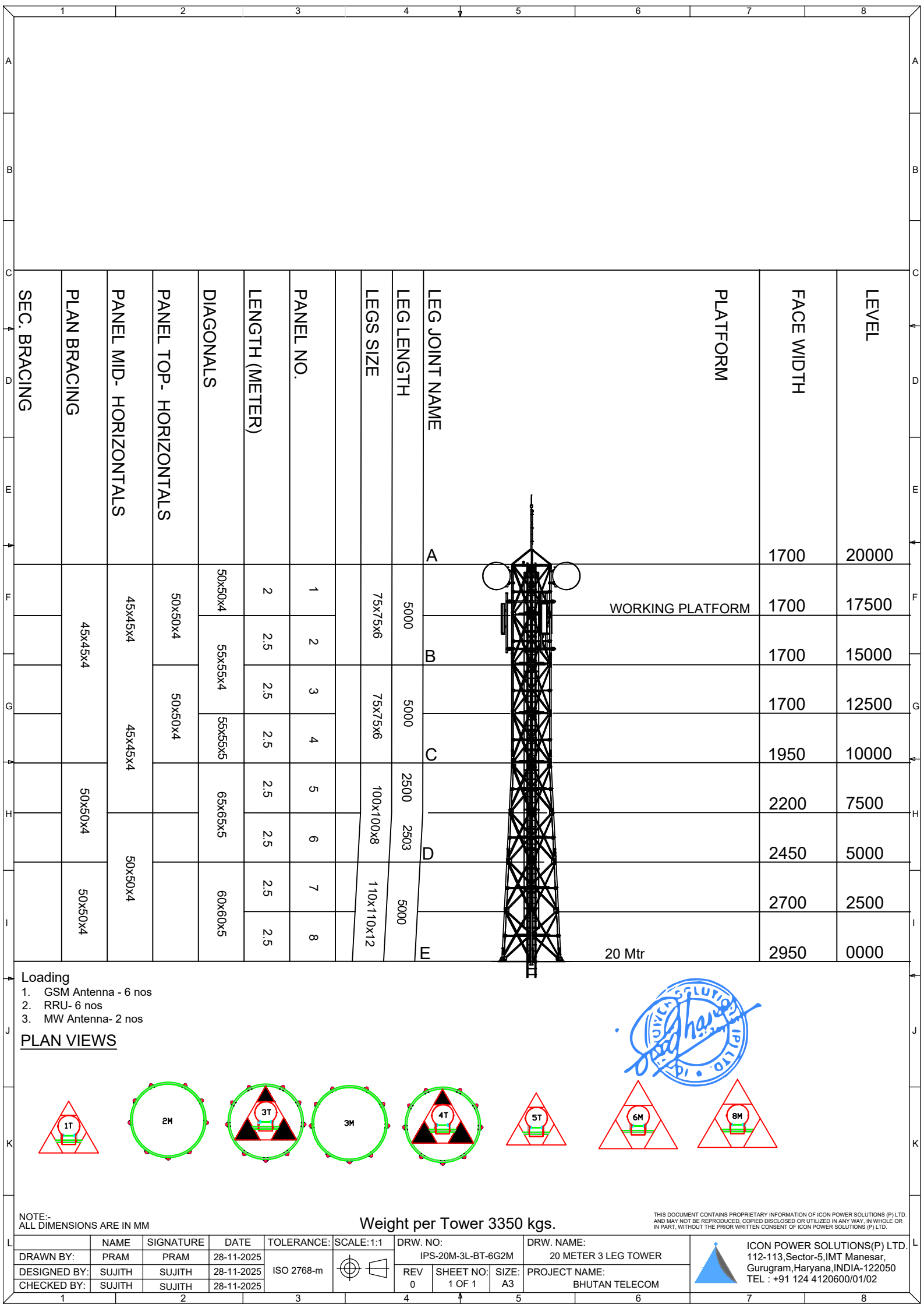




LIGHTENING ARRESTER (LA)

