



Nizam Power (Private) Ltd.

EPC/ & Turnkey Solar Projects

Head Office : G-30/4 KDA Scheme No 5,

Block-8, Clifton Karachi, Pafotan

Tel : +92-21-3536-0583

Fax : +92-21-3536-0584

Dated: Feb 20th, 2023

The Registrar

National Electric Power Regulatory Authority

NEPRA Tower, East Ataturk Avenue, G-5/1

Islamabad.

Subject: APPLICATION FOR MODIFICATION IN GENERATION LICENSE NO. SGC150/2020 FOR 9.5MW SOLAR POWER PLANTS BY NIZAM POWER (PVT) LIMITED.

Ref'nce: Generation license No. SGC150/2020 date 15-10-2020

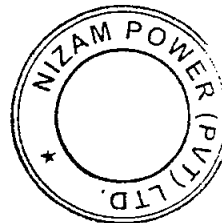
Dear Sir,

- a) The Company was granted Generation License No. SGC150/2020 dated October 15, 2020 ("The Generation License pursuant to Section 14(B) of Regulation of Generation, transmission and distribution of Electric Power act 1997, read with relevant provisions of NEPRA Licensing (Application and Modification Procedure regulation), 1999.

The Company intends to add one Consumer to the existing License. Plant is already installed at LUMS Lahore, which is one of the reputed institutes of Pakistan, partnered with the company to convert their campus into greener and cleaner energy.

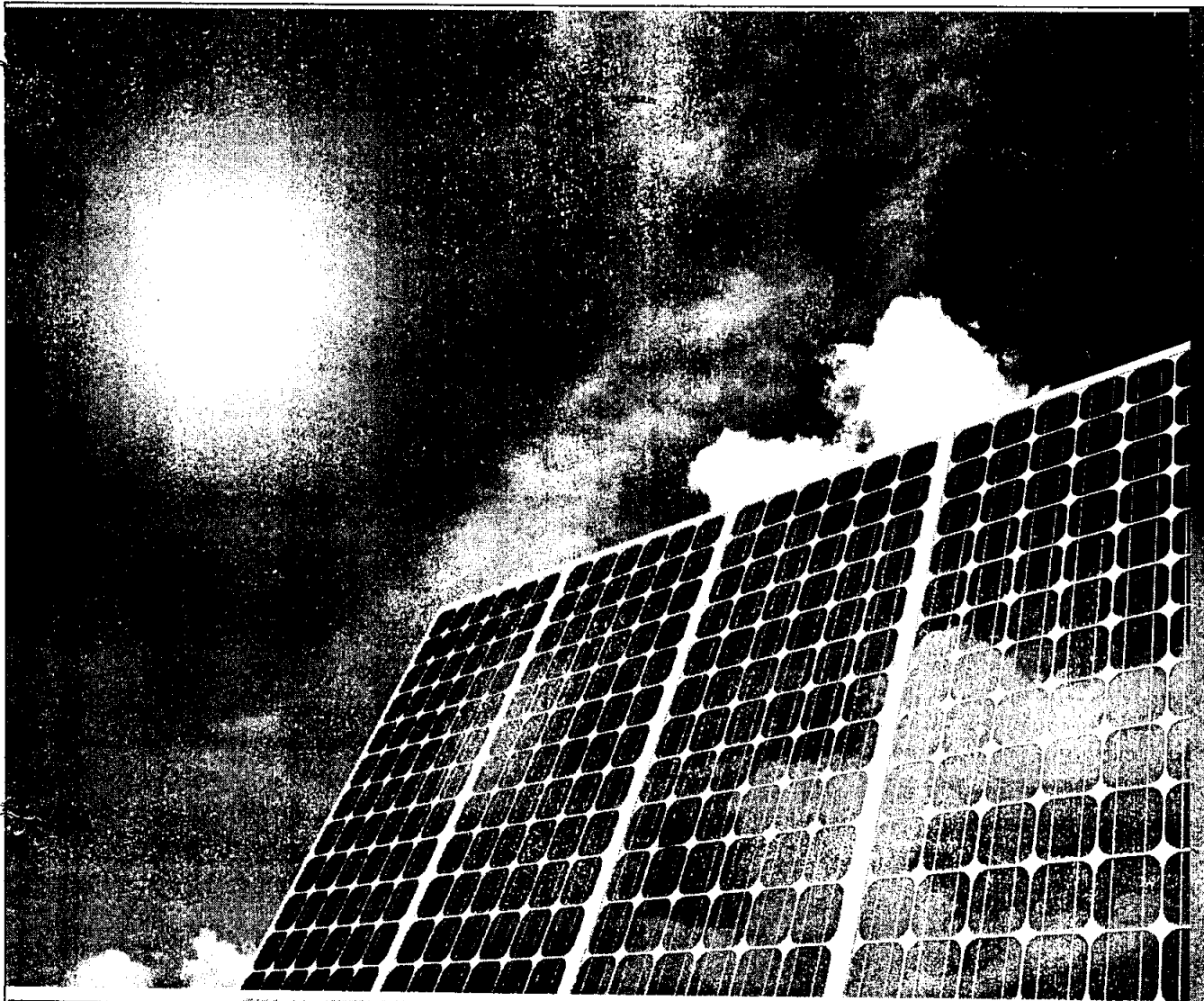
Furthermore, Licensee want to utilize the latest available PV modules with higher wattage as module sizes mentioned in the Issued GL are now obsolete and not available. Due to change in Module wattage and size, Plant capacities, layouts and technical parameters are also changed.

