LEGENDS

SYMBOLS	DESCRIPTION	SYMBOLS	DESCRIPTION
	11 KV VCB (VACCUM CIRCUIT BREAKER)		ISOLATOR
	ACB (AIR CIRCUIT BREAKER)	S/S L R	SELECTOR SWITCH
	(MCCB) MOULDED CASE CIRCUIT BREAKER	1 2 3 4 5 6 7 8 9 10 11 12	ANUNCIATION WINDOW WITH
	POTENTIAL TRANSFORMER	TNC	TRIP/NORMAL/CLOSE SWITCH WITH LOST MOTION DEVICE
	CURRENT TRANSFORMER		PUSH BUTTON
	SURGE PROTECTION DEVICES	86	MASTER TRIP RELAY
A	AMMETER	59	OVER VOLTAGE RELAY
V	VOLTMETER	95	TRIP CIRCUIT SUPERVISION RELAY
ASS	AMMETER SELECTOR SWITCH	64	RESTRICTED EARTH FAULT RELAY
VSS	VOLTMETER SELECTOR SWITCH	50	INST. O/C RELAY
	INDICATING LAMP	51	IDMT RELAY
EA	ENERGY ANALYZER WITH MDI	50/51	IDMT & INSTANTANEOUS RELAY
PF	POWER FACTOR METER	59	OVER VOLTAGE RELAY WITH TIMER
Hz	FREQUENCY METER	27	UNDER VOLTAGE RELAY WITH TIMER
	CAPACITOR	2	TIMER
VR	VOLTAGE RELAY	32	REVERSE POWER RELAY
	M.C.B. (MINIATURE CIRCUIT BREAKER)	87	DIFFERENTIAL RELAY
DM	DUAL REGISTER ENERGY METER	BC	BATTERY CHARGER
51N	IDMT EARTH FAULT RELAY	TS	TEMPERATURE SCANNER
51G	SENSITIVE EARTH FAULT RELAY	51V	VOLTAGE RESTRAINED OVER CURRENT RELAY

GENERAL NOTE:- In normal case all three lamps shall be "ON" to indicate that incoming power supply is available. In case of power resumption after failure buzzer shall ring to indicate that power supply is resume, there shall be one push button to acknowledge the same.

NOTES:-

- **ALL THE INDICATIONS & METERING SHALL BE DONE THROUGH 110 VOLTS FROM SECONDARY OF PT's. NO INDICATIONS LAMPS AND METERING SHOULD NOT BE OPERATED AT 415 VOLTS.**
- **1 No. CT's TO BE PROVIDED IN LOOSE CONDITION BY THE PANEL MANUFACTURER TO THE CLIENT FOR REF PROTECTION.**
- **3 Nos. CT's TO BE PROVIDED IN LOOSE CONDITION BY THE PANEL MANUFACTURER TO THE CLIENT FOR DIFFERENTIAL PROTECTION.**

GA DRAWINGS SHALL BE GOT APPROVED BEFORE FABRICATION. THE PANEL HAS TO BE SPECIFICALLY FABRICATED AS PER THE SPACE AVAILABLE AT PANEL ROOM IN BASEMENT. THE EXISTING COLUMN POSITIONS WILL ALSO BE CONSIDERED.

NOTE : -
FOR MAIN LT PANELS
1) All ACB should have Ics = Icu = 50 KA for 1 sec, fully rated at 50 deg C ambient temperature
2) All ACB's shall have an inbuilt facility of O/C, S/C, Instantaneous S/C & Earth fault protection
3) All ACB's shall have Auxiliary switches with 4NO + 4NC contacts.
4) All Incoming ACB's shall facility with LCD / LED display for event history & measurement of current parameters.
5) All MCCB shall be microprocessor based with inbuilt O/L & S/C release with E/F protection
6) All MCCB's shall be Ics = 100% Icu,
7) All MCCB's shall have adjustable O/L & S/C trip setting as per load requirement
8) All Incomer / Bus coupler ACB shall have inbuilt U/V Release.

Interlocking Scheme For PLC load manager.

