution of the project.
2. Reference Data for Project Site
- a)The land provided will be free from encumbrance. However, localized levelling as per TS requirement shall be done by bidder if required.
3. Site Specific Considerations
- a)Excluded land will be provided with passage and fencing by Owner (through Land Contract) which will take place in parallel and would be completed before commissioning. However, during construction of project, any safety / protection of Owner's as well as Bidders' property / equipment / offices etc. would be Bidder's own responsibility.

b)PSS locations are tentative and there may be minor changes.

Notes for EPC Bidders:

- (i) Bidders are advised to visit site location and appraise themselves with ground conditions before bidding to avoid any gap in understanding.
- Note w.r.t Interface of Fencing
- Fencing around main boundary of overall 300MW Solar Block and the fencing required to isolate the local routes/ roads / unacquired land parcels/ passages passing inside the Project Boundary is owner's scope. However, the same shall not be considered a pre-requisite for solar project construction. Bidder to take necessary measures like temporary fencing, guards, etc. for security and safety of their respective block at their own expenses

Notes for EPC Bidders :

1. PSS locations are tentative and there may be minor changes.
2. Bidders are advised to visit site location and appraise themselves with ground issues before bidding to avoid any gap in understanding.
3. Land boundary of the blocks shown is tentative. There may be Minor changes in the layout without significantly effecting the total quantum of land and other technical considerations.

Note w.r.t Interface of Fencing

1. Fencing around Main Boundary of overall 300MW Project Block and the fencing required to isolate the local routes/roads/ unaquired land parcels passing inside the Project Boundary is in Land Vendor Scope. However, the same shall not be considered a pre-requisite for solar project construction. Bidder to take necessary measures like temporary fencing, guards, etc. for security and safety of their respective block at their own expenses.

Minor adjustment in land boundary across 300MW Block, to accommodate the overall array layout would be permitted subject to mutual agreement and approvals, if required.

\*Coordinates are subject to minor variations pending precise ground assessment, reflecting technical adjustments based on actual field conditions.

PREPARED BY	CHECKED BY		APPROVED BY	DATE
AK	CIVIL	ELE.	RRM	26.03.2026
	SKR	RR		

PROJECT NAME:

EPC PACKAGE FOR DEVELOPMENT OF 900MW (3x300MW) GRID CONNECTED SOLAR PV PROJECTS AT MANDSAUR, MADHYA PRADESH

DRAWING NAME:

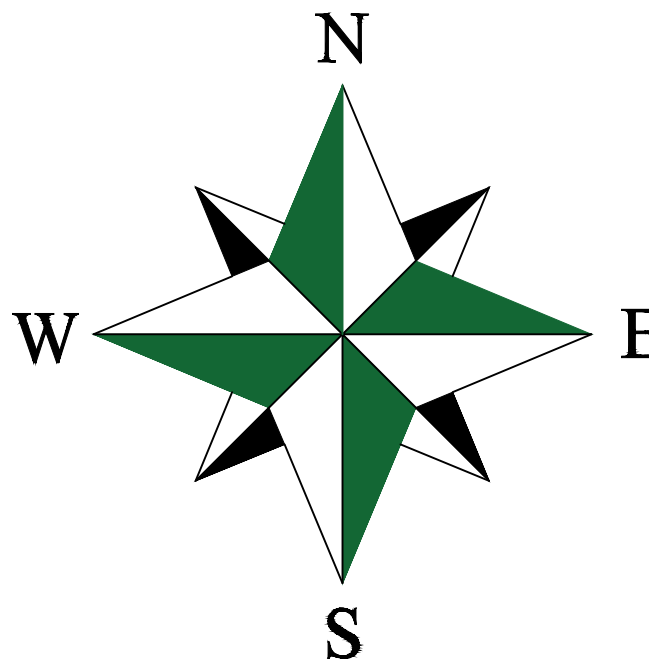
Vicinity Map and Block Layout

SIZE	SCALE	DRG. NO.	
A0	NTS	5816-004(EPC)-POE-A-001/1	R0



LEGEND:-

- BLOCK-2 (300 MW)
- BLOCK-3 (300 MW)
- PSS FOR BLOCK-2
- PSS FOR BLOCK-3
- 220kV Transmission line in scope of Owner
- Approach Roads (Existing Public Roads)
- 220kV Transmission Corridor



Notes:

1. General
- a)The tender drawings shall be read in conjunction with the provision of Technical Specifications.
- b)The details show in drawing are indicative and for tender purpose only.
- c)Levelling of land (wherever required) would be done in parallel by owner and same shall not be considered as prerequisite for Engg. Design, procurement and construction at site.
- d)The Boundary demarcation is for reference purpose only however the actual boundary may vary to some extent.
- e)Certain land parcels from the indicated overall layout may be excluded at a later stage.
- f)Further some existing roads/village roads may be required to be retained, accordingly same may be excluded from project layout at a later stage. However, land equivalent to a minimum of 4.75 Acres per MW of the awarded capacity shall be made available to the BOS Contractor for execution of the project.
2. Reference Data for Project Site
- a)The land provided will be free from encumbrance. However, localized levelling as per TS requirement shall be done by bidder if required.
3. Site Specific Considerations
- a)Excluded land will be provided with passage and fencing by Owner (through Land Contract) which will take place in parallel and would be completed before commissioning. However, during construction of project, any safety / protection of Owner's as well as Bidders' property / equipment / offices etc. would be Bidder's own responsibility.
- b) PSS locations are tentative and there may be minor changes.
- c) Crossing of cables is permitted through the transmission corridor within block boundary. The locations for cable crossings shall be decided during detailed engineering.

Notes for EPC Bidders:

i) Bidders are advised to visit site location and appraise themselves with ground conditions before bidding to avoid any gap in understanding.

Note w.r.t Interface of Fencing

Fencing around main boundary of overall 300MW+300MW Solar Park and the fencing required to isolate the local routes/ roads / unacquired land parcels/ passages passing inside the Project Boundary is owner's scope. However, the same shall not be considered a pre-requisite for solar project construction. Bidder to take necessary measures like temporary fencing, guards, etc. for security and safety of their respective block at their own expenses

Notes for EPC Bidders :

1. PSS locations are tentative and there may be minor changes.
2. Bidders are advised to visit site location and appraise themselves with ground issues before bidding to avoid any gap in understanding.
3. Land boundary of the blocks shown is tentative. There may be Minor changes in the layout without significantly effecting the total quantum of land and other technical considerations.

Note w.r.t Interface of Fencing

1. Fencing around Main Boundary of overall 300MW+300MW Solar Park and the fencing required to isolate the local routes/roads/ unaquired land parcels passing inside the Project Boundary is in Land Vendor Scope. However, the same shall not be considered a pre-requisite for solar project construction. Bidder to take necessary measures like temporary fencing, guards, etc. for security and safety of their respective block at their own expenses.

Minor adjustment in land boundary across 300MW+300MW Block, to accommodate the overall array layout would be permitted subject to mutual agreement and approvals, if required.

\*Coordinates are subject to minor variations pending precise ground assessment, reflecting technical adjustments based on actual field conditions.

PREPARED BY	CHECKED BY		APPROVED BY	DATE
AK	CIVIL	ELE.	RRM	26.03.2026
	SKR	RR		

PROJECT NAME:

EPC PACKAGE FOR DEVELOPMENT OF 900MW (3x300MW) GRID CONNECTED SOLAR PV PROJECTS AT MANDSAUR, MADHYA PRADESH

DRAWING NAME:

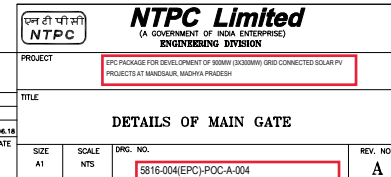
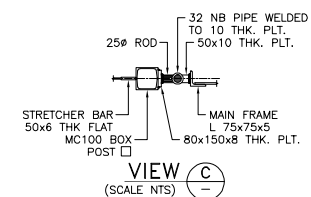
Vicinity Map and Block Layout

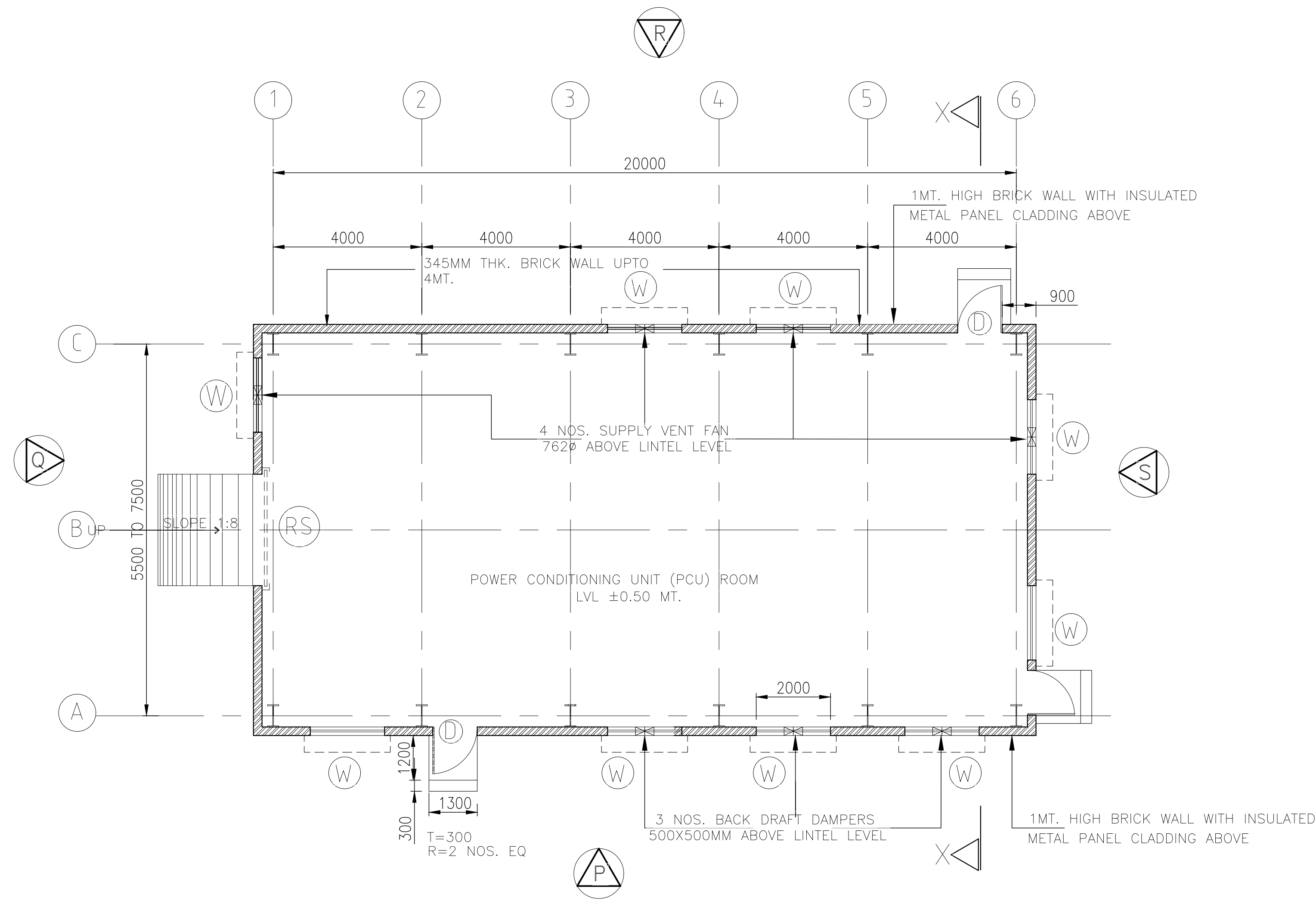
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A0	NTS	5816-004(EPC)-POE-A-001/2	R0



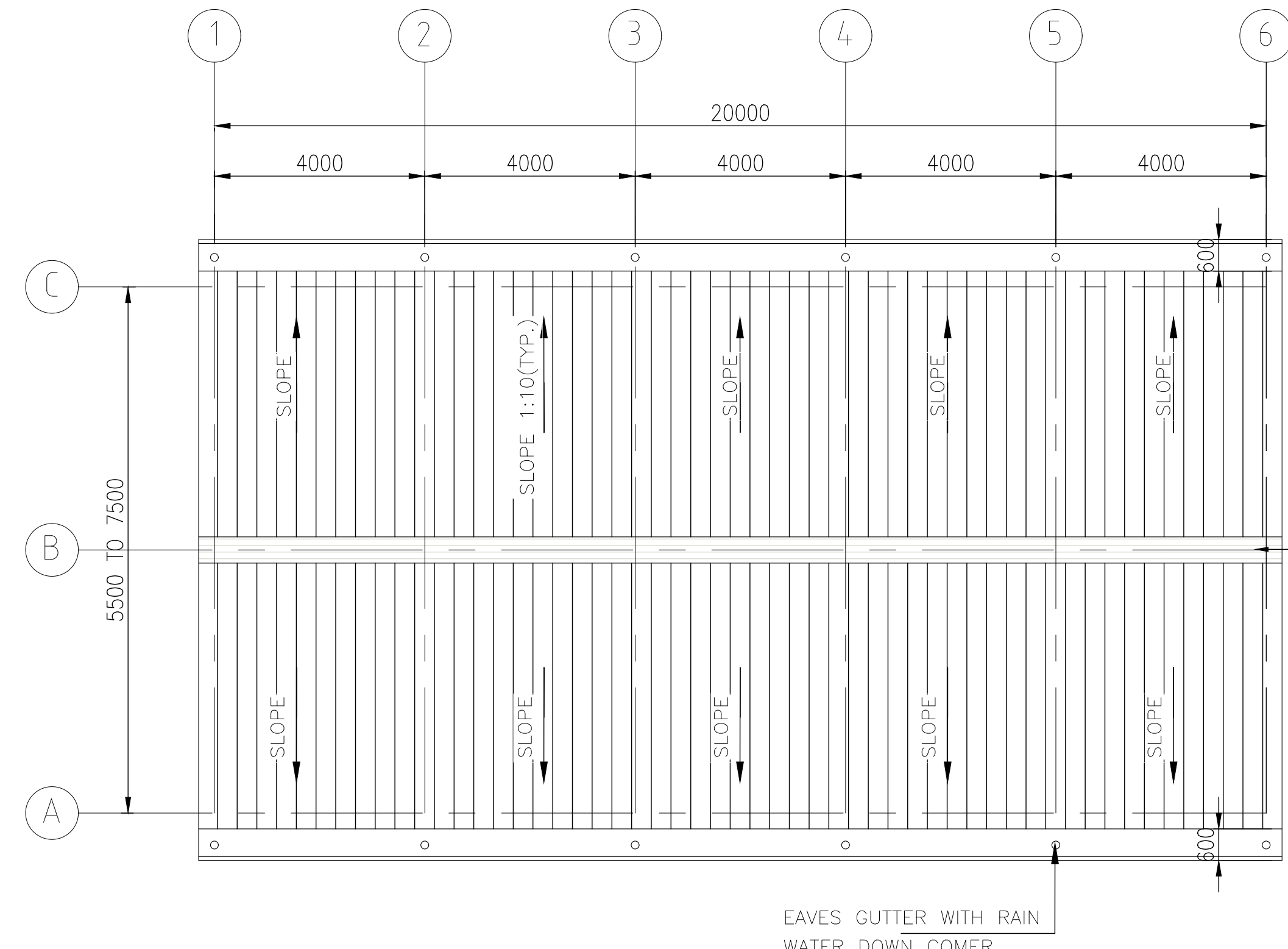








PLAN AT ± 0.0 MTS. LVL.