- b) Pursuant to NEPRA Regulations 2021, Section 3 (10), No impact will be occurred on tariff, Quality of services and the performance by licensee of its obligations under the license. However, one more site will be added in addition with some changes in plant capacities and technical prospects of existing sites mentioned in the Issued Generation License.
- c) Therefore, the company hereby submits the application for modification of generation license, Pursuant to National Electric Power Regulatory Authority Licensing (Application, Modification, Extension and Cancellation) Procedure Regulations, 2021.



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051-2120320



National Electric Power Regulatory Authority (NEPRA)

APPLICATION FOR MODIFICATION IN GENERATION LICENSE NO. SGC150/2020 FOR 9.5MW SOLAR POWER PLANTS BY NIZAM POWER (PVT) LIMITED.

SUBMITTED BY: NIZAM POWER (PVT) LTD.

20-Feb-2022

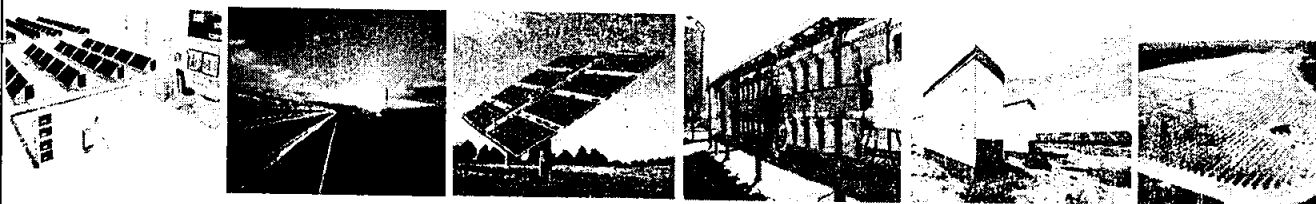


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APPLICATION FOR MODIFICATION IN GENERATION
LICENSE NO. SGC150/2020 FOR 9.5MW SOLAR
POWER PLANTS BY NIZAM POWER (PVT) LIMITED.



ANNEXURE-1
COVER LETTER



Nizam Power (Private) Ltd.

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Ref'nce: Generation license No. SGC150/2020 date 15-10-2020

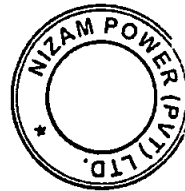
Dear Sir,

- a) The Company was granted Generation License No. SGC150/2020 dated October 15, 2020 ("The Generation License pursuant to Section 14(B) of Regulation of Generation, transmission and distribution of Electric Power act 1997, read with relevant provisions of NEPRA Licensing (Application and Modification Procedure regulation), 1999.