AVIATION LIGHT

MW ANTENNA MOUNTING
ARRANGEMENT

GSM ANTENNA MOUNTING
ARRANGEMENT

LADDER/CABLE PLAN

HORIZONTAL
CABLE GANTRY

SECTION A-A
SCALE 1 : 45

FOUNDATION PLAN

SECTION C-C
SCALE 1 : 70

NOTE:-
ALL DIMENSIONS ARE IN MM

	NAME	SIGNATURE	DATE	TOLERANCE:	SCALE:1:80	DRW. NO:			DRW. NAME:	
DRAWN BY:	PRAM	PRAM	29-11-2025	ISO 2768-m		IPS-20M-3L-BT-6G2M			20 METER 3 LEG TOWER	
DESIGNED BY:	SUJITH	SUJITH	29-11-2025			REV	SHEET NO:	SIZE:	PROJECT NAME:	
CHECKED BY:	SUJITH	SUJITH	29-11-2025			0	1 OF 1	A3	BHUTAN TELECOM	

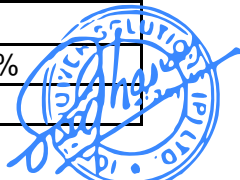
ICON POWER SOLUTIONS(P) LTD.
112-113,Sector-5,IMT Manesar,
Gurugram,Haryana,INDIA-122050
TEL : +91 124 4120600/01/02

ICON POWER SOLUTIONS PVT LTD

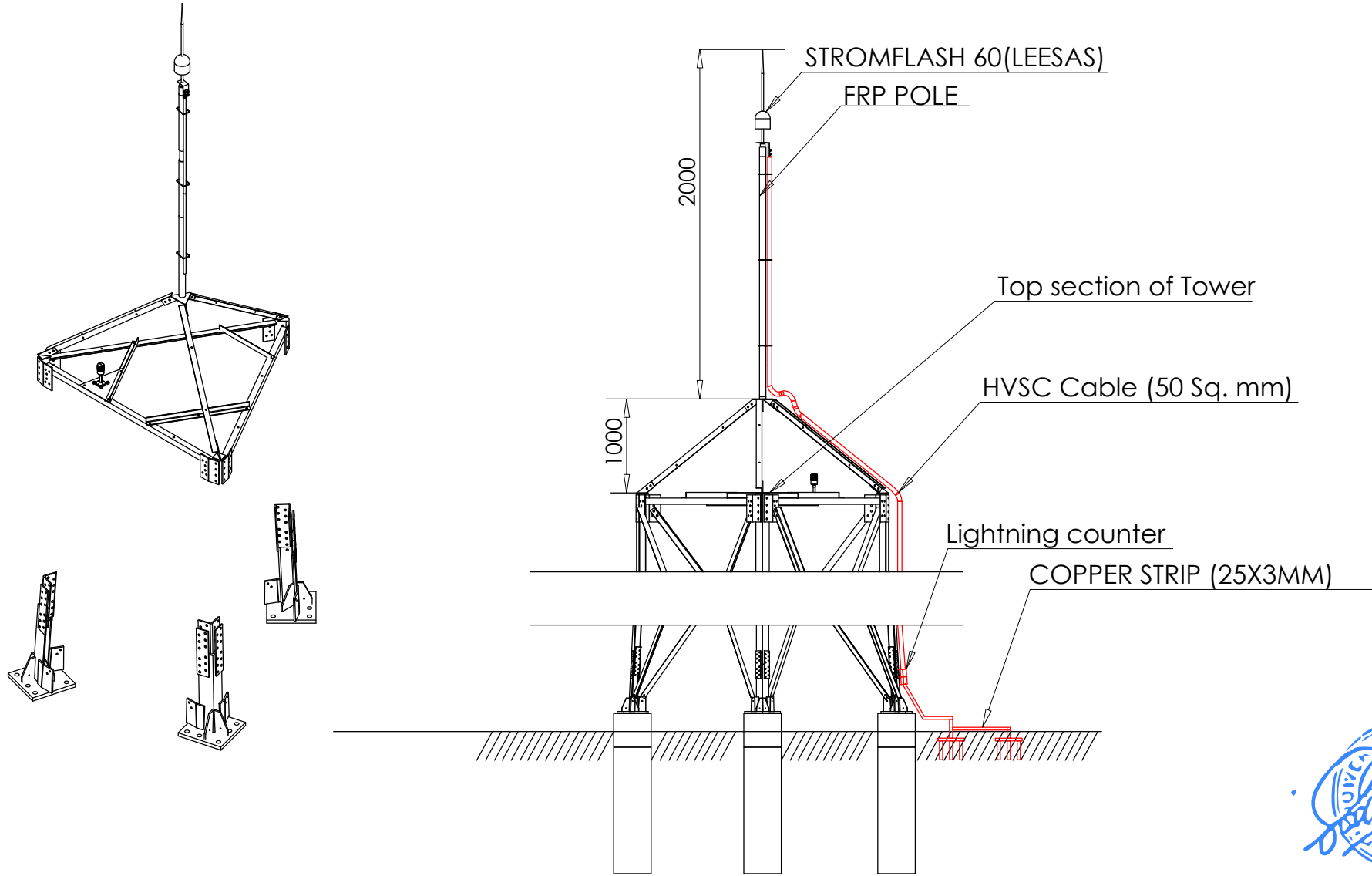
112 113, Sector 5, IMT Manesar, Gurgaon - 122050, Haryana