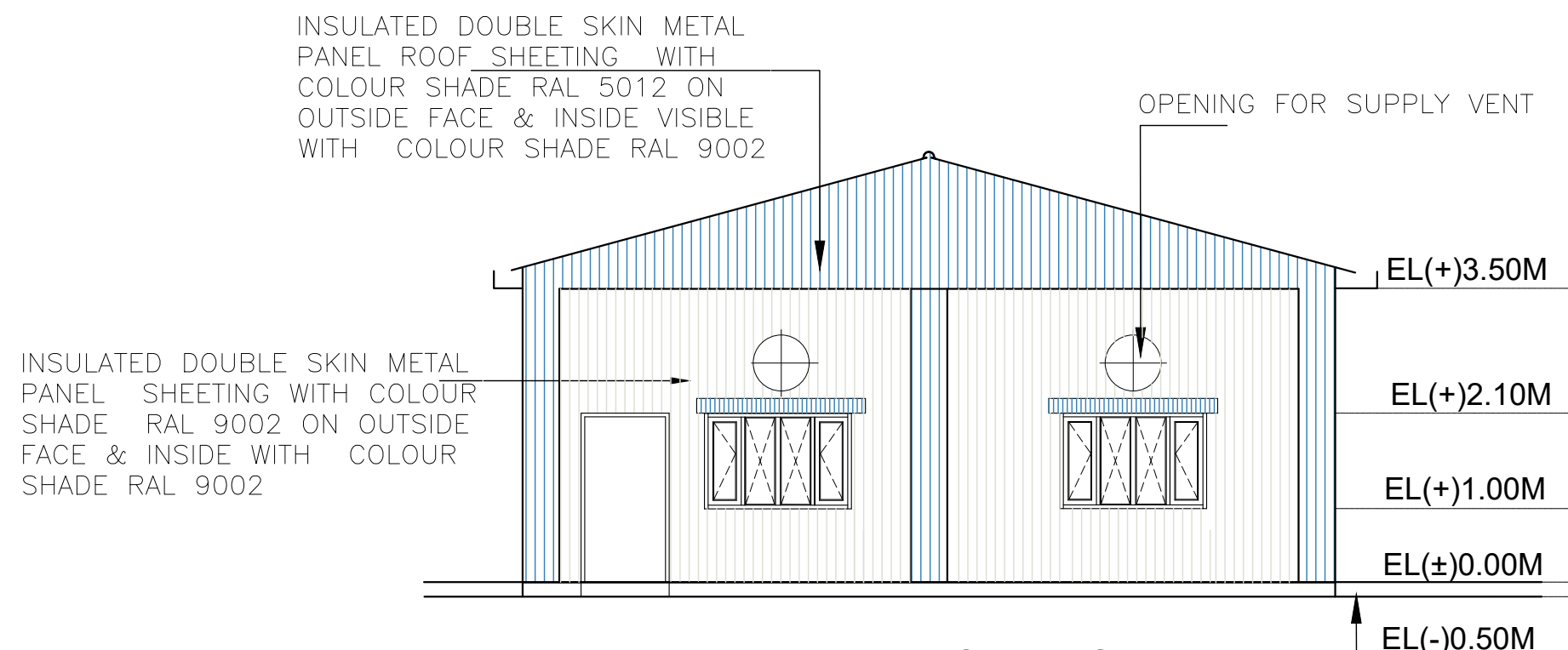


ROOF PLAN

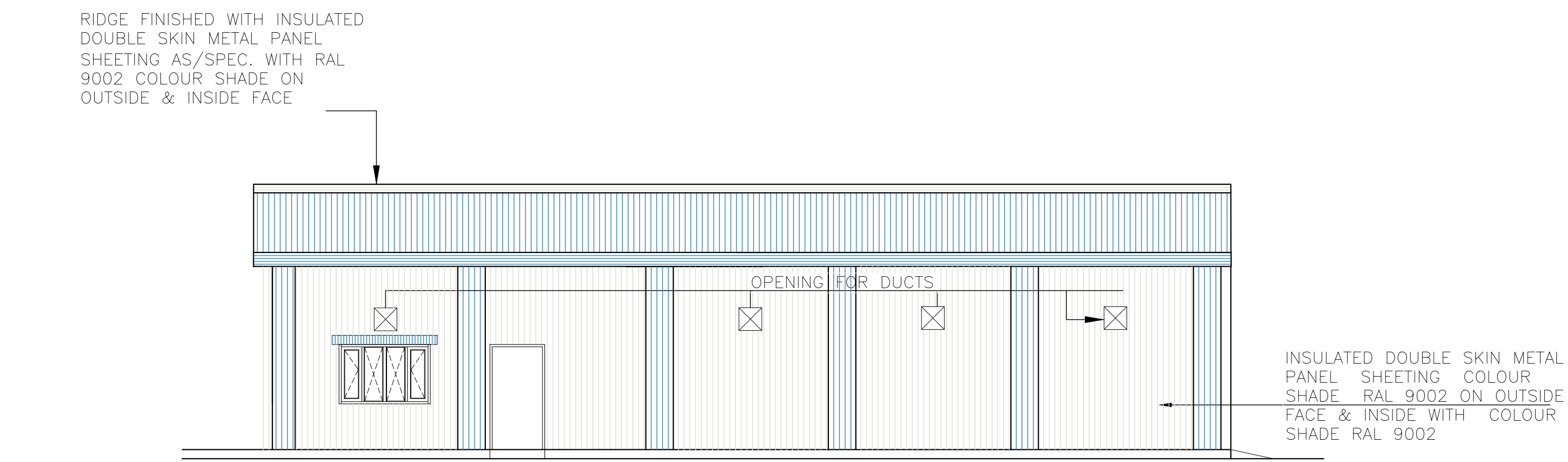
INSULATED DOUBLE SKIN METAL PANEL ROOF SHEETING WITH COLOUR SHADE RAL 5012 ON OUTSIDE FACE & INSIDE VISIBLE WITH COLOUR SHADE RAL 9002

RIDGE FINISHED WITH INSULATED DOUBLE SKIN METAL PANEL SHEETING AS/SPEC. WITH RAL 9002 COLOUR SHADE ON OUTSIDE & INSIDE FACE

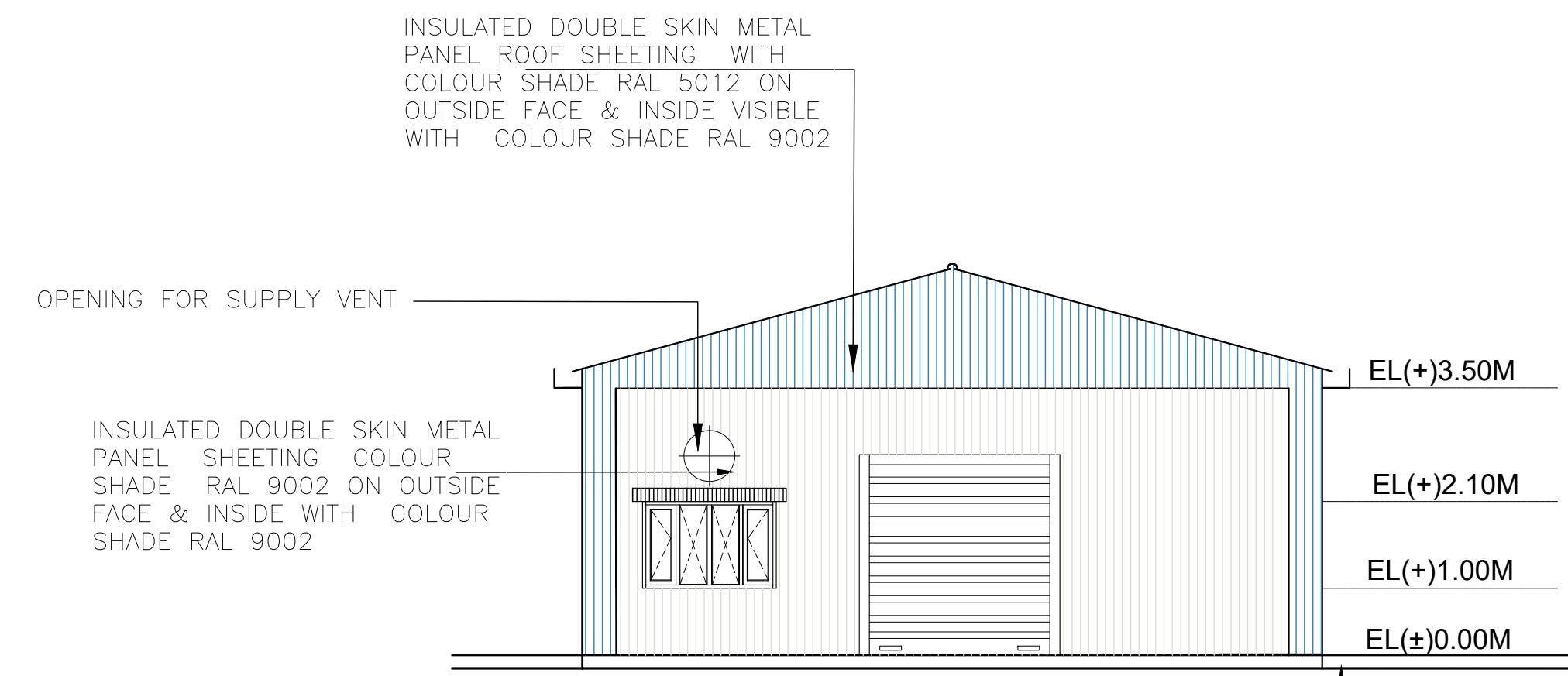
EAVES GUTTER WITH RAIN WATER DOWN COVER



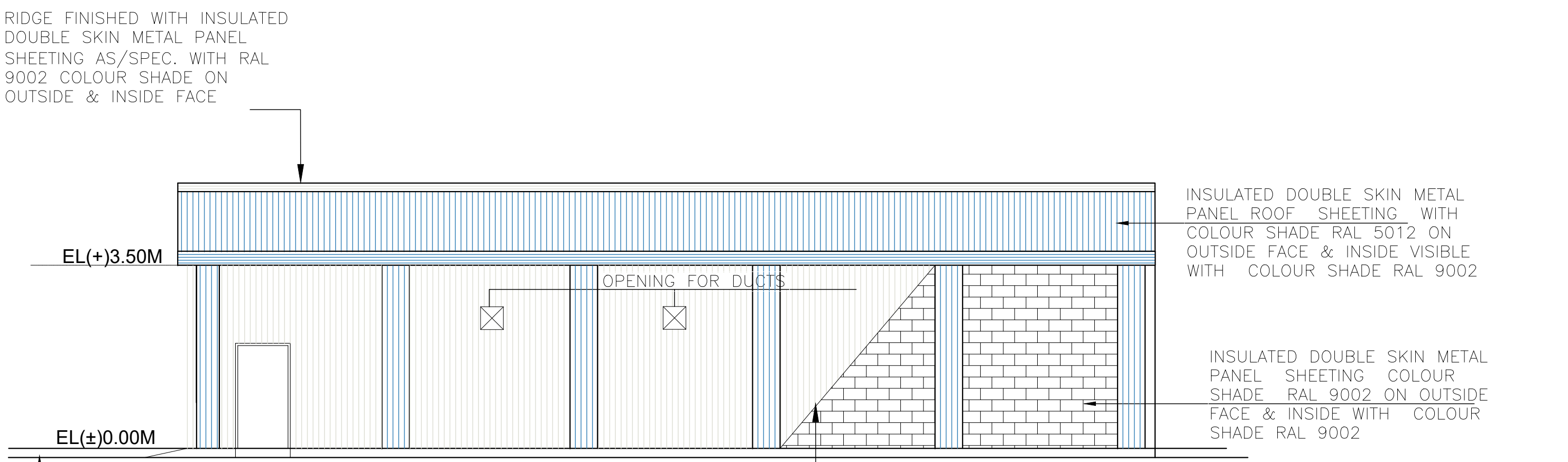
ELEVATION AT S



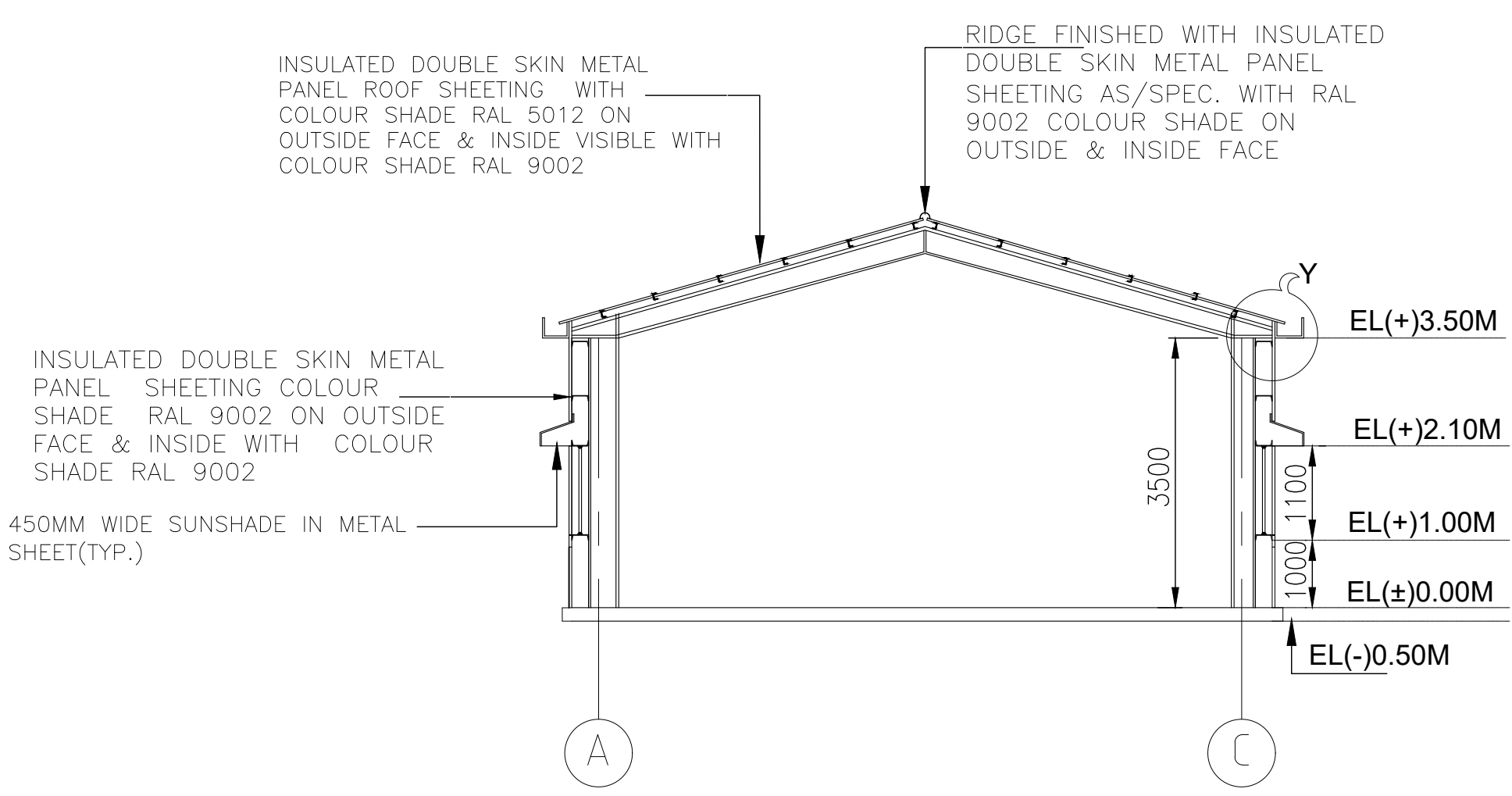
ELEVATION AT P



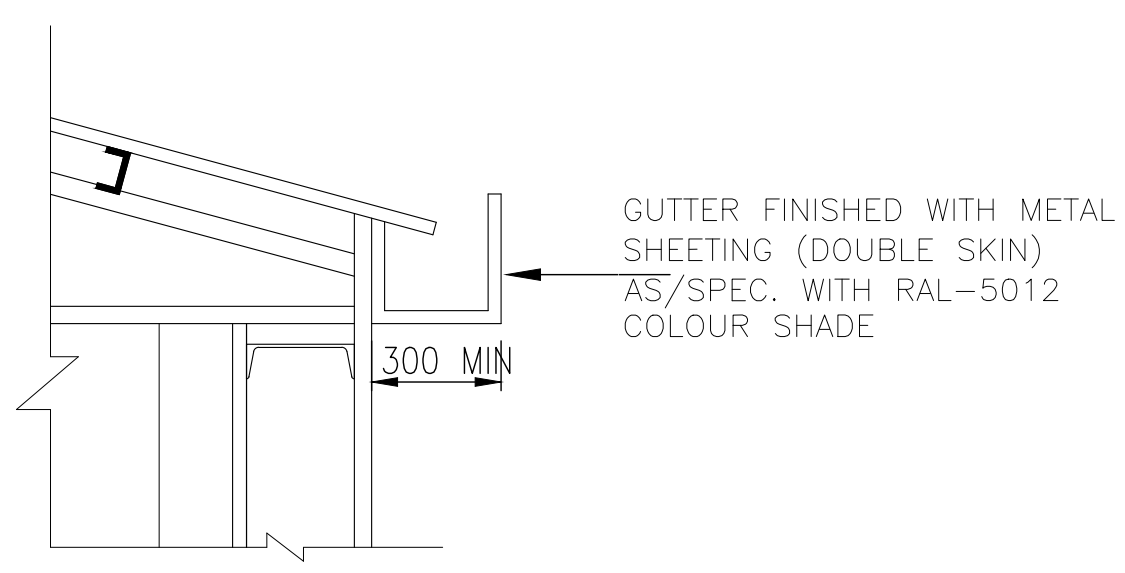
ELEVATION AT Q



ELEVATION AT R



SECTION AT X-X



DETAIL AT Y

NOTES:-

1. ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METERS.
2. DRAWING SHALL NOT BE SCALED ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. ANY DOUBT OR DISCREPANCY IN THE DRAWING SHALL BE BROUGHT TO THE NOTICE OF THE ENGINEER-IN-CHARGE BEFORE EXECUTING THE WORK.
4. WORK SHALL BE CARRIED OUT BASED ON DETAIL WORKING DRAWINGS TO BE PREPARED BY THE VENDOR & GOT APPROVED FROM NTPC, BEFORE EXECUTION.
5. OPENING FOR ROLLING SHUTTER, DUCTS AND VENTILATOR'S SHALL BE AS PER INVERTER (PCU) MANUFACTURER RECOMMENDATIONS AND VENDOR DESIGN SUBJECT ON NTPC APPROVAL.
6. LOCATIONS OF DOOR, ROLLING SHUTTER, WINDOWS, VENTS & DUCTS ARE INDICATIVE ONLY. VENTILATION AND DUCTS SHALL BE DESIGN CONSIDERING HEAT CALCULATION OF PEB ROOM.
7. REFER TECHNICAL SPECIFICATION FOR PEB-INVERTER ROOM IN CIVIL WORKS.