Conditions		EQUIP.	DG-01 (600 kVA)	B/C	D.G. - 02 (1010 kVA)	T/F-01 (1600 kVA)	B/C	T/F-02 (1600 kVA)	D.G. - 03 (1010 kVA)	B/C	DG-04 (600 kVA)
		ACB No.	1	7	2	3	8	4	5	9	6
Mains "ON"	Under normal condition totall load is at Transformers.		OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
Mains Failure	When max. demand load is upto 408 KW then load transferred to DG-01.		ON	ON	OFF	OFF	ON	OFF	OFF	ON	OFF
	When max. demand load is upto 408 KW & DG-01 fails to start then load transferred to DG-04.		OFF	ON	OFF	OFF	ON	OFF	OFF	ON	ON
	When max. demand load is upto 408 KW & DG-04 fails to start then load transferred to DG-03.		OFF	ON	OFF	OFF	ON	OFF	ON	ON	OFF
	When max. demand load is upto 408 & DG-03 fails to start then load transferred to DG-02.		OFF	ON	ON	OFF	ON	OFF	OFF	ON	OFF
	When max. demand load is upto 687 KW then load transferred to DG-02.		OFF	ON	ON	OFF	ON	OFF	OFF	ON	OFF
	When max. demand load is upto 687 KW & DG-02 fails to start then load transferred to DG-03.		OFF	ON	OFF	OFF	ON	OFF	ON	ON	OFF
	When combined max. demand load of bus section-1 & 2 is upto 408 KW then load of bus section-1 & 2 transferred to DG-01, load of bus section-3 is at DG-03 & load of bus section-4 is at DG-04.		ON	ON	OFF	OFF	OFF	OFF	ON	OFF	ON
	When combined max. demand load of bus section-1 & 2 is upto 408 KW & DG-01 fails to start then load of bus section-1 & 2 transferred to DG-02,load of bus section-3 is at DG-03 & load of bus section-4 is at DG-04.		OFF	ON	ON	OFF	OFF	OFF	ON	OFF	ON
	When combined max. demand load of bus section-1 & 2 is upto 687 KW then load of bus section-1 & 2 transferred to DG-02, load of bus section-3 is at DG-03 & load of bus section-4 is at DG-04.		OFF	ON	ON	OFF	OFF	OFF	ON	OFF	ON
	When combined max. demand load of bus section-2 & 3 is upto 687 KW then load of bus section-2 & 3 transferred to DG-02, load of bus section-1 is at DG-01 & load of bus section-4 is at DG-04.		ON	OFF	ON	OFF	ON	OFF	OFF	OFF	ON
	When combined max. demand load of bus section-2 & 3 is upto 687 KW & DG-02 fails to start then load of bus section-2 & 3 transferred to DG-03, load of bus section-1 is at DG-01 & load of bus section-4 is at DG-04.		ON	OFF	OFF	OFF	ON	OFF	ON	OFF	ON
	When combined max. demand load of bus section-3 & 4 is upto 408 KW then load of bus section -3 & 4 transferred to DG-04, load of bus section-1 is at DG-01 & load of bus section-2 is at DG-02.		ON	OFF	ON	OFF	OFF	OFF	OFF	ON	ON
	When combined max. demand load of bus section-3 & 4 is upto 408 KW & DG-04 fails to start then load of bus section-3 & 4 transferred to DG-03,load of bus section-1 is at DG-01 & load of bus section-2 is at DG-02 .		ON	OFF	ON	OFF	OFF	OFF	ON	ON	OFF
	When combined max. demand load of bus section-3 & 4 is upto 687 KW then load of bus section -3 & 4 transferred to DG-03, load of bus section-1 is at DG-01 & load of bus section-2 is at DG-02.		ON	OFF	ON	OFF	OFF	OFF	ON	ON	OFF
	When max. demand load exceeds from 687 KW and not fulfill any condition shown above then all the four DGs shall run independently at separate bus bar. ie. DG-01 at bus section 01, DG-02 at bus section -2, DG-03 at bus section-3 & DG-04 at bus section-4 .		ON	OFF	ON	OFF	OFF	OFF	ON	OFF	ON

This PLC system shall have.