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Furthermore, Licensee want to utilize the latest available PV modules with higher wattage as module sizes mentioned in the Issued GL are now obsolete and not available. Due to change in Module wattage and size, Plant capacities, layouts and technical parameters are also changed.

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- c) Therefore, the company hereby submits the application for modification of generation license, Pursuant to National Electric Power Regulatory Authority Licensing (Application, Modification, Extension and Cancellation) Procedure Regulations, 2021.



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Nizam Power (Private) Ltd.

EPC & Turnkey Solar Projects

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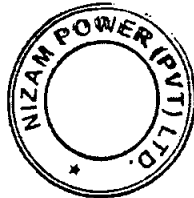
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- d) I, Usman Ahmad, Chief Executive Officer, being the duly authorized representative of Nizam Power (Private) Limited by virtue of Board Resolution dated Feb 01, 2023, hereby apply to National Electric Power Authority for the Grant of Generation License Modification in the existing to Nizam Power (Private) Limited. Generation License No. SGC150/2020 pursuant to NEPRA Licensing regulations 2021, for application and modification procedure.
- e) I certify that the documents-in-support attached with this application are prepared and submitted in conformity with the provisions of the National Electric Power Regulatory Authority Licensing (Application, Modification, Extension and Cancellation) Procedure Regulations, 2021 and undertake to abide by the terms and provisions of the above-said regulations. I further undertake and confirm that the information provided in the attached documents-in-support is true and correct to the best of my knowledge and belief.
- f) A BANK DRAFT in sum of Rupees 418,335/- being the non-refundable license application fee calculated in accordance with Schedule II to National Electric Power Regulatory Authority Licensing (Application, Modification, Extension and Cancellation) Procedure Regulations, 2021, is also attached herewith.
- Existing License No. SGC150/2020 is herewith attached.
 - The application is filed in triplicate with all annexure appended with each set of the application.

Sincerely,



Usman Ahmad
Chief Executive Officer

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APPLICATION FOR MODIFICATION IN GENERATION
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ANNEXURE-2
BOARD RESOLUTION



Nizam Power (Private) Ltd.

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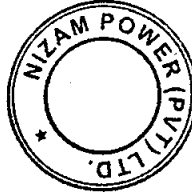
Fax : +92-21-3536-0584

EXTRACTS OF BOARD RESOLUTION PASSED ON FEBRUARY 01, 2023

RESOLVED THAT an application under Regulation 10 (1)(2) of National Electric Power Regulatory Authority Licensing (Application, Modification, Extension and Cancellation) Procedure Regulations, 2021 shall be filed with National Electric Power Regulatory Authority for necessary modifications in Generation License No SGC/150/2020 dated: 15th Oct, 2020.

RESOLVED FUTHER THAT Mr. Usman Ahmed, Chief Executive Officer of the Company be and are hereby singly and severally authorized to sign all/any forms, documents as may be required to be filed with the National Electric Power Regulatory Authority.

CEO



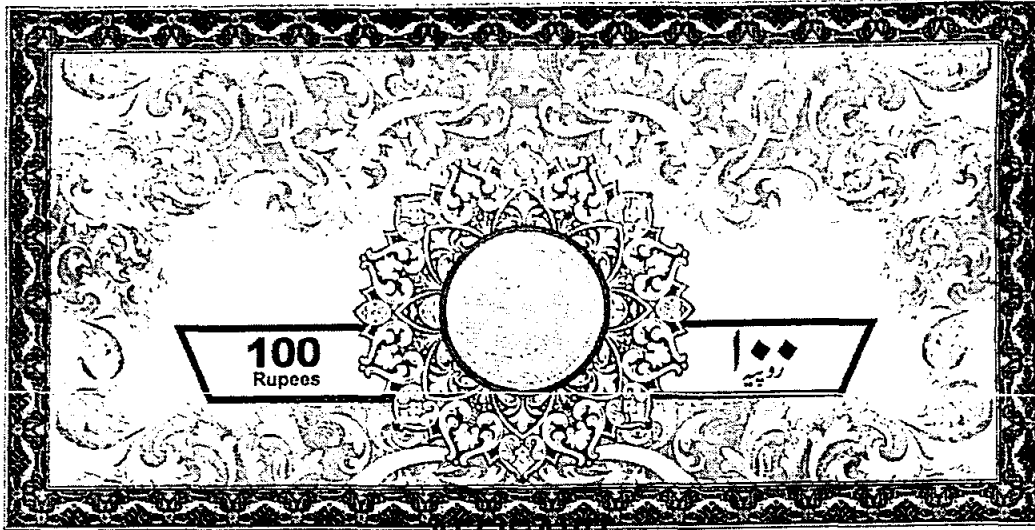
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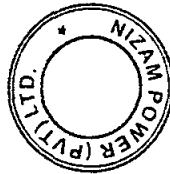
**APPLICATION FOR MODIFICATION IN GENERATION
LICENSE NO. SGC150/2020 FOR 9.5MW SOLAR
POWER PLANTS BY NIZAM POWER (PVT) LIMITED.**