DOOR/ROLLING SHUTTER/WINDOWS/VENTS/DUCTS				
TYPE	SIZE	CILL LVL.	LINTEL LVL.	DESCRIPTION
D	1200X2100	0.00	2100	
RS	REFER NOTE 5 & 6	0.00	H	
WINDOWS VENTILATORS DUCTS	REFER NOTE 5 AND 6.			

FOR TENDER PURPOSE ONLY



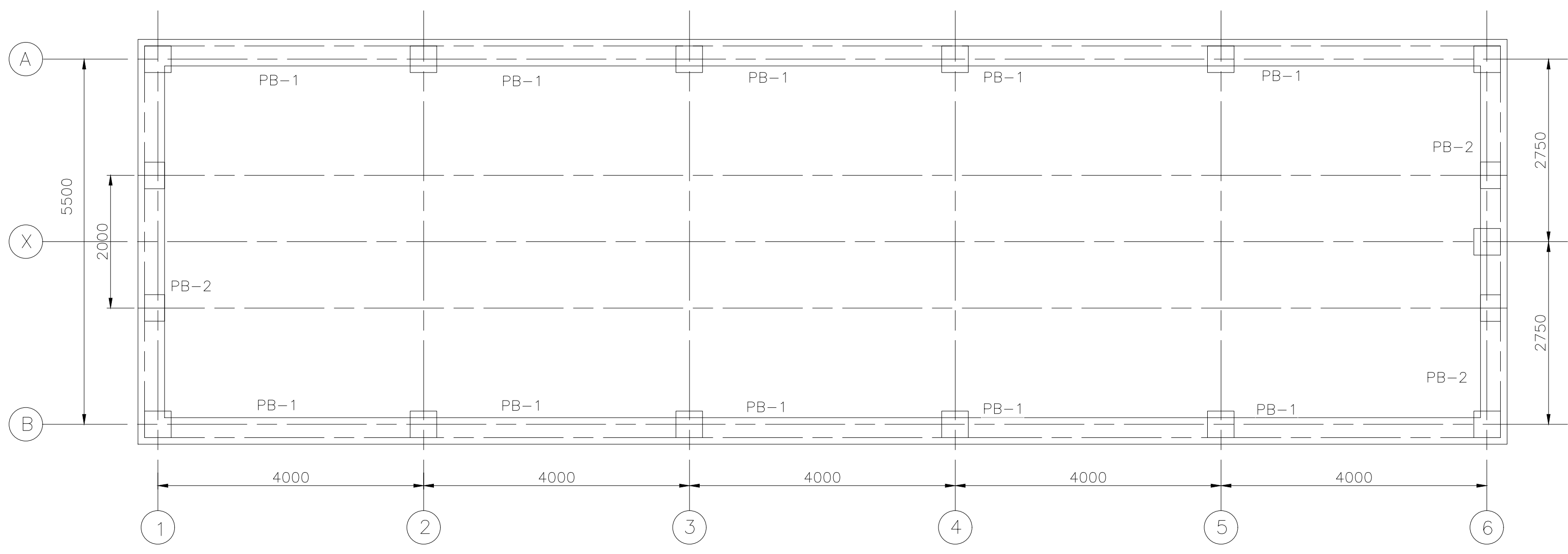
एन टी पी सी नवीकरणीय ऊर्जा लिमिटेड  
**NTPC Renewable Energy Limited**  
(A wholly Owned Subsidiary of NTPC Limited)

PROJECT **EPC PACKAGE FOR DEVELOPMENT OF 900MW (3X300MW) GRID CONNECTED SOLAR PV PROJECTS AT MANDSAUR, MADHYA PRADESH**

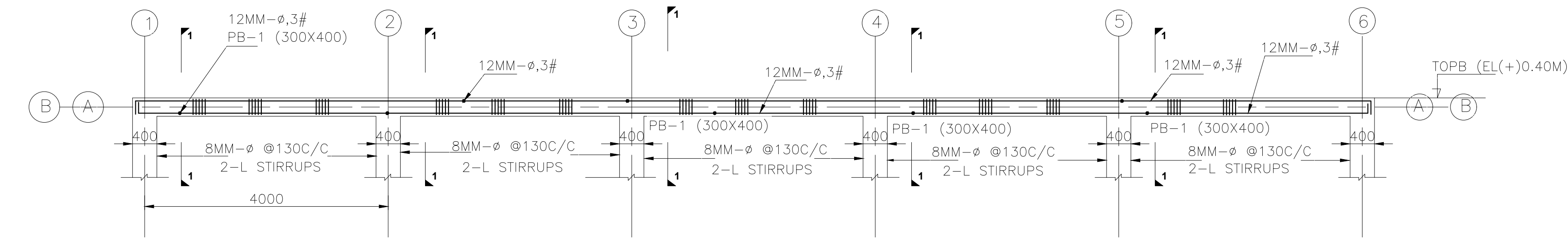
TITLE **PEB INVERTOR ROOM**

PREPARED BY	CHECKED BY	APPROVED BY	DATE	SIZE	SCALE	DRG. NO.	REV. NO.
RAM	SG AT	RR MAURYA	03.05.2022	AO	NTS	5816-004(EPC)-POC-A-005	RA

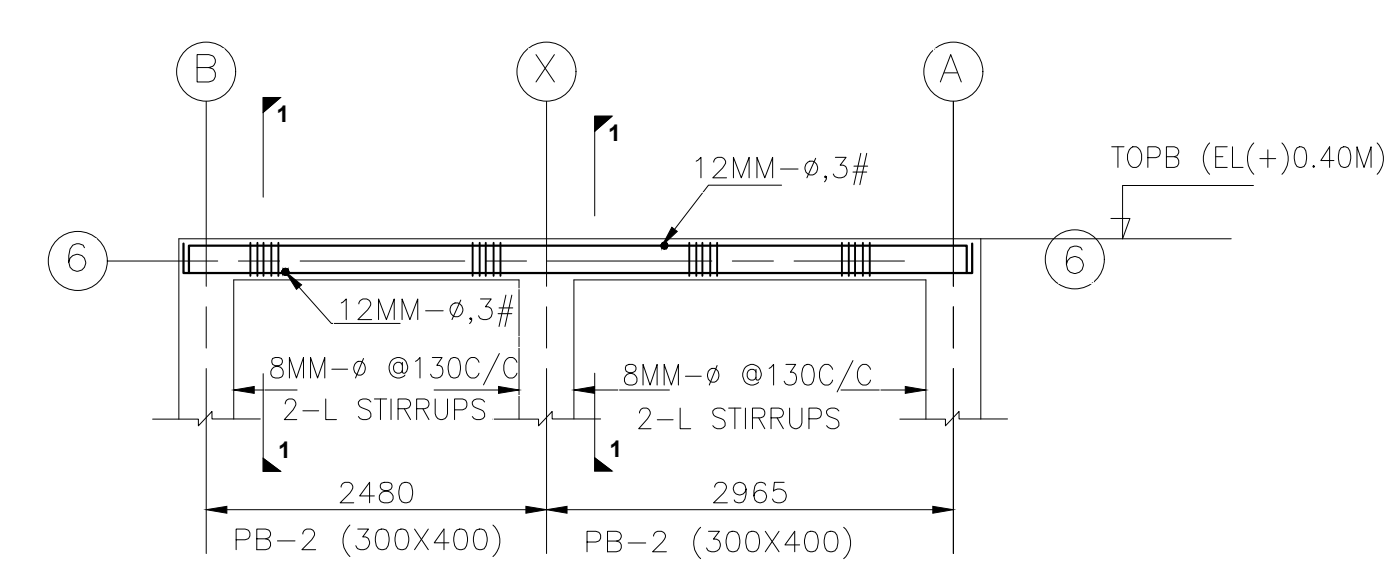
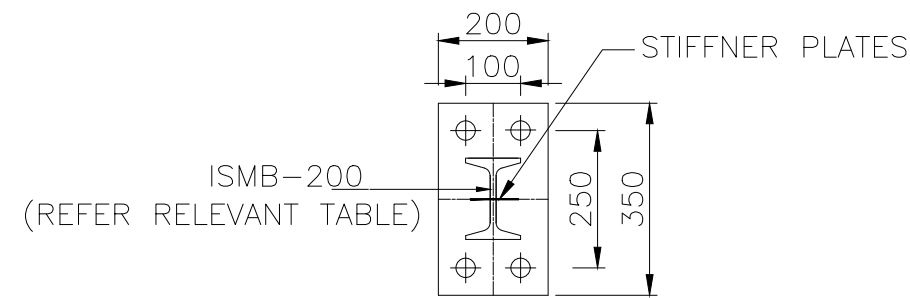
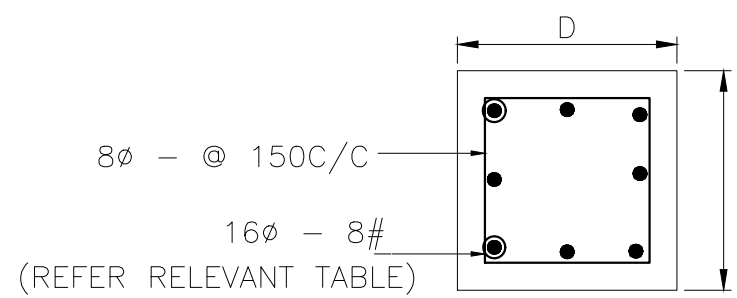
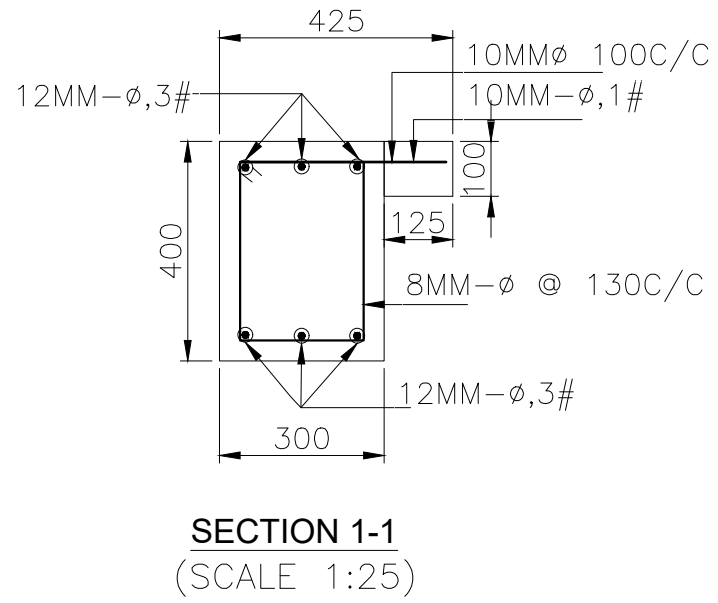
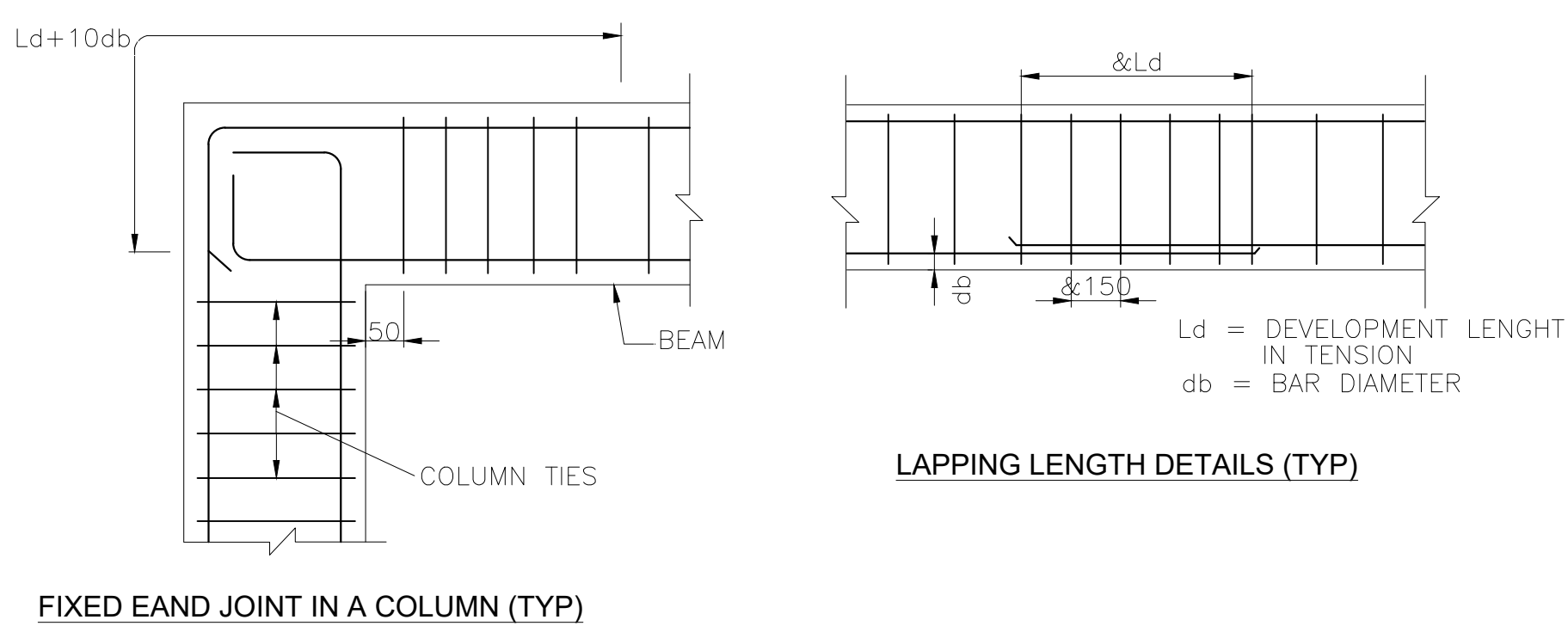