Technical Specification sheet of 20MTR 3 Legged Triangular Tower

S.No.		DESCRIPTION	DETAILS	REMARK
1		<u>DESIGN SPECIFICATION</u>	(ANSI/TIA-222G)	
	1.1	Design Wind Velocity		
		Survival	150 KMPH	
		Operational	105 KMPH	
	1.2	Twist & Sway	Less than <.5 degree	
	1.3	Factor of Safety	1.2 For Dead Load	
			1.6 For Wind Load	
	1.4	Antenna Loading		
		GSM Antenna	6 nos.	200 Kg
		RRU	6 nos.	90 Kg
		1.2 Dia MW Antenna	2nos.	100 Kg
	1.5	Antenna Pole Mount stand	As per requirement	
2		Obstruction Light System		
	2.1	No .Of Obstruction Light Lamp&Watts	1 No. LED Type	
	2.2	Power Cable Type&Length	2.5 Sqmm x 30 mtr. Length	2 core armoured
3		Lighting Protection & Earthing System(Grounding system)		
	3.1	Lightning Arrestor	Lightning Arrestor (ESE) STORMFLASH 60 (LEESAS)	1 nos with FRP mast and HVSC cable & Counter
4	4.1	Structure Of Tower	Self Suppprtng 3 legged Angular construction with vertical ladder in the center intergrated with cable tray & horizontal cable tray from tower to Building	
	4.2	Main Leg	90 Degree Angle	
	4.3	Bracing	90 Degree Angle	
	4.4	Climbing Ladder	450 mm Rung Width, 300mm Rung space & 700mm Hoop	
	4.5	Cable Tray Verticle	450 mm Width	along the tower Height
	4.6	Cable Tray Horizontal	450 mm Width	6 MTR.
	4.7	Steel Type	Mild Steel - E 250	
	4.8	Platforms		
		Working	1 Nos	16.5 Mtr
		Rest	1 Nos.	12 mtr
5	5.1	Foundation bolt & Template	As Per Tower Design	Included
	5.2	Bolts & Nut with spring &	Hot Dipped Galvanized Property Class 5.6	Extra 2%
		Plane washer	As per Standard ASTM A 153	
	5.3	Size	As per Design Specs.	
6	6.0	Hot Dipped Galvanization	As per Standard ISO 1461	85 Microns
7		<u>Others to be specified</u>		
	7.1	Weight Per Tower	3350 Kg	(+/-) 5%
	7.2	Drawing No.	IPS-20M-3L-BT-6G2M	