**ANNEXURE-3
UNDERTAKING**

**AFFIDAVIT**

I, Usman Ahmed, CNIC No. 42201-5745466-1, Chief Executive Officer, Nizam Power (Private) Limited, hereby solemnly affirm and declare on oath that the contents of the accompanying application of Nizam Power (Private) Limited Solar Limited for the modification of its Generation License No. SGC/150/2020 dated 15th October 2020, including all attached documents-in-support are true and correct to the best of my knowledge and belief and that nothing has been concealed.

DEPONENTSignature: Name: Usman Ahmed

Date: Feb 20, 2023



APPLICATION FOR MODIFICATION IN GENERATION
LICENSE NO. SGC150/2020 FOR 9.5MW SOLAR
POWER PLANTS BY NIZAM POWER (PVT) LIMITED.



ANNEXURE-4
LICENSE PROPOSED MODIFICATION

2. Licensee Proposed Modification

This application for modification is being filed pursuant to:

a) Sub-regulation 1 of Regulation 10 of the NEPRA Licensing (Application, Modification, Extension and Cancellation) Procedure Regulations, 2021 which provides, inter alia, that:

"A licensee may, at any time during the term of a license, communicate to the Authority a Licensee proposed modification setting out the:

- (i) the text of the proposed modification;
- (ii) a statement of reasons in support of the modifications; and
- (iii) a statement of the impact on tariff, quality of service and the performance of the licensee of its obligations under the license."

2.1 Text of Proposed Modification

2.1.1. The Existing Generation License No. SGC150/2020 dated October 15, 2020 issued to Nizam Power (Pvt) Limited for supplying of power to Quetta Cantonments in the province of Baluchistan. Capacity allowed in the Existing Generation License is 9.5MW.

Consumer's details under the issued Generation License is mentioned below.

i.	MES for its Quetta Cantt at Moladad	3.47 MWp
ii.	MES for its Quetta Cantt at 95EME	4.40 MWp
iii.	MES for its Khuzdar Cantt at Khuzdar and Jinnah Camp	1.632 MWp
Total Capacity		9.5MWp

Module of 405Wp were used at the time of contract with MES, However Manufacturer has stopped producing this model, Therefore, Licensee wants to utilize the latest available Module i.e. 540Wp Bifacial Module which results in change of plant capacity and its technical parameters. All the amendments occurred due to change in module sizes are duly mentioned in Schedule I and II. Please see attached Annexure 5 for the details.

Capacities of Plants Changed after Replacing Module from 405W to 540Wp Module are mentioned below.

i.	MES for its Quetta Cantt at Moladad	3.54 MWp
ii.	MES for its Quetta Cantt at 95EME	4.47 MWp
iii.	MES for its Khuzdar Cantt at Khuzdar and Jinnah Camp	1.4 MWp

Total Capacity (After Modifications) 9.41MWp

2.1.2 Now, Nizam Power (Pvt) Limited Intends to supply energy to one more consumer under the same license. The Licensee want to add LUMS as Fourth Consumer to the Generation Licenses issued. The details of new consumer are mentioned below.

- Name of Consumer: Lahore University of Management Sciences (LUMS).
- Plant Location: LUMS, DHA Phase 5 Lahore.
- installed Capacity of Generation Capacity: 397kWp
- Plant Installation is Complete.
- Technical Details are duly attached as Schedule I and II in Annexure 6.