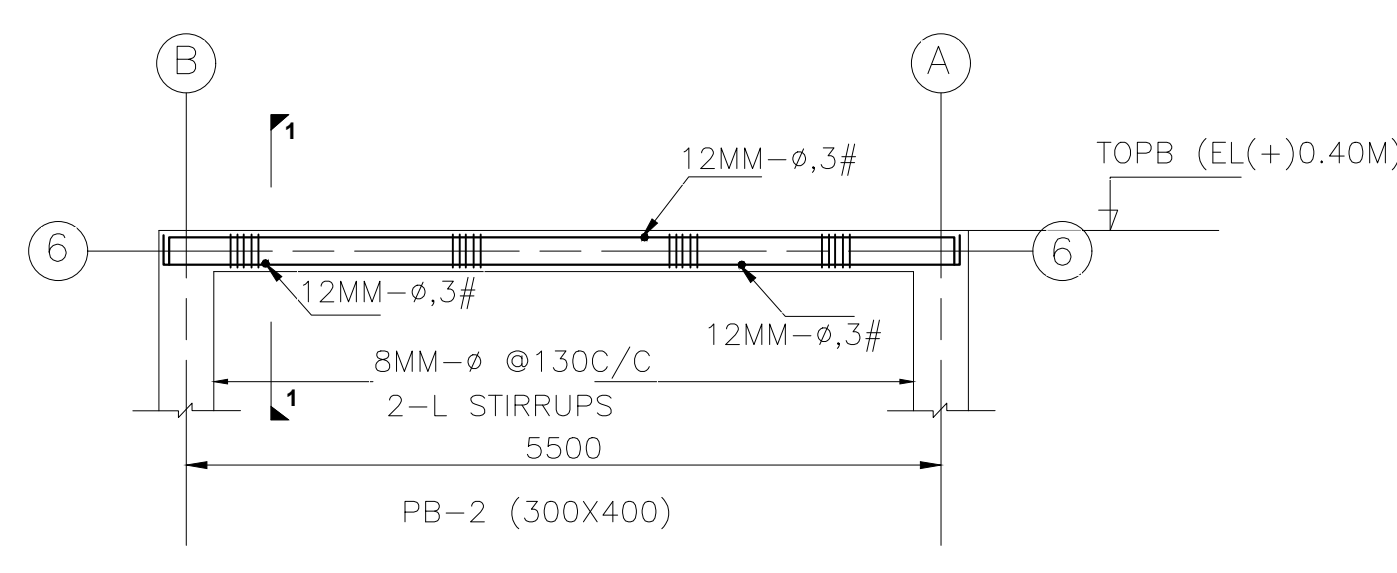
PLINTH BEAM PLAN AT ELEVATION +0.40M



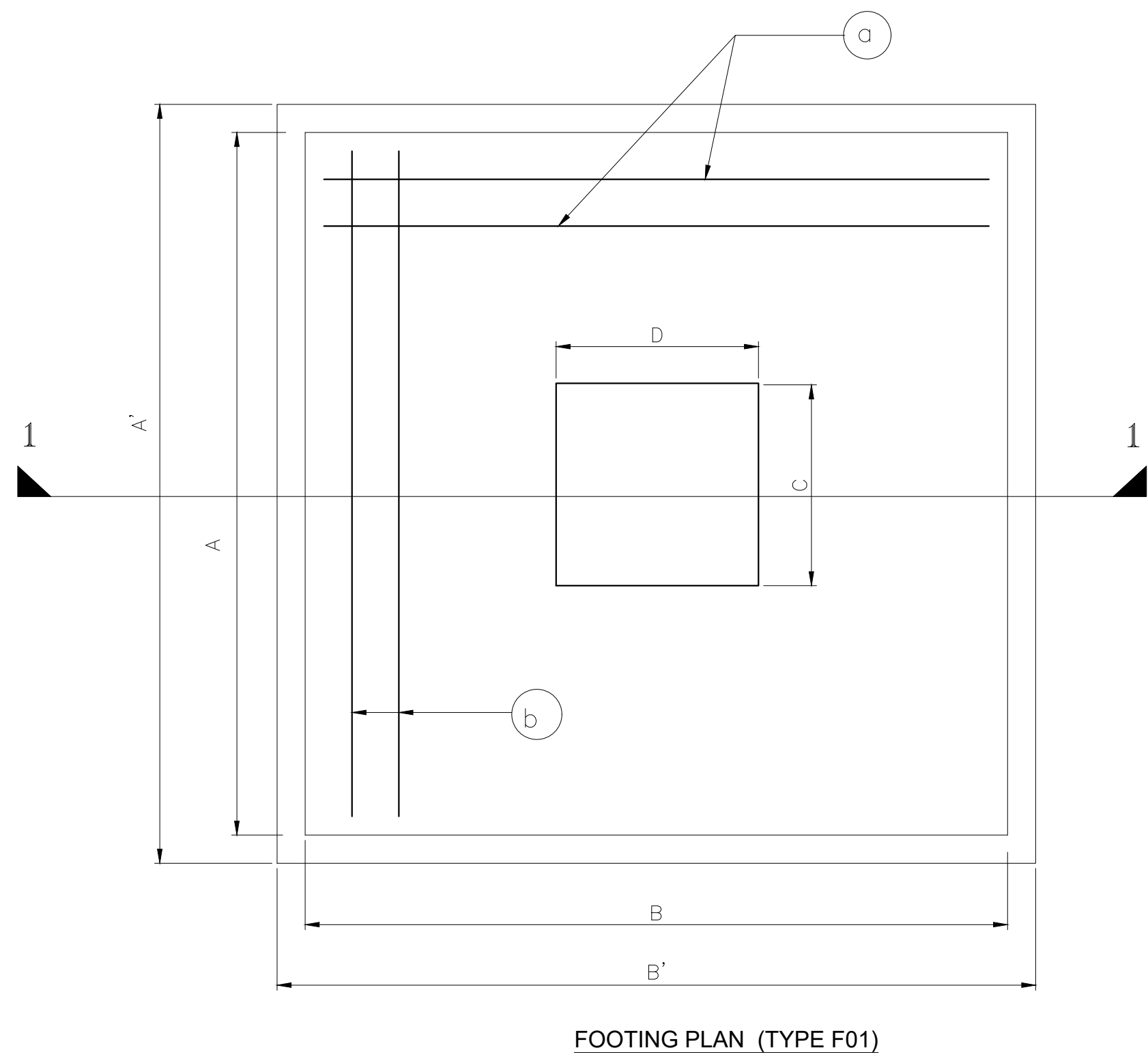
ALONG GRID A & B



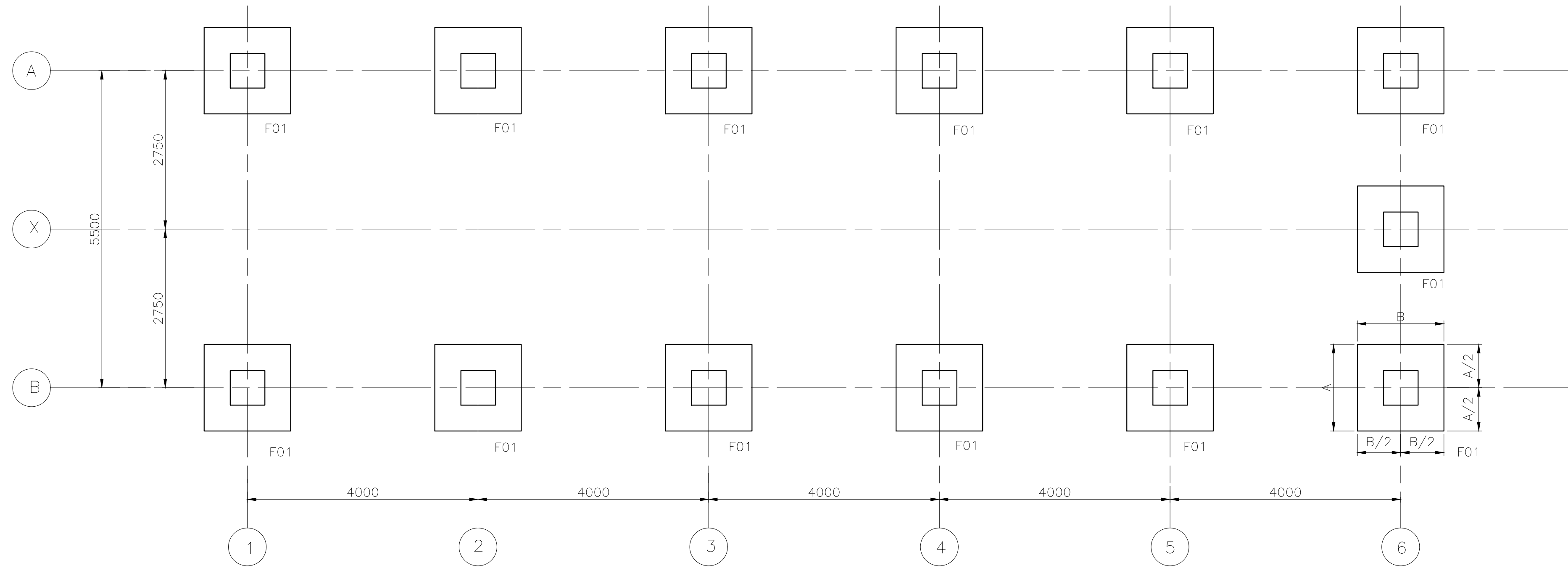
PLINTH BEAM ALONG GRID-6



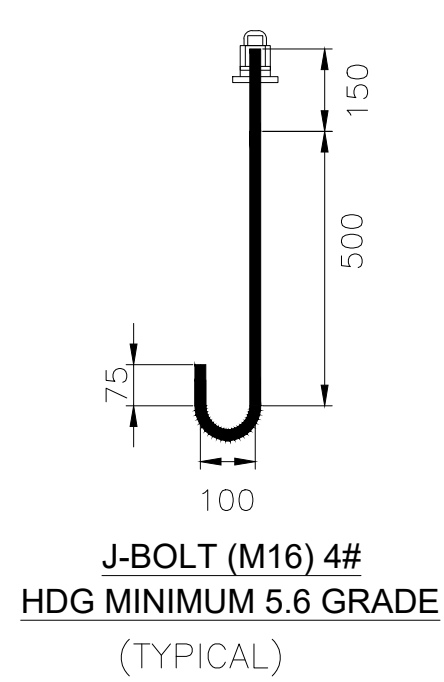
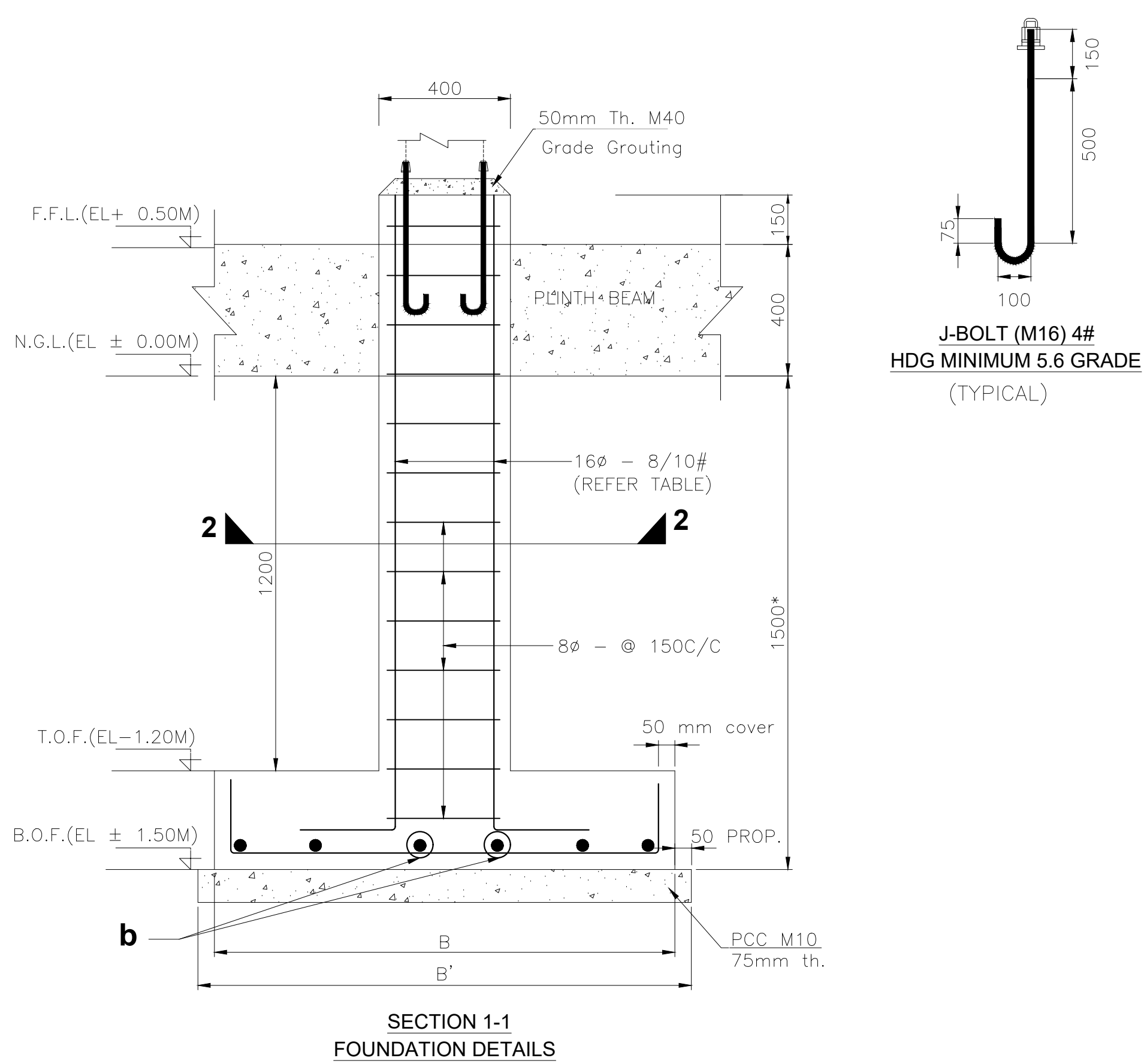
PLINTH BEAM ALONG GRID-1



FOOTING PLAN. (TYPE F01)



FOUNDATION FOR INVERTER ROOM  
AT EL. (- 1.20M )



### NOTES

- ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS OTHERWISE SPECIFIED.
- GRADE OF CONCRETE SHALL BE M-30 WITH 20mm DOWN GRADED AGGREGATES
- REINFORCEMENT SHALL BE OF HIGH YIELD STRENGTH DEFORMED BAR OF GRADE Fe500 CONFORMING TO IS:1786
- MIN CLEAR COVER TO MAIN REINFORCEMENT SHALL BE AS FOLLOWS FOOTING - 50MM, COLUMN - 50MM, PLINTH BEAM-50MM, SLAB-20MM.
- LAP LENGTH SHALL BE 50D WHERE D IS THE DIA OF THE SMALLER BAR BEING LAPPED
- LAPPING OF BARS SHALL BE SUITABLY STAGGERED AND IN NO CASE MORE THAN 50% BARS SHALL BE LAPPED AT ANY SECTION.
- ALL HOOKS, BENDS, LAPS AND SPLICES SHALL BE AS PER RELEVANT IS CODE
- BIDDER MAY CHOOSE BUILDING SPAN (C/C) FROM 5.5M TO 7.5M. FOUNDATION DETAILS HAVE BEEN MENTIONED FOR DIFFERENT RANGES OF SAFE BEARING CAPACITY (SBC). FOUNDATION COLUMN PEDESTAL, BASE PLATE, REINFORCEMENT DETAILS. SIZES ETC SHALL BE DECIDED BASED ON TABLE-1 & TABLE-2 CONSIDERING THE SBC AND C/C SPAN. IN CASE OF SBC LESS THEN 5 T/SQM, FOUNDATION SHALL BE DESIGN BY BIDDER CONSIDERING PROJECT SPECIFIC CONDITIONS AND SHALL BE SUBMITTED FOR NTPC APPROVAL.
- NO FOUNDATION SHALL BE LAID ON BACK FILLED SOIL.
- IF ROCK IS ENCOUNTERED AT SHALLOW DEPTH, THEN FOUNDATION MAY BE PLACED AT TOP OF ROCKY STRATA, HOWEVER IN NO CASE DEPTH OF FOUNDATION SHALL BE LESS THAN 1M. SBC SHALL BE DECIDED BY GEOTECHNICAL INVESTIGATION WORK CARRIED OUT BY CONTRACTOR AND APPROVAL BY NTPC IN GEOTECHNICAL INVESTIGATION REPORT.
- DRAWING SHALL NOT BE SCALED. ONLY WRITTEN DIMENSION SHALL BE FOLLOWED.
- PERIPHERAL GARLAND DRAIN SHALL BE MADE ALL AROUND THE PEB INVERTER ROOMS AND CONNECTED TO NEAR BY DRAINS.
- 750MM WIDE PLINTH PROTECTION WITH 100MM THK. PCC LAID OVER WELL COMPACTED 100MM DRY BRICK BALLAST ALL AROUND THE PEB ROOM IN LINE WITH TECHNICAL SPECIFICATION.
- THE FGL OF PEB ROOM SHALL BE MINIMUM 500MM ABOVE SURROUNDING NGL.
- ALL STRUCTURAL STEEL MEMBERS SHALL BE GALVANIZED.THE THICKNESS OF GALVANIZATION SHALL BE IN LINE WITH IS4759. HOWEVER MINIMUM THICKNESS OF GALVANIZATION SHALL BE MAINTAINED AS 110 MICRON FOR ALL MEMBERS.
- BIDDER SHALL SUBMIT THE DETAILED FABRICATION DRAWING AND PUFF PANEL DETAILS (DEVELOPED BASED ON NTPC TENDER DRAWING AND TECHNICAL SPECIFICATION) FOR NTPC INFORMATION BEFORE START OF WORK. ALL WORKS SHALL BE EXECUTED IN LINE WITH APPROVED DRAWING'S.
- ALL BRACING'S LIKE BRC-1, BRC-2 SHALL BE CONTINUED IN EVERY ALTERNATE BAY IN CASE THE NO. OF BAYS ARE INCREASED. THE NO OF BAYS MAY BE REDUCED BASED ON BIDDER REQUIREMENT MAINTAINING THE BRACING IN EVERY ALTERNATE BAY. BIDDER SHALL ENSURE THAT THE BRACING IN BOTH THE DIAGONAL DIRECTIONS ARE PROVIDED IN PEB.
- THE OPENINGS SHOWN IN PEB ARE TENTATIVE VENDOR SHALL FINALIZE THE SAME DURING DETAILED ENGG. BASED ON NTPC APPROVAL. VENTILATION AND DUCTS SHALL BE DESIGN CONSIDERING HEAT CALCULATION AND SUBMIT FOR NTPC APPROVAL BEFORE EXECUTION/MANUFACTURING.
- THE SIZES OF FOUNDATION MENTIONED IN TABLE-1 FOR DIFFERENT RANGES OF SBC ARE MINIMUM SIZE TO BE ADOPTED BY BIDDER.
- THE SIZES OF STRUCTURAL STEEL MEMBERS IN TABLE-2 ARE MINIMUM SIZES TO BE ADOPTED FOR DIFFERENT RANGES OF SPAN.