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NAME				SIGNATURE				DATE				NO:				TOLERANCE:				SCALE: 1:50				DRW. NO:				DRW. NAME:			
DRAWN BY:				PANKAJ				03-12-2025				X ±				LA-ASSY-3LEG TOWER				LIGHTING ARRESTOR MOUNTING ARRANGEMENT-3LEG				REV				PROJECT NAME:			
DESIGNED BY:				SUJITH				03-12-2025				X.X ±				0				SHEET NO:				SIZE:				BHUTAN TELECOM LTD 2026			
CHECKED BY:				SUJITH				03-12-2025				X.XX ±				A4															
												X.XXX ±																			
												ANGLES ±																			



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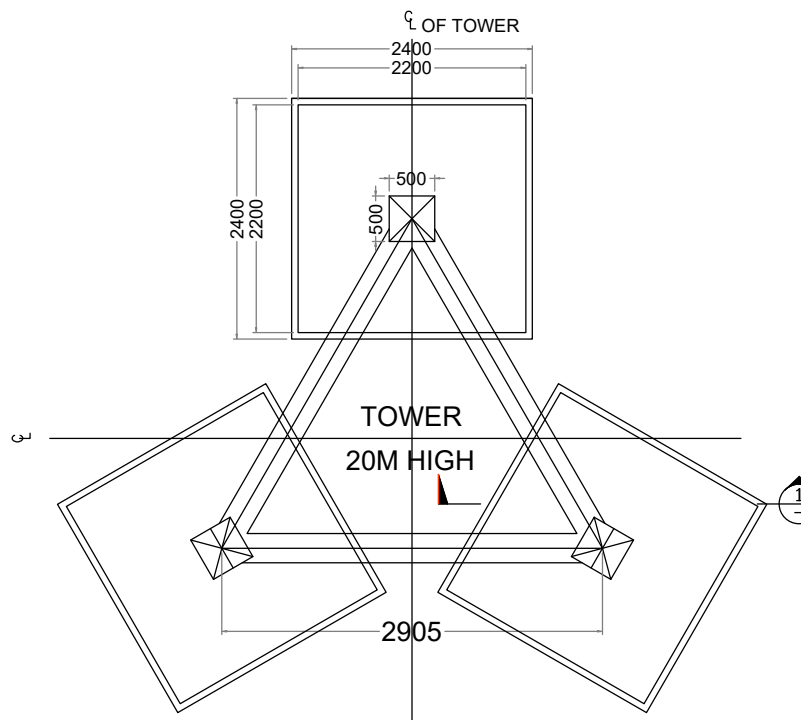


Diagram illustrating the components of an anchor bolt assembly:

- LOCK NUT
- NUT
- PLAN WASHER
- BASE PLATE TOP
- BOLT-M32X1050
4NOS. IN EACH LEG
- MS PLATE
PL80X80X8
- ANCHOR BOLT

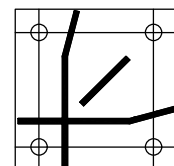
500

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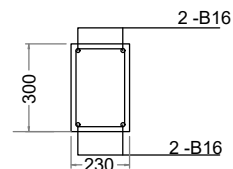
TIES
B8@150C/C

8-B20

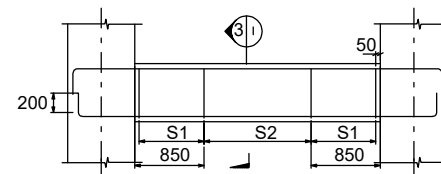
SECTION 2
COLUMN 500X500



BASE PLATE



SECTION 3



TIE BEAM (TYP DETAILS)