After addition of above Consumer, there will be 4 Consumers under the Same Generation License issued. Please see the below details.

1	MES for its Quetta Cantt at Moladad,	3.54 MWp
2	MES for its Quetta Cantt at 95EME,	4.47 MWp
3	MES for its Khuzdar Cantt at Khuzdar and Jinnah Camp	1.4 MWp
4	LUMS Lahore	0.397MWp
Total Capacity (After Modification)		9.81 MWp

2.2 Statement of reasons in support of the modifications

Solar Panel Manufacturers keep updating the Models while utilizing latest technologies to produce Modules with better efficiencies. Therefore, some models become absolute and new models are being introduced. Change in Module Size and using the latest PV Modules gives better output efficiency which improves the overall performance of PV Plant.

The company intends to supply power to one of the reputed educational institution of Pakistan i.e. Lahore University of Management Sciences (LUMS) Lahore. Plant capacity at the LUMS is 397kWp. Addition of one more consumer to the existing License shall not bring any changes to solar plants generation and other project milestones of existing license consumers.

2.3 Statement of the impact on tariff, quality of service and the performance of the licensee of its obligations under the license.

Generation of Solar power at consumer location is based on bilateral contract under PPA Model. Thus, the proposed modification will not have any impact on the tariff, quality of service and the performance by the licensee of its obligations under the license. Change of Module Size and Model is already being communicated to the customer. Subsequent Changes are already being communicated with customer while following the signed contract with the consumer. These modifications have no negative impact on the overall obligations of licensee under the signed contract with customer.

By adding one more consumer to this License will bring no changes in overall performance of licensee. Licensee have already signed a contract with LUMS separately in which roles and responsibilities of licensee are clearly defined and mutually agreed by both parties. There shall be no impact on Performance and Quality of Services for any consumers after this modification. However, capacity of LUMS shall be added to the overall capacity of Generation License.

APPLICATION FOR MODIFICATION IN GENERATION
LICENSE NO. SGC150/2020 FOR 9.5MW SOLAR
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ANNEXURE-5

MES ARMY Modified (SCHEDULE-I)

SCHEDULE-I

The Location, Size (i.e. Capacity in MW), Type of Technology, Interconnection Arrangements, Technical Limits, Technical/Functional Specifications and other details specific to the Generation Facilities of the Licensee are described in this Schedule.

1.MES ARMY

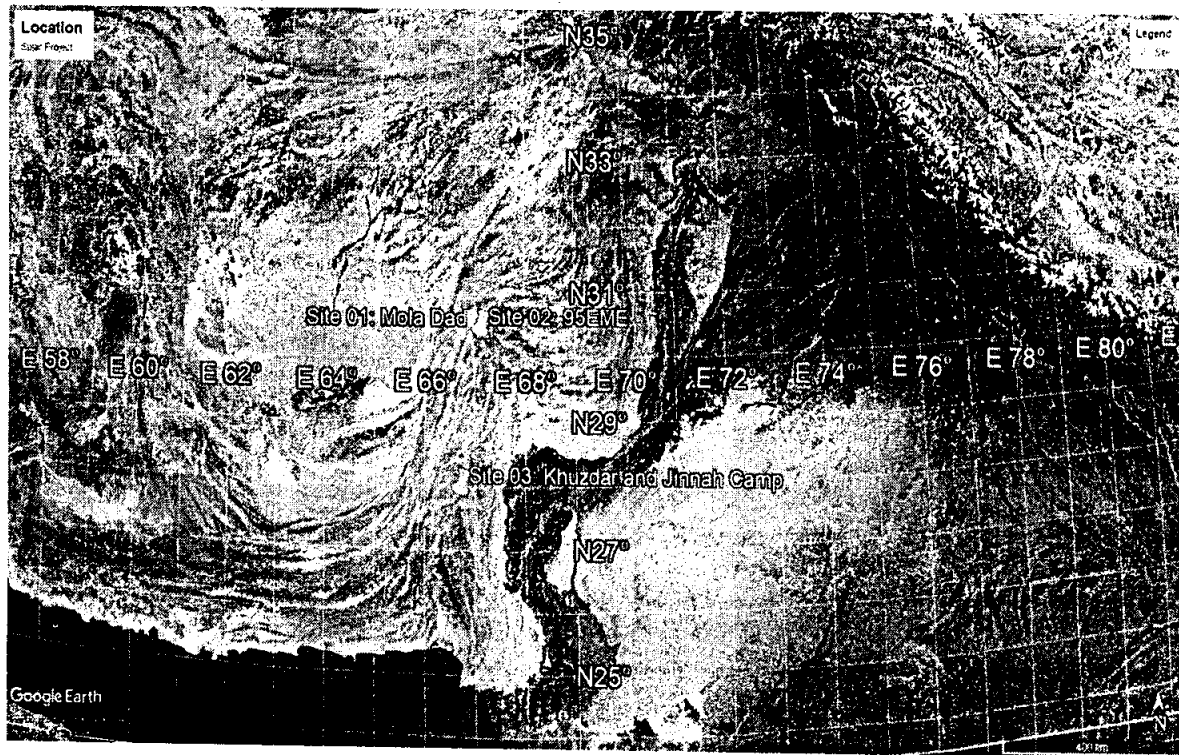
Location of the Generation Facility/Solar Power Plant/Solar Farm of the Licensee