TABLE -1, PART-A (FOR SPAN S=5.5M)

FOUNDATION REINFORCEMENT SCHEDULE									
S.NO.	SBC (IN T/SQM)	COLUMN	A	A'	B	B'	T	a	b
1	20 <= SBC	F01	1400	1500	1400	1500	300	12ø - @250c/c	12ø - @250c/c
2	10 <=SBC < 20	F01	1800	1900	1800	1900	325	12ø - @250c/c	12ø - @250c/c
3	7 <=SBC < 10	F01	2000	2100	2000	2100	350	12ø - @200c/c	12ø - @200c/c
4	5 = SBC < 7	F01	2200	2300	2200	2300	375	12ø - @200c/c	12ø - @200c/c

TABLE -1, PART-B (FOR 5.5M < SPAN <= 6.5M)

FOUNDATION REINFORCEMENT SCHEDULE									
S.NO.	SBC (IN T/SQM)	COLUMN	A	A'	B	B'	T	a	b
1	20 <= SBC	F01	1500	1600	1500	1600	325	12ø - @250c/c	12ø - @250c/c
2	10 <=SBC < 20	F01	1900	2000	1900	2000	350	12ø - @250c/c	12ø - @250c/c
3	7 <=SBC < 10	F01	2100	2200	2100	2200	375	12ø - @200c/c	12ø - @200c/c
4	5 = SBC < 7	F01	2300	2400	2300	2400	400	12ø - @200c/c	12ø - @200c/c

TABLE -1, PART-C (FOR 6.5M < SPAN <= 7.5M)

FOUNDATION REINFORCEMENT SCHEDULE									
S.NO.	SBC (IN T/SQM)	COLUMN	A	A'	B	B'	T	a	b
1	20 <= SBC	F01	1600	1700	1600	1700	350	12ø - @250c/c	12ø - @250c/c
2	10 <=SBC < 20	F01	2000	2100	2000	2100	375	12ø - @250c/c	12ø - @250c/c
3	7 <=SBC < 10	F01	2200	2300	2200	2300	400	12ø - @200c/c	12ø - @200c/c
4	5 = SBC < 7	F01	2400	2500	2400	2500	400	12ø - @200c/c	12ø - @200c/c

TABLE -2

SPAN (S)	COLOUMN / RAFTER	BASE PLATE SIZE	PEDESTAL SIZE	MAIN RAINFORCEMENT OF PEDESTAL
S = 5.5M	ISMB 200	350X200	400X400	16ø-8NOS
5.5M< S <=6.5M	ISMB 250	400X225	450X400	16ø-8NOS
6.5M< S <= 7.5M	ISMB 300	450X250	500X400	16ø-10NOS

FOR TENDER PURPOSE ONLY



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**NTPC Renewable Energy Limited**  
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PROJECT

**EPC PACKAGE FOR DEVELOPMENT OF 900MW (3X300MW) GRID CONNECTED SOLAR PV PROJECTS AT MANDSAUR, MADHYA PRADESH**

TITLE

PEB INVERTOR ROOM

PREPARED BY	CHECKED BY	APPROVED BY	DATE
RAM	CIVIL SG	ELE. AT	RR MAURYA 03.05.2022

SIZE

SCALE

DRG. NO.

5816-004(EPC)-POC-A-005

REV. NO.