1) **The PLC shall have a provision of Interlocking between different Incomers & Bus couplers to avoid Paralleling of two different supplies from Transformer & DG sets.**
2) **Logic to AUTO START & AUTO STOP for each DG sets.**
3) **Taking data from Energy Analysers and issuing and selecting starting common for DG set as per above logic. Further it shall also be possible to START/STOP DG sets in Manual/Test Mode.**
4) **Paralleling of DG sets have not been envisaged.**
5) **In case of any discrepancy in interlocking scheme inform consultant before execution.**

FEEDER NUMBER	F - 1	F - 2	F - 3
CIRCUIT BREAKER RATING IN AMPS	630 A TP MCCB (35 KA)	630 A TP MCCB (35 KA)	630 A TP MCCB (35 KA)
CABLE SIZE IN SQ. MM. 'AL'	..	..	---
FEEDER DESCRIPTION	RISING MAINS TOWER - F	RISING MAINS TOWER - G	SPARE

F - 4	F - 5	F - 6	F - 7	F - 8	F - 9	F - 10
1000 A TP MCCB (35 KA)	800 A TP MCCB (35 KA)	160 A TP MCCB (35 KA)	160 A TP MCCB (35 KA)	250 A TP MCCB (35 KA)	1000 A TP ACB (50 KA)	1000 A TP MCCB (35 KA)
3R, 3.5C, 185	2R, 3.5C, 300	1R, 3.5C, 95	1R, 3.5C, 95	..	INTEGRATED WITH LT PANEL	---
RISING MAINS TOWER - B	RISING MAINS TOWER - C	S.T.P.	WATER SUPPLY PUMP	BASEMENT VENTILATION-1	CAP. PANEL 450 KVAR	SPARE

F - 11	F - 12	F - 13	F - 14	F - 15	F - 16	F - 17
630 A (W/O U/V Protection) TP MCCB (35 KA)	630 A TP MCCB (35 KA)	1000 A TP MCCB (35 KA)	1000 A TP ACB (50 KA)	800 A TP MCCB (35 KA)	250 A TP MCCB (35 KA)	1000 A TP MCCB (35 KA)
2R, 3.5C, 240	2R, 3.5C, 185	3R, 3.5C, 240	INTEGRATED WITH LT PANEL	2R, 3.5C, 240	..	---
FIRE PANEL	RISING MAINS TOWER - A	RISING MAINS TOWER - E	CAP. PANEL 450 KVAR	MAIN COMMON SER. PANEL	BASEMENT VENTILATION-2	SPARE

F - 18	F - 19	F - 20	F - 21
1000 A TP MCCB (35 KA)	250 A TP MCCB (35 KA)	160 A TP MCCB (35 KA)	1000 A TP MCCB (35 KA)
3R, 3.5C, 185	1R, 3.5C, 120	1R, 3.5C, 70	...
RISING MAINS TOWER - D	CLUB / COMMUNITY	COMMERCIAL	SPARE

project
VICTORY AMARA
At Plot No.GH-5C, Sector-16,Greater Noida.

title
ELECTRICAL DRAWING

subtitle
MAINS SCHEMATIC DIAGRAM

drawing released for
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- ■ CONSTRUCTION

drg. no. V-AMARA / ELEC / EXT. / 02-01
scale N.T.S. @ A1
date January, 2018
drawn by Najmul
designed by Ateeq Ur Rehman
checked by Anand Havelia