There are three sites for the MES Solar Farms, located in Quetta and Khuzdar Cantonment:

Site 01: MES Mola Dad

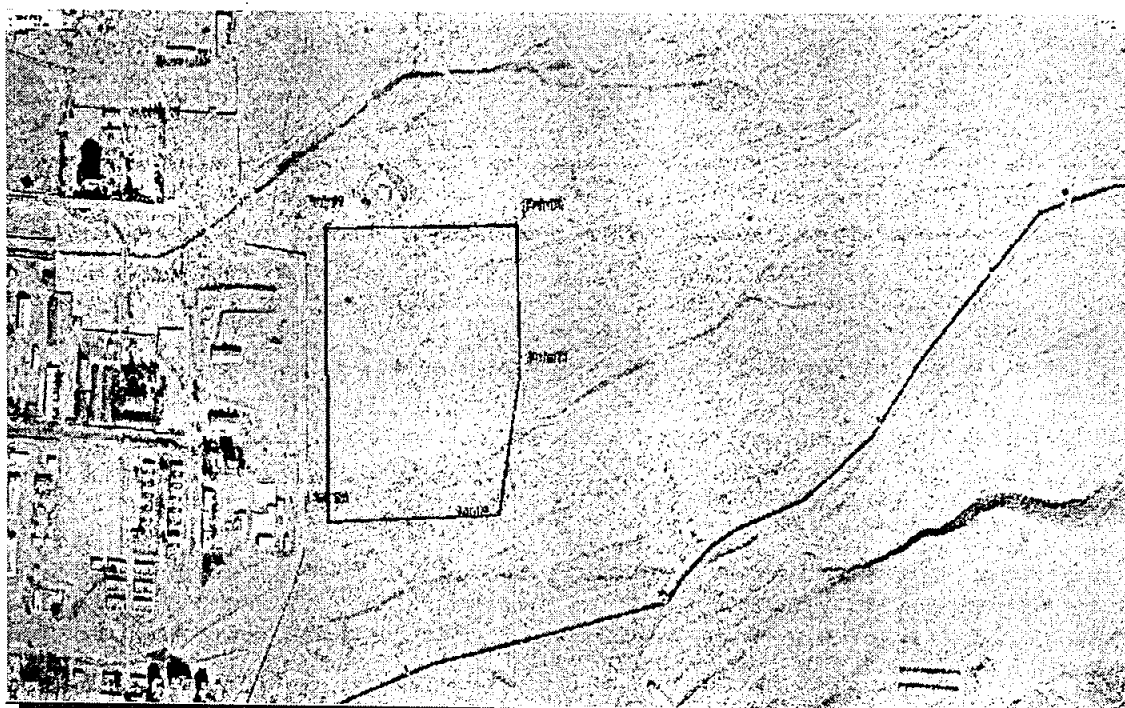
Site 02: MES 95EME

Site 03: Khuzdar and Jinnah Camp



Land Coordinates of the Generation Facility/Solar Power Plant/Solar Farm
of the Licensee

Site 01: Mola Dad Quetta Cantt.