RA



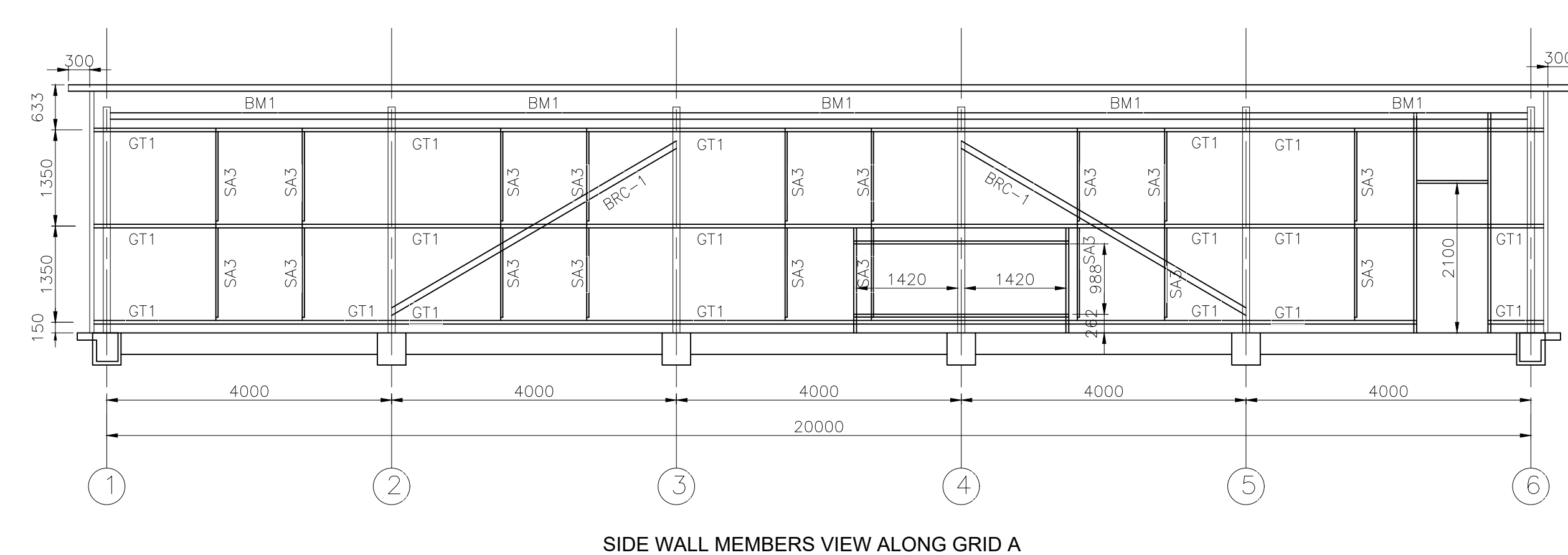
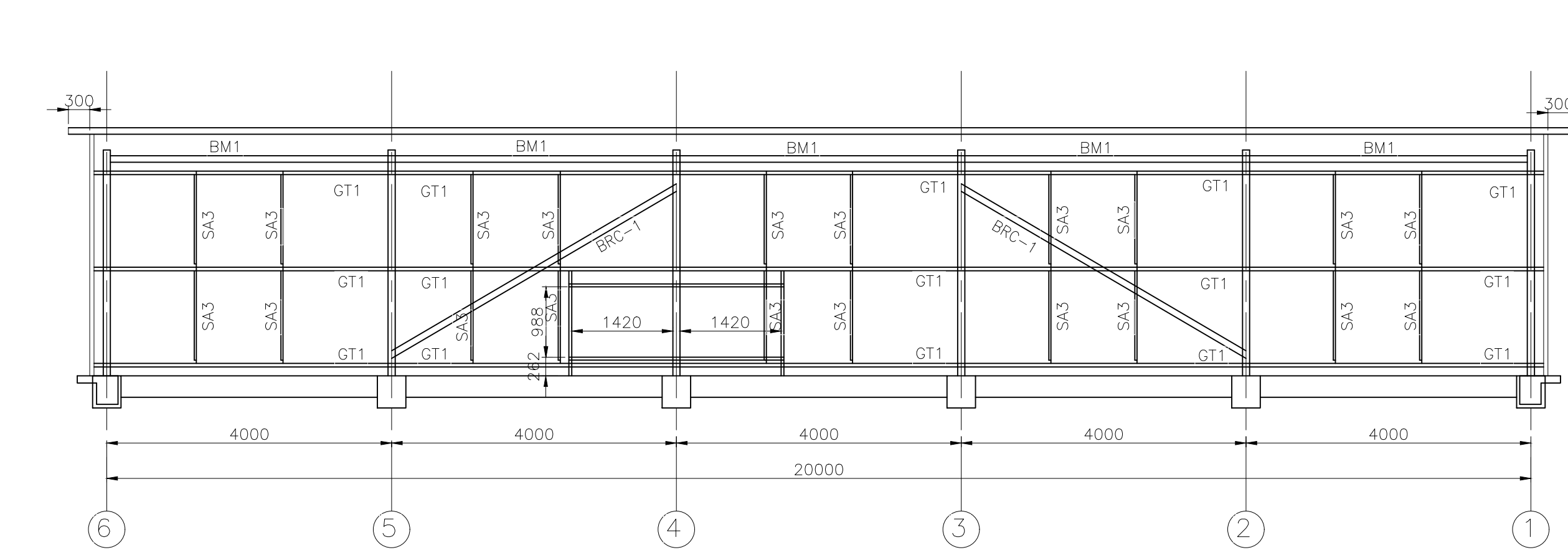
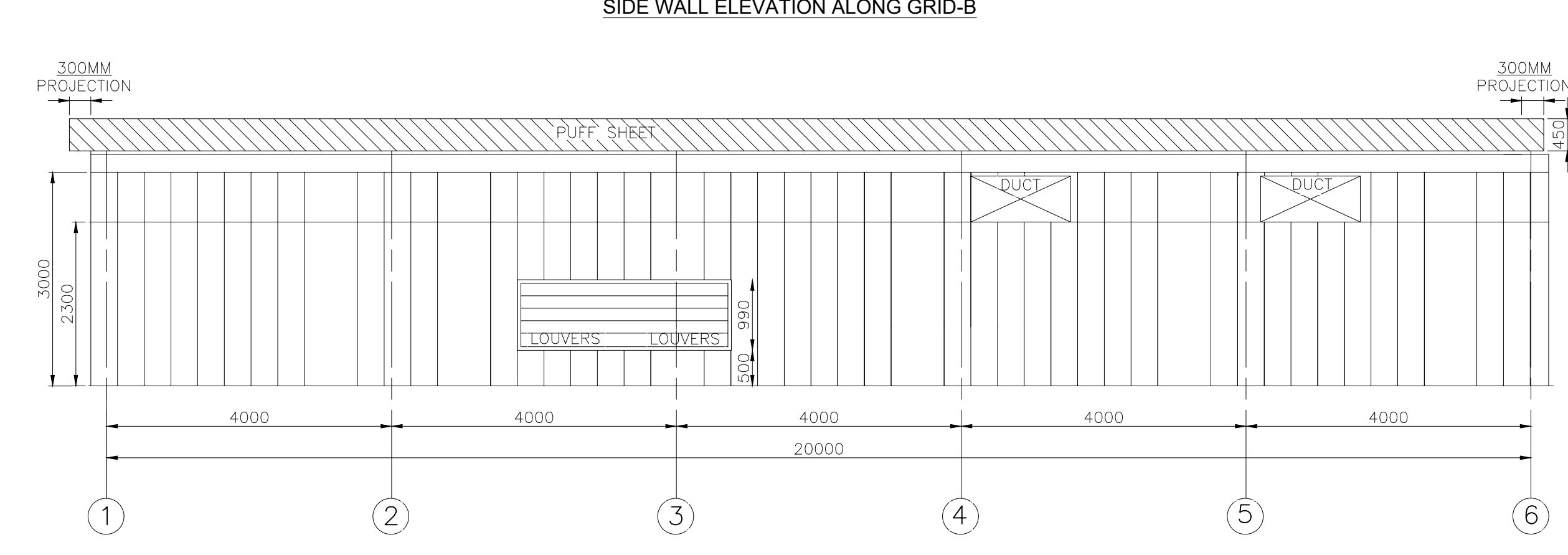
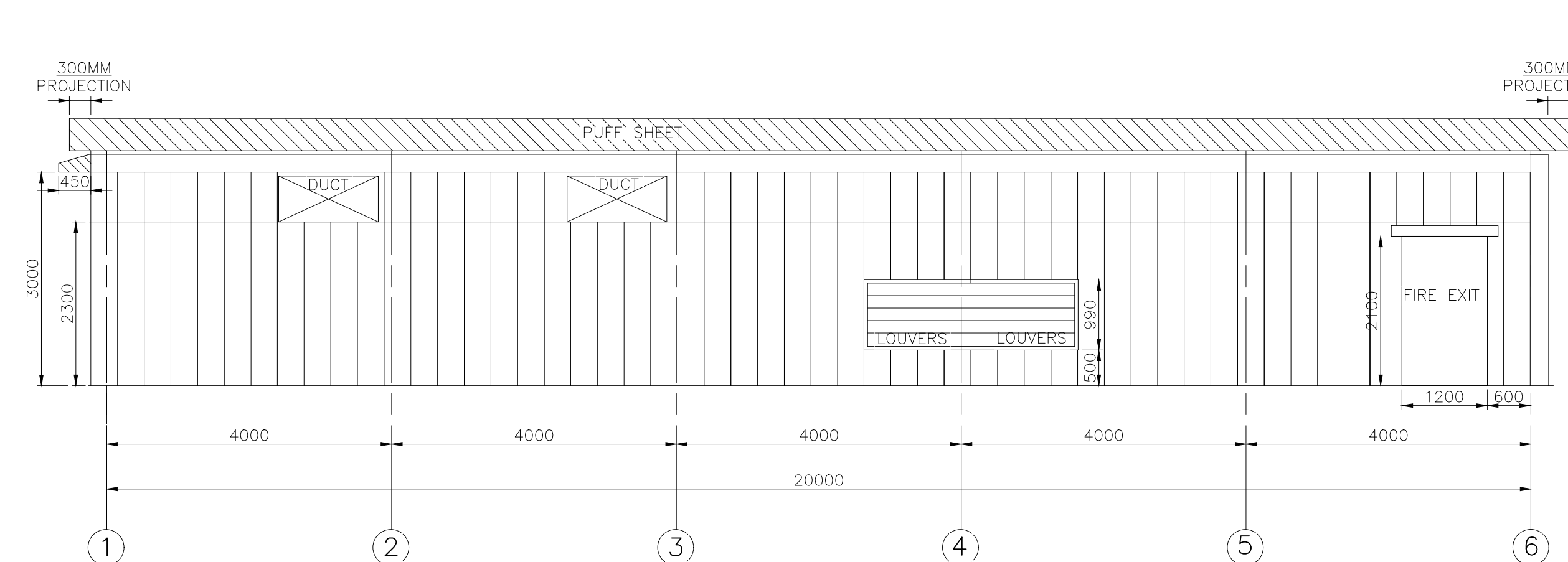
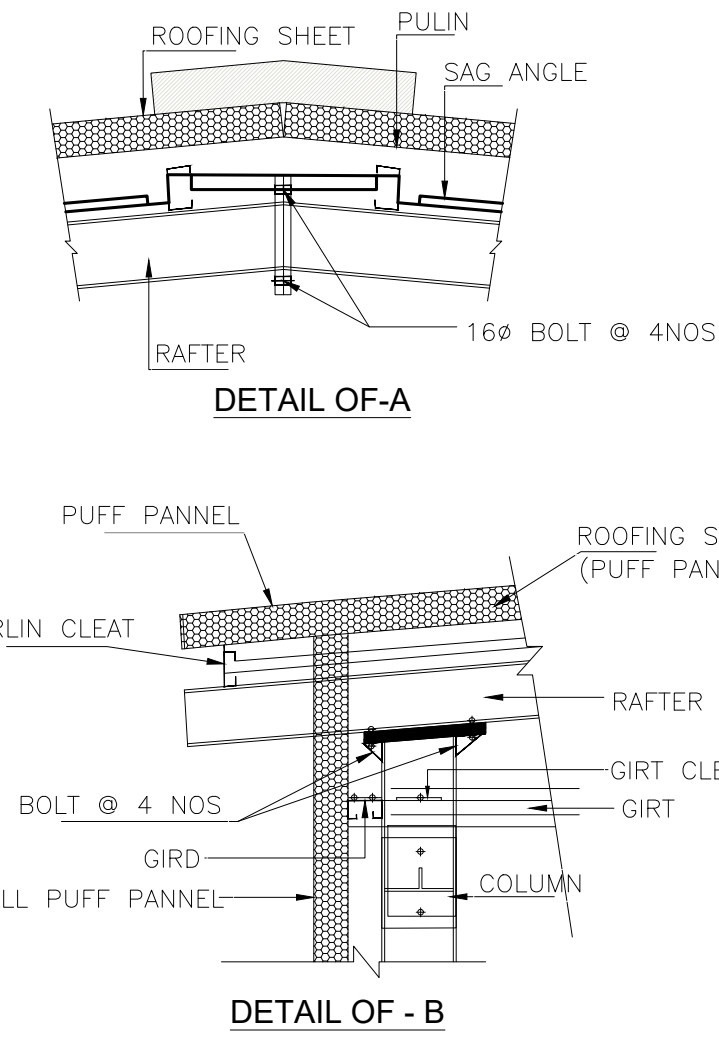
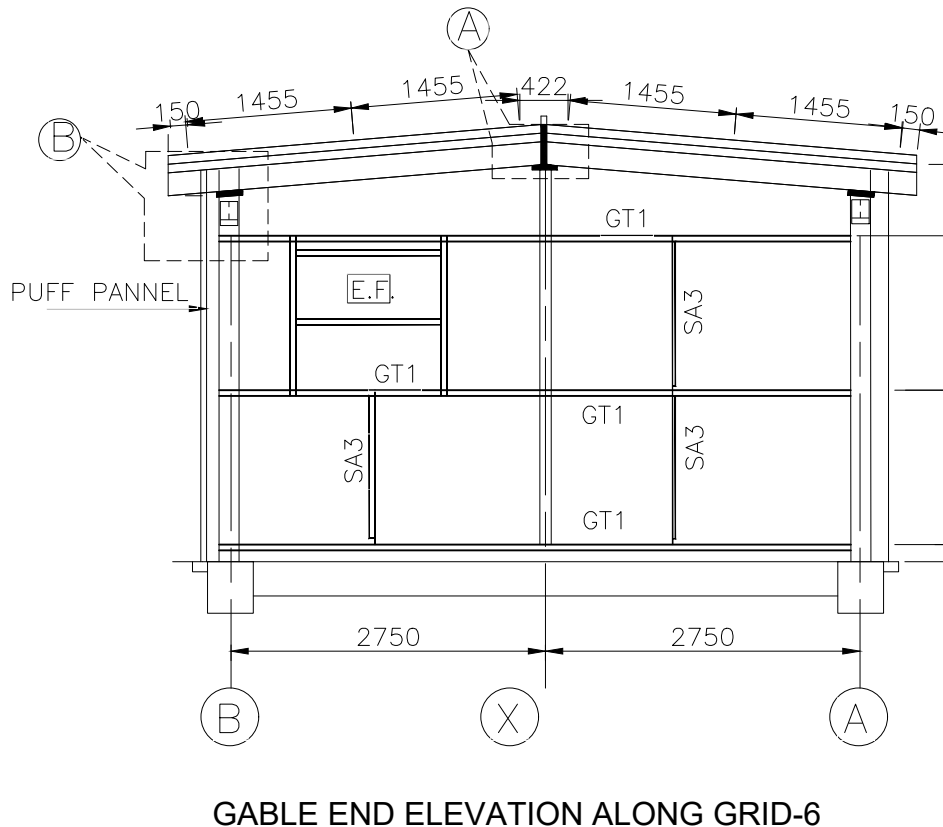
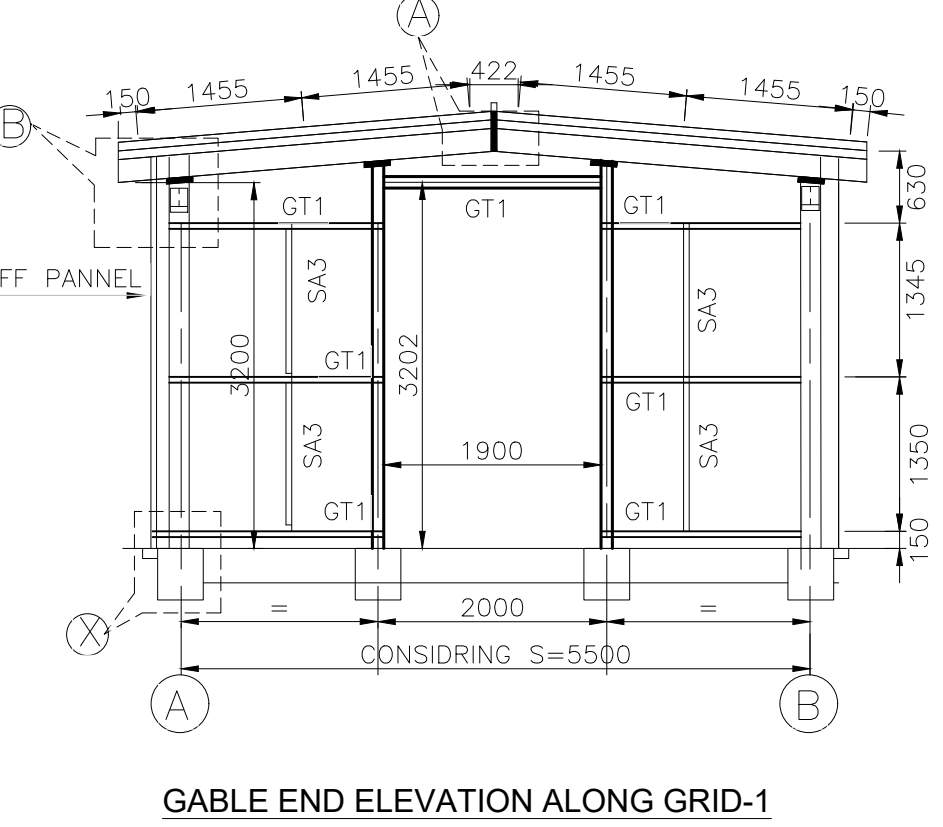
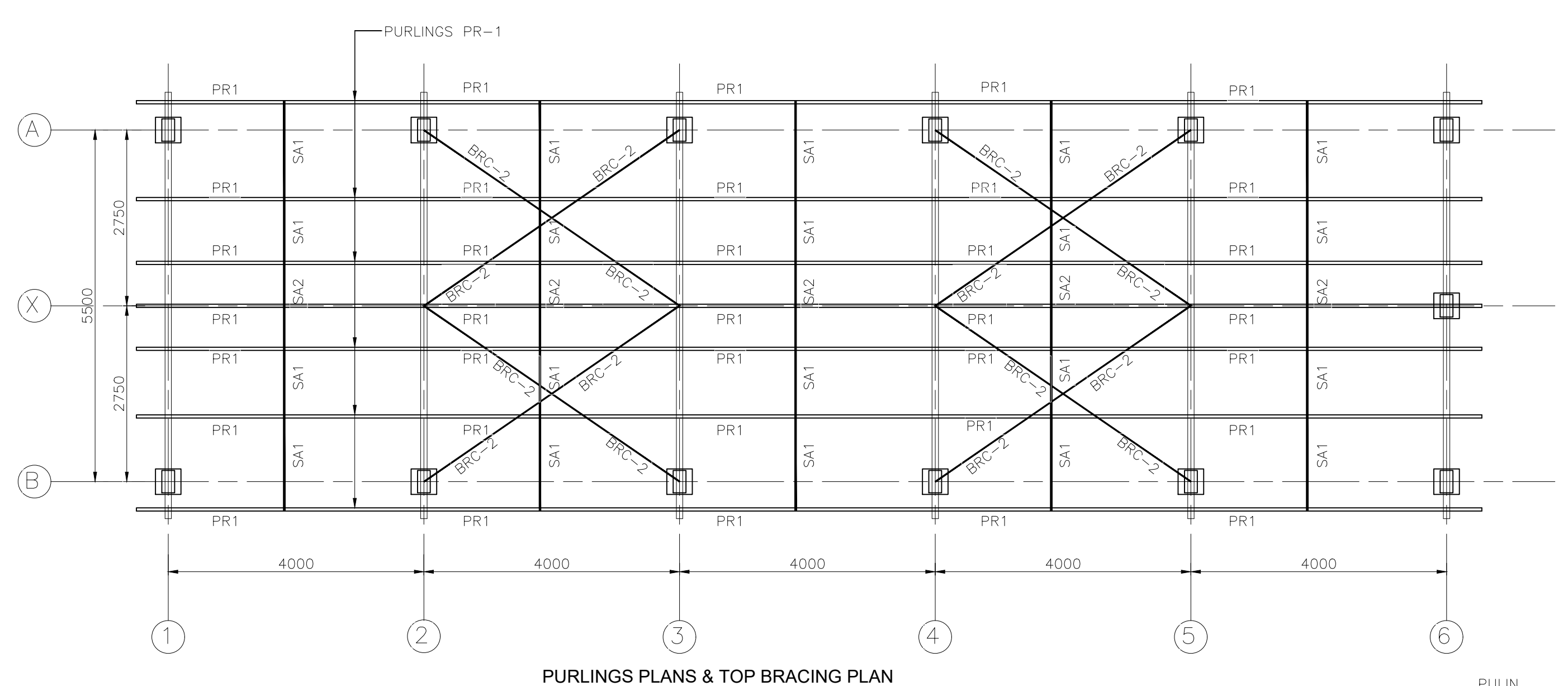
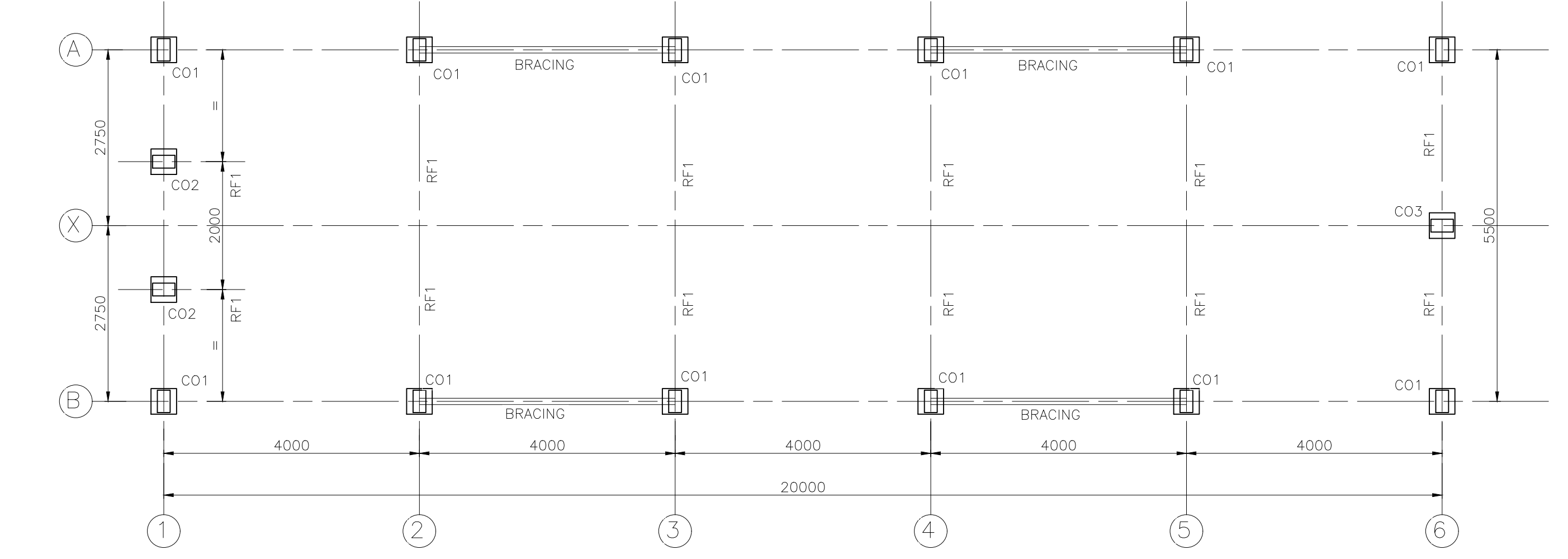
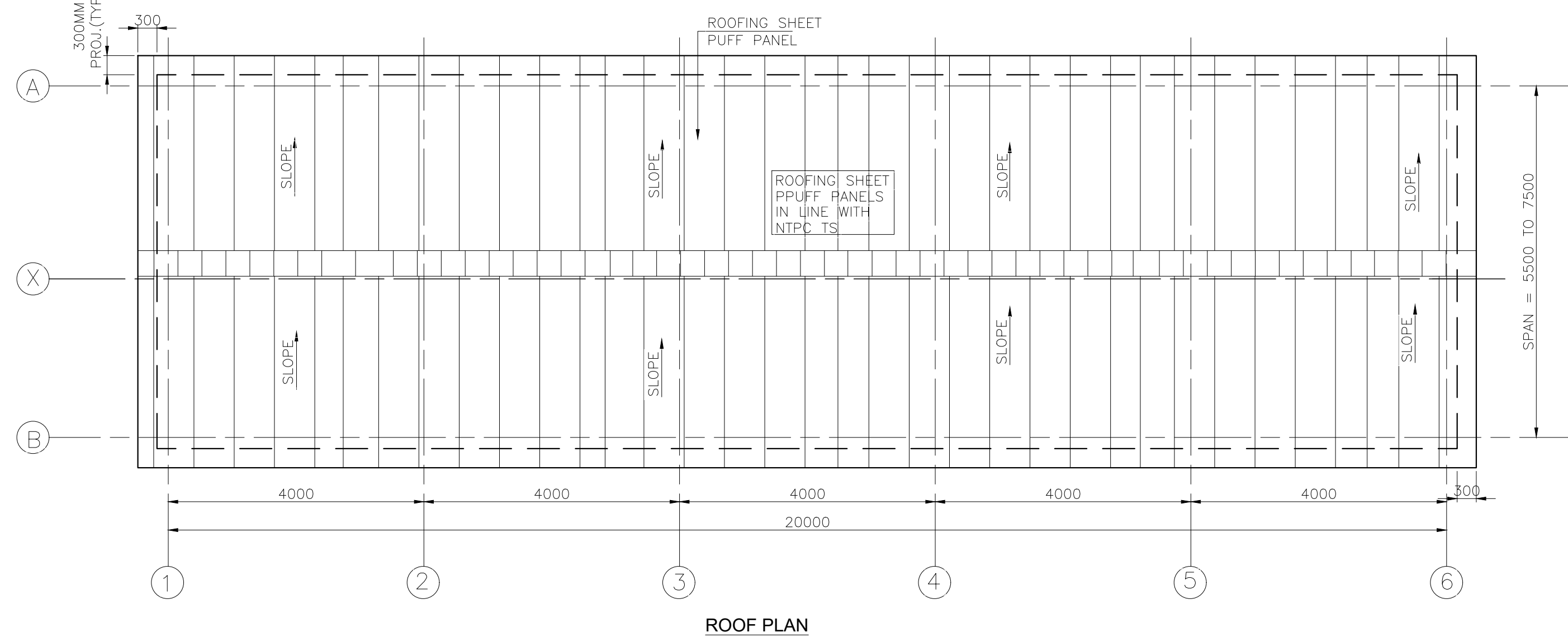
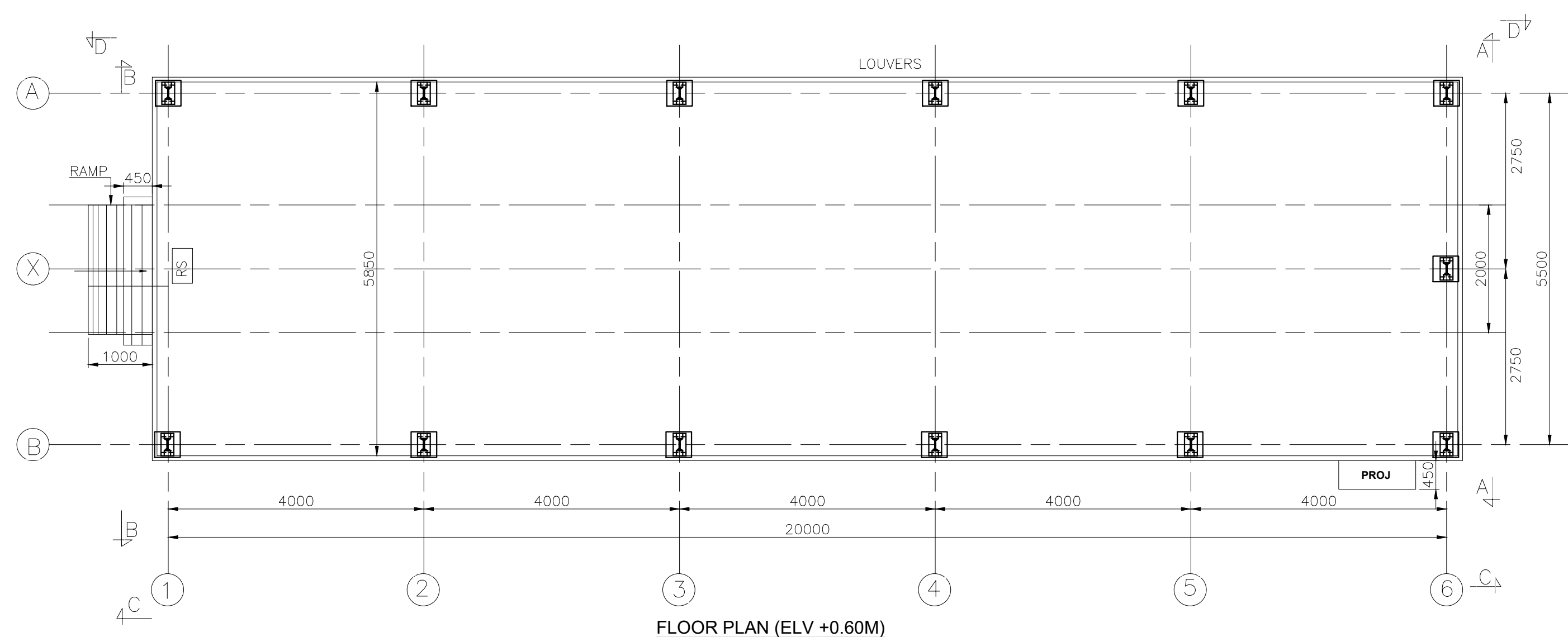
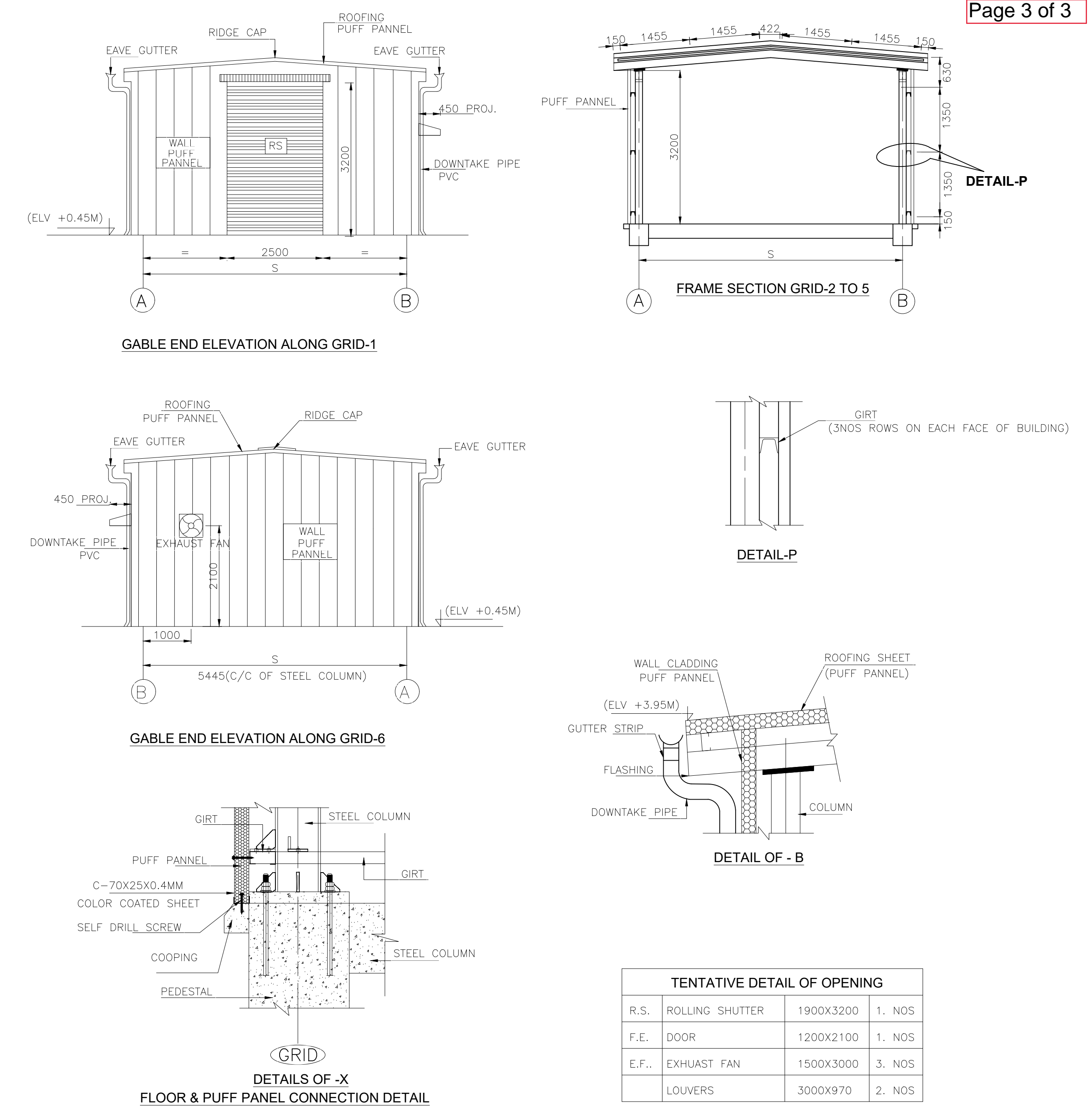