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Electrical Load Calculation - Victory Amara													
At Plot No.GH-5C, Sector-16,Greater Noida.													
S.no	**Description**		**No. of unit**			**Load per Unit**				**Total Load**			
	Tower - A (B+S+13) (Club @ 1st)		**No. of Tower**		**=**	**1**	**nos.**						
1	3B + 2T		24	units	@	3.9	KW		=	94	KW		
	(78 sq M @ 50 W/sqM =	3.90 KW)											
2	3B + 3T		24	units	@	4.2	KW		=	101	KW		
	(84 sq M @ 50 W/sqM =	4.21 KW)											
3	3B + 4T + Serv.		24	units	@	4.8	KW		=	116	KW		
	(97 sq M @ 50 W/sqM =	4.85 KW)											
	Tower - B (B+S+19)		**No. of Tower**		**=**	**1**	**nos.**						
4	2B + 2T		38	units	@	2.8	KW		=	106	KW		
	(56 sq M @ 50 W/sqM =	2.79 KW)											
5	2B + 2T + ST.(A)		38	units	@	3.2	KW		=	121	KW		
	(64 sq M @ 50 W/sqM =	3.19 KW)											
6	3B + 2T(A)		38	units	@	3.9	KW		=	149	KW		
	(78 sq M @ 50 W/sqM =	3.92 KW)											
7	3B + 3T		38	units	@	4.2	KW		=	160	KW		
	(84 sq M @ 50 W/sqM =	4.21 KW)											
	Tower - C (B+S+19)		**No. of Tower**		**=**	**1**	**nos.**						
8	2B + 2T		76	units	@	2.8	KW		=	212	KW		
	(56 sq M @ 50 W/sqM =	2.79 KW)											
9	2B + 2T + ST.		38	units	@	3.2	KW		=	122	KW		
	(64 sq M @ 50 W/sqM =	3.22 KW)											
10	2B + 2T + ST.(A)		38	units	@	3.2	KW		=	121	KW		
	(64 sq M @ 50 W/sqM =	3.19 KW)											
	Tower - D (B+S+19)		**No. of Tower**		**=**	**1**	**nos.**						
11	2B + 2T		38	units	@	2.8	KW		=	106	KW		
	(56 sq M @ 50 W/sqM =	2.79 KW)											
12	2B + 2T + ST.(A)		76	units	@	3.2	KW		=	242	KW		
	(64 sq M @ 50 W/sqM =	3.19 KW)											
13	3B + 2T(A)		38	units	@	3.9	KW		=	149	KW		
	(78 sq M @ 50 W/sqM =	3.92 KW)											
	Tower - E (B+S+19)		**No. of Tower**		**=**	**1**	**nos.**						
14	2B + 2T		38	units	@	2.8	KW		=	106	KW		
	(56 sq M @ 50 W/sqM =	2.79 KW)											

Electrical Load Calculation - Victory Amara												
At Plot No.GH-5C, Sector-16,Greater Noida.												
S.no	**Description**		**No. of unit**			**Load per Unit**				**Total Load**		
15	2B + 2T + ST.(A)		76	units	@	3.2	KW		=	242	KW
	(64 sq M @ 50 W/sqM =	3.19 KW)										
16	2B + 2T + ST.		19	units	@	3.2	KW		=	61	KW
	(64 sq M @ 50 W/sqM =	3.19 KW)										
17	2B + 2T + ST.		19	units	@	3.2	KW		=	61	KW
	(64 sq M @ 50 W/sqM =	3.22 KW)										
	Tower - F (B+S+14)		**No. of Tower**		**=**	**1**	**nos.**					
18	2B + 2T		14	units	@	2.8	KW		=	39	KW
	(56 sq M @ 50 W/sqM =	2.79 KW)										
19	2B + 2T(A)		14	units	@	2.8	KW		=	39	KW
	(55 sq M @ 50 W/sqM =	2.77 KW)										
20	2B + 2T + ST.(A)		28	units	@	3.2	KW		=	89	KW
	(64 sq M @ 50 W/sqM =	3.19 KW)										
21	3B + 2T(A)		28	units	@	3.9	KW		=	110	KW
	(78 sq M @ 50 W/sqM =	3.92 KW)										
	Tower - G (B+S+14)		**No. of Tower**		**=**	**1**	**nos.**					
22	2B + 2T		14	units	@	2.8	KW		=	39	KW
	(56 sq M @ 50 W/sqM =	2.79 KW)										
23	2B + 2T(A)		14	units	@	2.8	KW		=	39	KW
	(55 sq M @ 50 W/sqM =	2.77 KW)										
24	3B + 2T(A)		28	units	@	3.9	KW		=	110	KW
	(78 sq M @ 50 W/sqM =	3.92 KW)										
25	3B + 3T		28	units	@	4.2	KW		=	118	KW
	(84 sq M @ 50 W/sqM =	4.21 KW)										
	COMMON SERVICES - TOWERS											
	Tower - A (B+S+13) (Club @ 1st)		**No. of Tower**		**=**	**1**	**nos.**					
26	Elevators (13 Passenger) 1.0 mps		2	nos	@	7	KW		=	14	KW
27	Elevators (10 Passenger) 1.0 mps		1	nos	@	6	KW		=	6	KW
28	Common Lights		1	towers	@	3	KW		=	3	KW
	Tower - B (B+S+19)		**No. of Tower**		**=**	**1**	**nos.**					
29	Elevators (13 Passenger) 1.5 mps		2	nos	@	12	KW		=	24	KW
30	Elevators (10 Passenger) 1.5 mps		1	nos	@	9	KW		=	9	KW