STIRRUP DETAILS
S1:-2 LEGGED Y8 @ 100 C/C
S2:-2 LEGGED Y8 @ 200 C/C

1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
2. USE M20 GRADE CONCRETE AND Fe 415 GRADE FOR STEEL.
3. CLEAR COVER TO MAIN REINFORCEMENT:-
 - (a) 50MM FOR FOUNDATION
 - (b) 25MM FOR BEAMS
 - (c) 40MM FOR COLUMNS
4. PRIOR TO AND DURING CONCRETING ALL BOLTS SHALL BE SECURELY HELD IN POSITION BY USE OF TEMPLATE.
5. BEFORE COMMENCEMENT OF CONSTRUCTION USING THIS DESIGN, CLIENT/CONTRACTOR SHALL CARRY OUT DETAILED SOIL INVESTIGATION OF EVERY SITE.
6. THIS FOUNDATION DESIGN SHALL NOT BE USED IN CASE HIGHLY SOIL ARE FOUND AT ANY DEPTH DURING SOIL INVESTIGATION.
7. CONCRETE SHALL BE MECHANICALLY MIXED & VIBRATED.
8. SPLICING OF BARS SHALL NOT BE MORE THAN 50% AT ANY LOCATION.
9. PROPER CURING OF CONCRETE SHALL BE DONE.
10. TENDING OF BARS SHALL BE PER S-260.
11. ANY DISCREPANCY SHOULD BE BROUGHT TO THE CONSULTANT'S ATTENTION.

S.No	DESCRIPTION	DETAILS
1	SOIL BEARING CAPACITY	10.00 T/SQM
2	DRY DENSITY OF SOIL	1.8 T/SQM
3	ANGLE OF REPOSE	30.00 DEGREE

ITEM	UNIT	TOTAL
EXCAVATION	CUM	45.01
PCC-(1:4:8)	CUM	1.72
RCC-M20	CUM	8.13
STEEL-Fe415	KG	645.02

CHAIRS SHALL BE PROVIDED WHEREEVER REQUIRED

REV. NO.	DESCRIPTION		DATE
DRAWN	CHECKED	APPROVED	SCALE
HEMANT	SUJITH	SUJITH	01-12-2025
			NTS

CLIENT:

BHUTAN TELECOM

DESIGN BY: ICON POWER SOLUTIONS PVT. LTD.
GURGAON

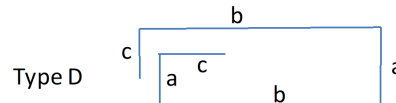
PROJECT:

NETWORK EXPANSION 2025

TITLE : FOUNDATION DETAILS FOR 20M HIGH TRIANGULAR TOWER
SBC : 10 T/SQM

	DRAWING No.	SH. NO.	REV.
	IPS-20M-3L-BT-6G2M	1 OF 2	01

IPS-20M-3L-BT-6G2M Tower Bar Bending Schedule



Cover Slab 50 mm

Column 40 mm

Beam 25 mm

Item	Position	Type	Dia. Of Rebar	Size	Size	Size	Length	Qty in Nos both ways or total	Unit wt	Total Weight of
				a	b	c				
			(mm)	(mm)	(mm)	(mm)	(mm)		(kg/m)	(kg)
Raft Slab	Top	B	B10	2100	250	250	2600	84	0.62	135.41
	Bottom	B	B10	2100	250	250	2600	84	0.62	135.41
Tie Beams	Top	B	B16	2905	200	200	3305	6	1.58	31.33
	Bottom	B	B16	2905	200	200	3305	6	1.58	31.33
	Strips	D	B8	180	250	80	1020	60	0.40	24.48
Column	Main	C	B20	2600	0	600	3200	24	2.47	189.70
	Ties	D	B8	412	412	80	1808	54	0.40	39.05
		D	B8	320	320	80	1440	54	0.40	31.10
		Total								645.02

* Chairs Shall be Provided whenever required

Notes :

1. Dimensions of Bars are along the Center Lines.
2. Splicing of Bars should not be more than 50%. Length of splice as per Standards.



REVISION NOTES

REV. NO.	DESCRIPTION		DATE	SIGN.
DRAWN	CHECKED	APPROVED	DATE	SCALE
HEMANT	SUJITH	SUJITH	01-12-2025	NTS
CLIENT: BHUTAN TELECOM				
DESIGN BY: ICON POWER SOLUTIONS PVT. LTD. GURGAON				
PROJECT: NETWORK EXPANSION 2025				
TITLE : FOUNDATION DETAILS FOR 20M HIGH TRIANGULAR TOWER SBC : 10 T/SQM				
DRAWING No.		SH. NO.	REV.	
IPS-20M-3L-BT-6G2M		2 OF 2	01	