TABLE -2, BILL OF MATERIAL									
S.NO	PART MARK	DESCRIPTION	SPAN (S)			SHAPE	MATERIAL SPECIFICATION	GRADE OF MATERIAL	GALVANIZATION COATING THICKNESS
			S = 5.5M	5.5M< S <= 6.5M	6.5M< S <= 7.5M				
1	PR1	C-PURLIN	100x50x20x3.15	100x50x20x3.15	100x50x20x3.15		COLD FORM	350	AS PER IS 4759
2	GT1	C-GIRT	100x50x20x3.15	100x50x20x3.15	100x50x20x3.15		COLD FORM	350	AS PER IS 4759
3	RF1	RAFTER	ISMB-200	ISMB-250	ISMB-300		HOT ROLLED	250	AS PER IS 4759
4	CO1	COLUMN	ISMB-200	ISMB-250	ISMB-300		HOT ROLLED	250	AS PER IS 4759
5	CO2	COLUMN	ISMB-200	ISMB-250	ISMB-300		HOT ROLLED	250	AS PER IS 4759
6	CO3	COLUMN	ISMB-200	ISMB-250	ISMB-300		HOT ROLLED	250	AS PER IS 4759
7	SP1	STRUT ANGLE	ANGLE-65x65x5	ANGLE-65x65x5	ANGLE-65x65x5		HOT ROLLED	250	AS PER IS 4759
8	BM1	BEAM HEADER	ISMB-150	ISMB-150	ISMB-150		HOT ROLLED	250	AS PER IS 4759
9	SA-1	SAG ANGLE	50X50X3	50X50X3	50X50X3		HOT ROLLED	250	AS PER IS 4759
10	SA-2	SAG ANGLE	50X50X3	50X50X3	50X50X3		HOT ROLLED	250	AS PER IS 4759
11	SA-3	SAG ANGLE	50X50X3	50X50X3	50X50X3		HOT ROLLED	250	AS PER IS 4759
12	BRC-1, BRC-2	STRUT PIPE	89MM (OD)	89MM (OD)	89MM (OD)		HOT ROLLED	250	AS PER IS 4759

\* PURLIN SPACING SHALL BE MAINTAINED AS MAXIMUM 1450 MM FOR ALL SIZES OF SPANS.



NOTES

- ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS OTHERWISE SPECIFIED.
- GRADE OF CONCRETE SHALL BE M-30 WITH 20mm DOWN GRADED AGGREGATES
- REINFORCEMENT SHALL BE OF HIGH YIELD STRENGTH DEFORMED BAR OF GRADE Fe500 CONFORMING TO IS:1786
- MIN CLEAR COVER TO MAIN REINFORCEMENT SHALL BE AS FOLLOWS FOOTING - 50MM, COLUMN - 50MM, PLINTH BEAM-50MM, SLAB-20MM.
- LAP LENGTH SHALL BE 50D WHERE D IS THE DIA OF THE SMALLER BAR BEING LAPPED
- LAPPING OF BARS SHALL BE SUITABLY STAGGERED AND IN NO CASE MORE THAN 50% BARS SHALL BE LAPPED AT ANY SECTION.
- ALL HOOKS, BENDS, LAPS AND SPLICES SHALL BE AS PER RELEVANT IS CODE
- BIDDER MAY CHOOSE BUILDING SPAN (C/C) FROM 5.5M TO 7.5M. FOUNDATION DETAILS HAVE BEEN MENTIONED FOR DIFFERENT RANGES OF SAFE BEARING CAPACITY (SBC). FOUNDATION COLUMN PEDESTAL, BASE PLATE, REINFORCEMENT DETAILS, SIZES ETC SHALL BE DECIDED BASED ON TABLE-1 & TABLE-2 CONSIDERING THE SBC AND C/C SPAN. IN CASE OF SBC LESS THEN 5 T/SOM, FOUNDATION SHALL BE DESIGN BY BIDDER CONSIDERING PROJECT SPECIFIC CONDITIONS AND SHALL BE SUBMITTED FOR NTPC APPROVAL.
- NO FOUNDATION SHALL BE LAID ON BACK FILLED SOIL.
- IF ROCK IS ENCOUNTERED AT SHALLOW DEPTH THEN FOUNDATION MAY BE PLACED AT TOP OF ROCKY STRATA, HOWEVER IN NO CASE DEPTH OF FOUNDATION SHALL BE LESS THAN 1M. SBC SHALL BE DECIDED BY GEOTECHNICAL INVESTIGATION WORK CARRIED OUT BY CONTRACTOR AND APPROVAL BY NTPC IN GEOTECHNICAL INVESTIGATION REPORT.
- DRAWING SHALL NOT BE SCALED. ONLY WRITTEN DIMENSION SHALL BE FOLLOWED.
- PERIPHERAL GARLAND DRAIN SHALL BE MADE ALL AROUND THE PEB INVERTER ROOMS AND CONNECTED TO NEAR BY DRAINS.
- 750MM WIDE PLINTH PROTECTION WITH 75MM THK. PCC LAID OVER WELL COMPACTED 75MM DRY BRICK BALLAST ALL AROUND THE PEB ROOM IN LINE WITH TECHNICAL SPECIFICATION.
- THE FGL OF PEB ROOM MINIMUM 500MM ABOVE SURROUNDING NGL.
- ALL STRUCTURAL STEEL MEMBERS SHALL BE GALVANIZED. THE THICKNESS OF GALVANIZATION SHALL BE IN LINE WITH IS4759. HOWEVER MINIMUM THICKNESS OF GALVANIZATION SHALL BE MAINTAINED AS 110 MICRON FOR ALL MEMBERS.
- BIDDER SHALL SUBMIT THE DETAILED FABRICATION DRAWING AND PUFF PANEL DETAILS (DEVELOPED BASED ON NTPC TENDER DRAWING AND TECHNICAL SPECIFICATION) FOR NTPC INFORMATION BEFORE START OF WORK.
- ALL WORKS SHALL BE EXECUTED IN LINE WITH APPROVED DRAWINGS.
- ALL BRACING LIKE BRC-1, BRC-2 SHALL BE CONTINUED IN EVERY ALTERNATE BAY IN CASE THE NO. OF BAYS ARE INCREASED. THE NO OF BAYS MAY BE REDUCED BASED ON BIDDER REQUIREMENT MAINTAINING THE BRACING IN EVERY ALTERNATE BAY. BIDDER SHALL ENSURE THAT THE BRACING IN BOTH THE DIAGONAL DIRECTIONS ARE PROVIDED IN PEB.
- THE OPENINGS SHOWN IN PEB ARE TENTATIVE. VENDOR SHALL FINALIZE THE SAME DURING DETAILED ENGG. BASED ON NTPC APPROVAL. VENTILATION AND DUCTS SHALL BE DESIGN CONSIDERING HEAT CALCULATION AND SUBMIT FOR NTPC APPROVAL BEFORE EXECUTION/MANUFACTURING.
- THE SIZES OF FOUNDATION MENTIONED IN TABLE-1 FOR DIFFERENT RANGES OF SBC ARE MINIMUM SIZE TO BE ADOPTED BY BIDDER.
- THE SIZES OF STRUCTURAL STEEL MEMBERS IN TABLE-2 ARE MINIMUM SIZES TO BE ADOPTED FOR DIFFERENT RANGES OF SPAN.

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NTPC Renewable Energy Limited  
(A wholly Owned Subsidiary of NTPC Limited)

PROJECT EPC PACKAGE FOR DEVELOPMENT OF 900MW (3X300MW) GRID CONNECTED SOLAR PV PROJECTS AT MANDSAUR, MADHYA PRADESH

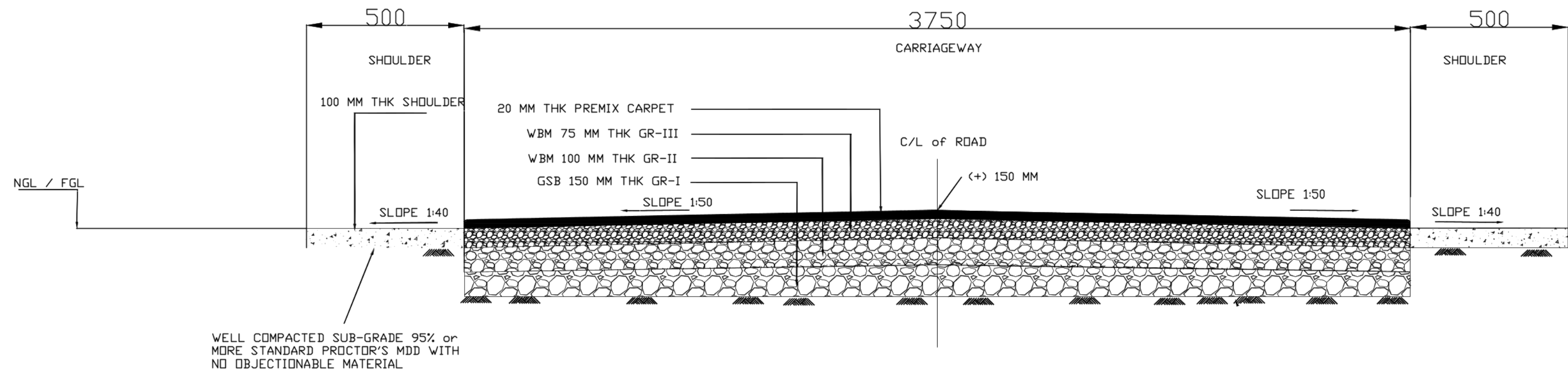
TITLE PEB INVERTOR ROOM

PREPARED BY	CHECKED BY	APPROVED BY	DATE
RAM	CIVIL ELE. SG AT	RR MAURYA	03.05.2022

SIZE	SCALE	DRG. NO.	REV. NO.
AO	NTS	5816-004(EPC)-POC-A-005	RA



# TYPICAL CROSS SECTION OF APPROACH & Switchyard ROADS (Inside the Plot)



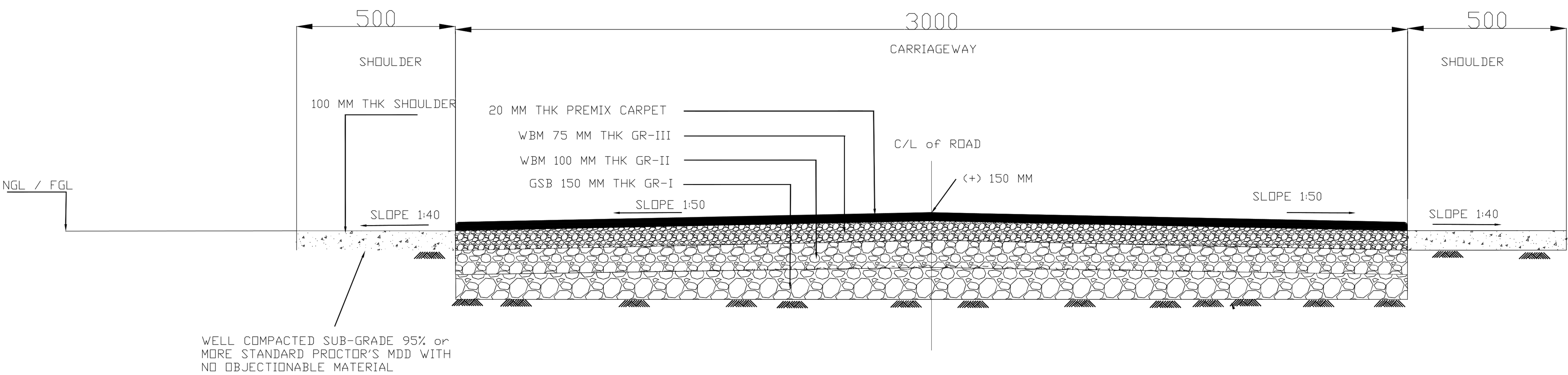
## TYPICAL SECTION FOR ROADS

### NOTES:

1. ALL DIMENSIONS ARE IN MM AND LEVELS IN METERS.
2. THE LEVEL AT THE TOP OF THE ROAD SHALL CORRESPOND TO THE LEVEL AT THE TOP OF BITUMINOUS CARPET AT THE CENTER OF THE ROAD.
3. CAMBER SHALL BE PROVIDED AT SUB-GRADE LEVEL
4. CBR VALES OF THE SUB-GRADE LEVEL SHOULD BE MIN. 4%. IF THE ACTUAL CBR IS LESS THAN 4% IN A PARTICULAR STRETCH THEN THE SAME MATERIAL SHALL BE MODIFIED WITH INCREASE IN GSB THICKNESS.
5. THE SHOULDERS ON BOTH SIDE OF THE ROAD SHALL BE PROPERLY COMPACTED.
6. THE ROAD SHALL BE MINIMUM 150 MM ABOVE FGL.
7. WBM 100 MM THK AMY BE MODIFIED TO 75 MM THK FOR WBM CONSTRUCTION WITH CORRESPONDING INCREASE OF 50 MM IN GSB THICKNESS.
8. ROADS WOULD BE SUITABLY CONNECTED WITH SLOPING APPROACHES WITH MAIN ROAD BY THE BIDDER WHERE EVER SUCH CONNECTIONS ARE ENVISAGED.