Electrical Load Calculation - Victory Amara												
At Plot No.GH-5C, Sector-16,Greater Noida.												
S.no	**Description**		**No. of unit**			**Load per Unit**				**Total Load**		
31	Common Lights		1	towers	@	3	KW		=	3	KW
	Tower - C (B+S+19)		**No. of Tower**		**=**	**1**	**nos.**				
32	Elevators (13 Passenger) 1.5 mps		2	nos	@	12	KW		=	24	KW
33	Elevators (10 Passenger) 1.5 mps		1	nos	@	9	KW		=	9	KW
34	Common Lights		1	towers	@	3	KW		=	3	KW
	Tower - D (B+S+19)		**No. of Tower**		**=**	**1**	**nos.**				
35	Elevators (13 Passenger) 1.5 mps		2	nos	@	12	KW		=	24	KW
36	Elevators (10 Passenger) 1.5 mps		1	nos	@	9	KW		=	9	KW
37	Common Lights		1	towers	@	3	KW		=	3	KW
	Tower - E (B+S+19)		**No. of Tower**		**=**	**1**	**nos.**				
38	Elevators (13 Passenger) 1.5 mps		2	nos	@	12	KW		=	24	KW
39	Elevators (10 Passenger) 1.5 mps		1	nos	@	9	KW		=	9	KW
40	Common Lights		1	towers	@	3	KW		=	3	KW
	Tower - F (B+S+14)		**No. of Tower**		**=**	**1**	**nos.**				
41	Elevators (13 Passenger) 1.0 mps		2	nos	@	7	KW		=	14	KW
42	Elevators (10 Passenger) 1.0 mps		1	nos	@	6	KW		=	6	KW
43	Common Lights		1	towers	@	3	KW		=	3	KW
	Tower - G (B+S+14)		**No. of Tower**		**=**	**1**	**nos.**				
44	Elevators (13 Passenger) 1.0 mps		2	nos	@	7	KW		=	14	KW
45	Elevators (10 Passenger) 1.0 mps		1	nos	@	6	KW		=	6	KW
46	Common Lights		1	towers	@	3	KW		=	3	KW
	COMMON SERVICES										
47	Commercial (At tower - A)								=	85	KW
48	Club / Community / Swining Pool (At Tower A)								=	100	KW
49	Water supply pumps & Tubewells								=	70	KW
50	Sewage Treatment Plant								=	70	KW
51	External / Gate / Landscape lighting		1	Job	@	10	KW		=	10	KW
52	Basement Lighting	16626		Sq M	@	0.7	W/sq.m		=	12	KW

Electrical Load Calculation - Victory Amara										
At Plot No.GH-5C, Sector-16,Greater Noida.										
S.no	**Description**	**No. of unit**		**Load per Unit**				**Total Load**		
53	Podium Lighting	9265	Sq M	@	0.7	W/sq.m		=	6	KW
54	Basement Ventilation							=	90	KW
55	Fire Pumps (only jockey pumps have been considered)	2	set	@	15	KW		=	30	KW
				Total Load				**=**	**3539**	**KW**
By taking Overall Diversity factor						**60**	**%**	**=>**	**2124**	**KW**
By taking Power factor						**0.90**		**=>**	**2360**	**KVA**
Total Electrical Load = 2360 KVA										
Recommended Transformers (@85 % loading) = 2 Nos. 1600 KVA each.										
Calculation for DG sets										
By taking Power factor						**0.80**		**=>**	**2650**	**KVA**
Total Electrical Load = 2650 KVA										
Recommended DG sets (@ 85% loading) = 2 Nos. 1010 KVA & 2 nos 600 KVA.										