				NTPC Renewable Energy Limited		
				PROJECT	EPC PACKAGE FOR DEVELOPMENT OF 900MW (3X300MW) GRID CONNECTED SOLAR PV PROJECTS AT MANDSAUR, MADHYA PRADESH	
				TITLE	Typical Cross sectional details of Approach & Switchyard Roads (inside the Plot)	
FOR TENDER PURPOSE ONLY				SIZE	5816-004(EPC)-POC-A-006A	REV. NO. R0
PREPARED BY	CHECKED BY		APPROVED BY	DATE		
SSSG	SSSG		R R MAURYA	25.03.2026	A0	

TYPICAL CROSS SECTION OF INTERNAL ROADS (Inside the Plot)



TYPICAL SECTION FOR ROADS

NOTES:

1. ALL DIMENSIONS ARE IN MM AND LEVELS IN METERS.
2. THE LEVEL AT THE TOP OF THE ROAD SHALL CORRESPOND TO THE LEVEL AT THE TOP SHALL CORRESPOND TO THE LEVEL AT THE TOP OF BITUMINOUS CARPET AT THE CENTER OF THE ROAD.
3. CAMBER SHALL BE PROVIDED AT SUB-GRADE LEVEL
4. CBR VALES OF THE SUB-GRADE LEVEL SHOULD BE MIN. 4%. IF THE ACTUAL CBR IS LESS THAN 4% IN A PARTICULAR STRETCH THEN THE SAME MATERIAL SHALL BE MODIFIED WITH INCREASE IN GSB THICKNESS.
5. THE SHOULDERS ON BOTH SIDE OF THE ROAD SHALL BE PROPERLY COMPACTED.
6. THE ROAD SHALL BE MINIMUM 150 MM ABOVE FGL.
7. WBM 100 MM THK AMY BE MODIFIED TO 75 MM THK FOR WBM CONSTRUCTION WITH CORRESPONDING INCREASE OF 50 MM IN GSB THICKNESS.
8. ROADS WOULD BE SUITABLY CONNECTED WITH SLOPING APPROACHES WITH MAIN ROAD BY THE BIDDER WHERE EVER SUCH CONNECTIONS ARE ENVISAGED.

				NTPC Renewable Energy Limited			
				PROJECT EPC PACKAGE FOR DEVELOPMENT OF 900MW (3X300MW) GRID CONNECTED SOLAR PV PROJECTS AT MANDSAUR, MADHYA PRADESH			
				TITLE TYPICAL DETAIL OF ROADS ( Internal / Within Plot)			
FOR TENDER PURPOSE ONLY				SIZE	SCALE	DRG. 5816-004(EPC)-POC-A-006A NO.	REV. NO. R1
PREPARED BY	CHECKED BY	APPROVED BY	DATE				
SSSG	CIVIL ELE. SSSG	R R MAURYA	25.03.2026	A0	NTS		







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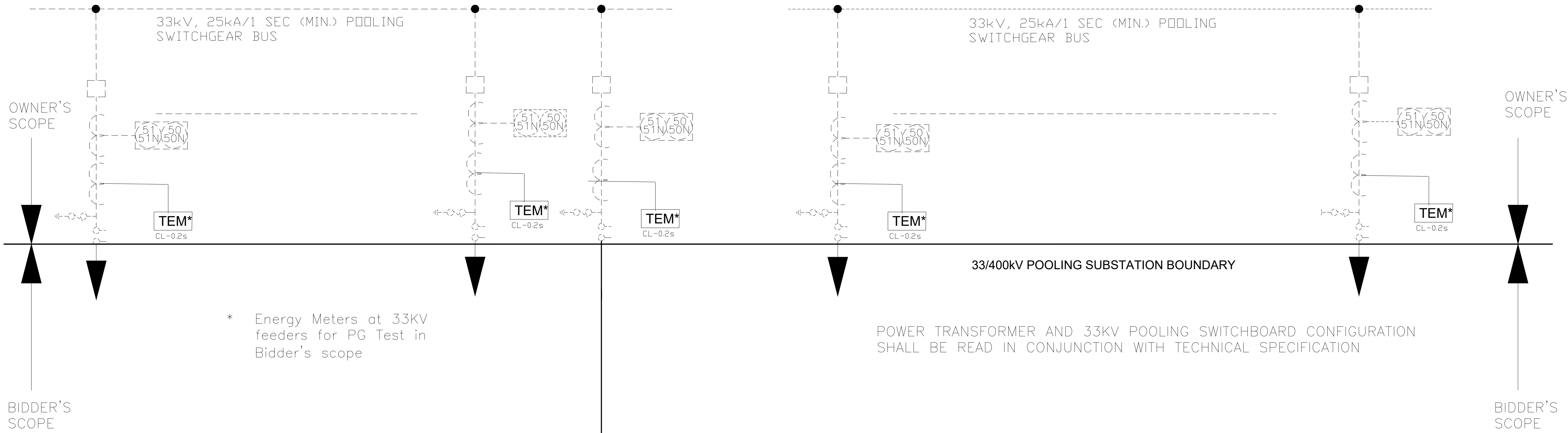
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### 33 kV MAIN POOLING INDOOR SWITCHGEAR AT OWNER'S 33/220kV POOLING SUBSTATION SWITCHYARD



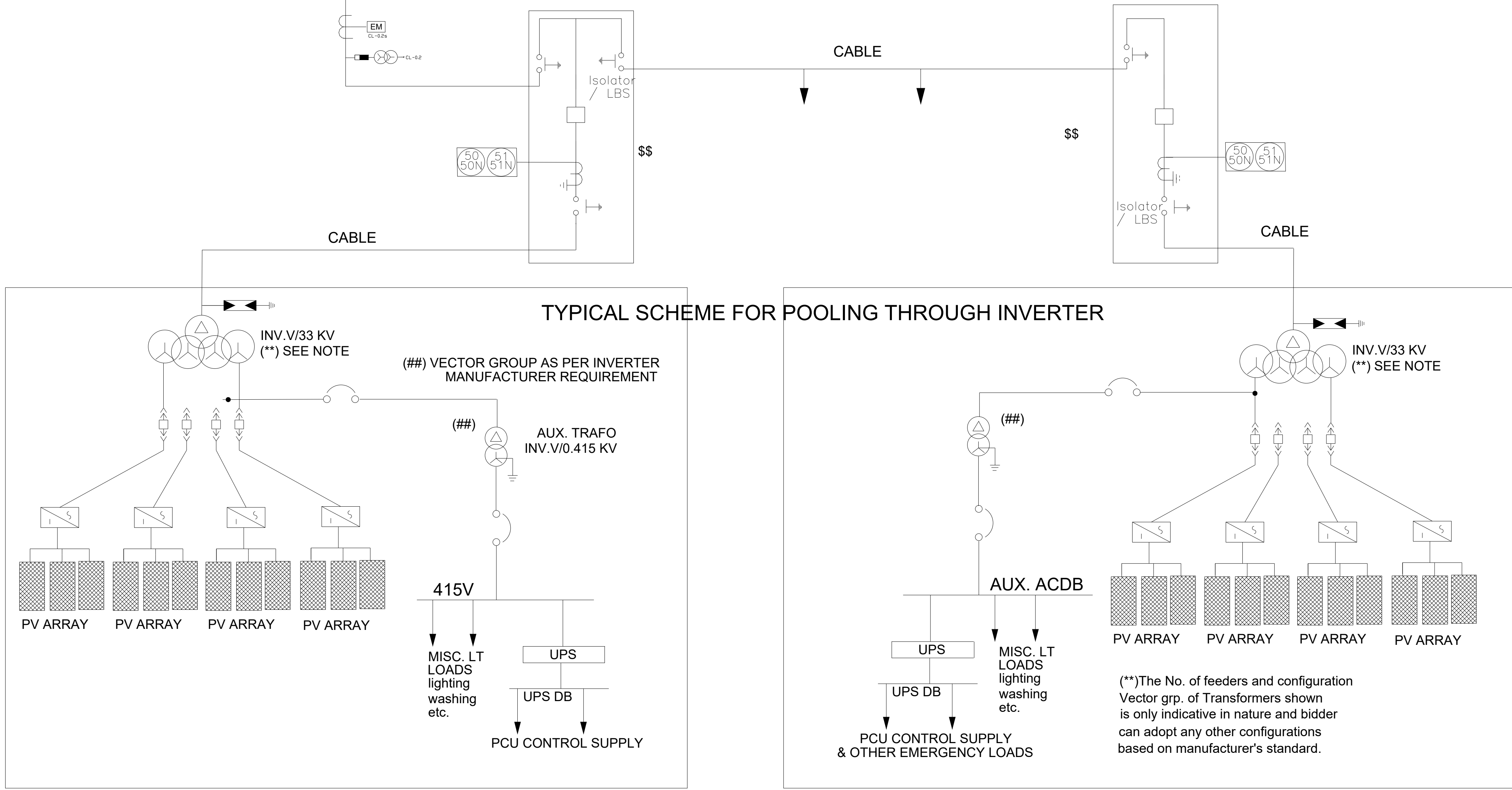
THE MAXIMUM NUMBER OF 33kV INCOMER FEEDERS AVAILABLE AT 33kV MAIN POOLING SWITCHGEAR OF OWNER'S POOLING SUBSTATION, FOR INTERCONNECTION OF SOLAR PLANT CABLES, DYNAMIC REACTIVE POWER COMPENSATION EQUIPMENT AND HARMONIC FILTERS OF EACH 300MW SOLAR BLOCK IS TWENTY(20). THE POWER FROM EACH 300MW BLOCK SHALL BE EQUALLY DIVIDED (TO THE EXTENT POSSIBLE) AMONG THE ABOVE 33kV FEEDERS DESIGNATED FOR THE RESPECTIVE BLOCK. 33kV CABLES SHALL BE SUITABLY SIZED TO CARRY THE POWER FROM SOLAR PLANT. NO ADDITIONAL FEEDERS WILL BE PROVIDED BEYOND THE SPECIFIED NUMBER OF FEEDERS FOR INTERCONNECTION OF SOLAR BLOCKS, HARMONIC FILTERS, REACTIVE POWER COMPENSATION EQUIPMENT ETC.

ALTERNATE CONFIGURATION TO LOCAL POOLING SWITCHGEAR :-  
BIDDER CAN DIRECTLY TERMINATE CABLE (UPTO 2 SETS) FROM UPTO TWO SEPARATE SAME CAPACITY SOLAR INVERTER BLOCKS (WITH ICOG) AT ONE MAIN POOLING STATION 33kV FEEDER. IF THE INVERTER BLOCKS (WITH ICOG) PROPOSED BY THE BIDDER FOR TERMINATION AT ONE NTPC REL'S 33kV POOLING SWITCHGEAR FEEDER ARE OF DIFFERENT CAPACITY, THEN THE SAME MAY ALSO BE ALLOWED FOR INTERCONNECTION TO THE SAME FEEDER, AFTER REVIEWING THE INVERTER BLOCK CAPACITIES TAKING INTO ACCOUNT THE ELECTRICAL PROTECTION REQUIREMENTS.

(Max. 35 MW)  
33kV CABLES

\$\$ BIDDER CAN FOLLOW ANY OF THE FOLLOWING ARRANGEMENT TO ACHIEVE

1. BIDDER MAY OFFER OUTDOOR ARRANGEMENT WITH VCB, CT AND ISOLATOR. ASSOCIATED RELAY PANEL SHALL BE KEPT WITHIN SUITABLE KIOSK.
2. BIDDER MAY OFFER THE PROPOSED ARRANGEMENT USING 33kV
3. BIDDER MAY OFFER STANDALONE SWITCHGEAR PANEL FOR INVERTER TRANSFORMER FEEDER INSIDE THE INVERTER ROOM AND CONNECT THROUGH SUITABLE OUTDOOR ISOLATOR.
4. ISOLATOR SHALL BE LOCATED IN RING SO THAT EACH SECTION OF RING CAN BE ISOLATED, SUBJECTED TO APPROVAL DURING DETAIL ENGINEERING.
5. PROTECTION SCHEME IN RMU AS PER RELATED SPECIFICATION.



- NOTES:
1. THERE IS NO CMCS BUILDING ENVISAGED FOR THE 300MW SOLAR PROJECT BLOCKS UNDER BIDDER'S SCOPE. BIDDER SHALL PLACE THE SCADA/OVS/EWS PANEL AT OWNER'S POOLING SUBSTATION SWITCHYARD CONTROL BUILDING FOR THE RESPECTIVE BLOCK. NTPC REL SHALL PROVIDE REDUNDANT 220V DC AND 330V AC SUPPLY SOURCE TO THE BIDDER FOR SCADA/OVS/EWS PANEL AT OWNER SWITCHYARD CONTROL ROOM. NECESSARY WIRING IS IN BIDDER'S SCOPE. BIDDER SHALL PROVIDE SUITABLE UPS WITH BACK UP TIME AS MENTIONED IN THE TECHNICAL SPECIFICATIONS FOR THE AFORESAID EQUIPMENT IN OWNER'S SWITCHYARD CONTROL BUILDING (AS REQUIRED).
  2. IN CASE OF OUTDOOR INVERTER, THE INBUILT LT TRANSFORMER FOR AUX SUPPLY SHOULD BE DESIGNED AND SIZED IN ORDER TO TAKE CARE OF ALL EMERGENCY LOADS AND MISCELLANEOUS LOADS RELATED TO MAINTENANCE ACTIVITY WITH REDUNDANCY.
  3. SUITABLE UPS AND/OR DC SYSTEM WITH BACK UP AS PER TS IS TO BE PROVIDED FOR AUXILIARY POWER SUPPLY FOR PCS (IF REQUIRED) AND OTHER PROTECTION CONTROL AND ANY EMERGENCY LOADS.
  4. THE INVERTER TRANSFORMER ARRANGEMENT SHOWN IS TYPICAL. THE TRANSFORMER CONFIGURATION, VECTOR GROUP, IMPEDANCE, INSULATION CLASS ETC. AS PER INVERTER MANUFACTURER RECOMMENDED DESIGN PARAMETER /ARRANGEMENT.
  5. BIDDER SHALL USE 33kV CABLES FOR CONNECTING FROM LOCAL POOLING SWITCHGEAR/ICOG (AS APPLICABLE) TO OWNER'S 33kV MAIN POOLING SWITCHGEAR DIRECTLY. SUPPLY OF CABLES AND ACCESSORIES INCLUDING JOINTING AND TERMINATION KITS INCLUDING LAYING AND TERMINATION SHALL BE IN THE SCOPE OF THE BIDDER.
  6. OTGT TEST SHALL BE PERFORMED AT THE METERING POINT SPECIFIED IN TECHNICAL SPECIFICATION.
  7. BIDDER MAY USE LOCAL POOLING SWITCHGEAR FOR LOCAL POOLING OR CONNECT INVERTER TRANSFORMER OUTPUT TO THE 33kV POOLING SWITCHGEAR THROUGH ICOG TYPE BREAKER PANEL AT INVERTER TRANSFORMER END.
  8. BIDDER TO PROVIDE ALL TECHNICAL DETAILS INCLUDING INVERTER PSSE MODEL, PSCAD MODEL & INVERTER BENCHMARKING REPORT TO NTPC REL AND FACILITATE NTPC REL FOR CONDUCTING GRID CONNECTIVITY COMPLIANCE AS PER LATEST CEA TECHNICAL STANDARD FOR CONNECTIVITY TO GRID AND ACTUAL REQUIREMENT OF INVERTER DETAILS SHALL BE INTIMATED BY NTPC REL DURING DETAILED ENGINEERING.
  9. INVERTER SHALL BE PROVIDED WITH DUAL OR MULTIMASTER FACILITY & VMS SHALL BE PROVIDED WITH DUAL OR SINGLE MASTER FACILITY.
  10. BIDDER TO PROVIDE NECESSARY ARRANGEMENT TO TRANSMIT SOLAR PLANT DATA TO STATE LDC/RLDC/REMC AS PER TELEMETRY REQUIREMENT OF RELEVANT REGULATION, GUIDELINES. NECESSARY COMMUNICATION INFRASTRUCTURE/SOFTWARE IN THIS REGARD UPTO LDC SHALL BE UNDER BIDDER'S SCOPE. BIDDER SHALL USE PROPOSED FOTE PANEL TO BE INSTALLED AT NTPC REL SWITCHYARD CONTROL ROOM FOR SOLAR SCADA DATA AVAILABILITY TO RLDC/REMC. IF ANY MODIFICATIONS /UPGRADATION IS REQUIRED AT FOTE, IT SHALL BE DONE BY THE BIDDER.
  11. THE METALLIC SCREEN/ARMOUR OF CORE AND CONDUCTOR OF HT CABLES SHALL BE CAPABLE OF CARRYING SYSTEM EARTH FAULT CURRENT.
  12. HARMONIC FILTERS SHALL BE INSTALLED AT NECESSARY LOCATIONS KEEPING IN VIEW OF POWER TRANSFORMER CONFIGURATION OF INDIVIDUAL BLOCKS SUCH THAT THE STATUTORY REQUIREMENTS AT POI ARE MET WITH.

PREPARED BY	CHECKED BY	APPROVED BY	DATE
RR	CIVIL ELE. JPP	AD	25.03.2026



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**NTPC Renewable Energy Ltd**

(A GROUP COMPANY OF NTPC LTD)  
(ENGINEERING DIVISION)

PROJECT  
**EPC PACKAGE FOR DEVELOPMENT OF 900MW (3X300MW) GRID CONNECTED SOLAR PV PROJECTS AT MANDSAUR, MADHYA PRADESH**

TITLE  
**BLOCK SINGLE LINE DIAGRAM**

SIZE	SCALE	DRG. NO.	REV. NO.
	NTS	5816-004(EPC)-POE-A-001/2	R0