Road Project and 0.95 KM Site - 12/A to

<u>Sr. No.</u>	<u>Latitude</u>	<u>Longitude</u>
Point	30°12'10.08"N	67°02'50.81"E
Point	30°12'10.25"N	67°02'58.17"E
Point	30°12'00.40"N	67°02'50.83"E
Point	30°12'00.76"N	67°02'57.42"E
Point	30°12'05.55"N	67°02'58.00"E

Land Coordinates of the Generation Facility/Solar Power Plant/Solar Farm of the Licensee

Site 02: 95 EME Quetta Cantt.

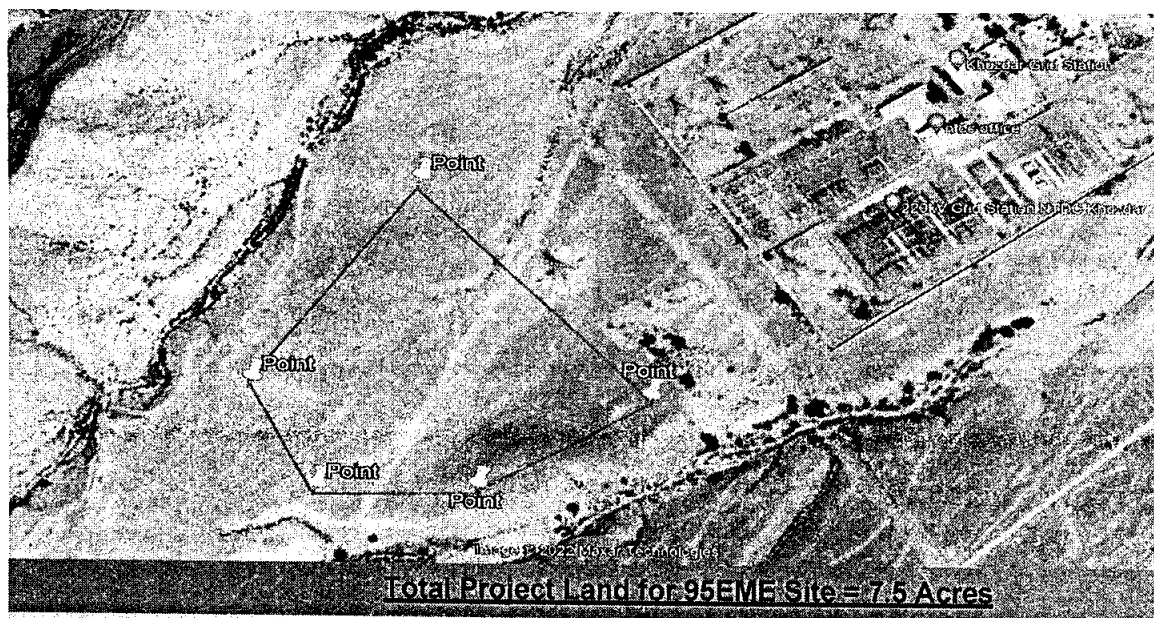


Total Project Land for 95EME Site = 14.6 Acres

<u>Sr. No.</u>	<u>Latitude</u>	<u>Longitude</u>
Point	30°13'53.79"N	67°00'48.72"E
Point	30°13'52.77"N	67°00'55.62"E
Point	30°13'53.56"N	67°00'58.24"E
Point	30°13'52.98"N	67°01'02.26"E
Point	30°13'49.76"N	67°01'10.92"E
Point	30°13'47.41"N	67°01'10.31"E
Point	30°13'48.88"N	67°01'06.11"E
Point	30°13'50.43"N	67°00'57.59"E
Point	30°13'51.23"N	67°00'53.94"E
Point	30°13'43.50"N	67°00'51.97"E
Point	30°13'48.57"N	67°00'50.89"E
Point	30°13'48.83"N	67°00'48.66"E

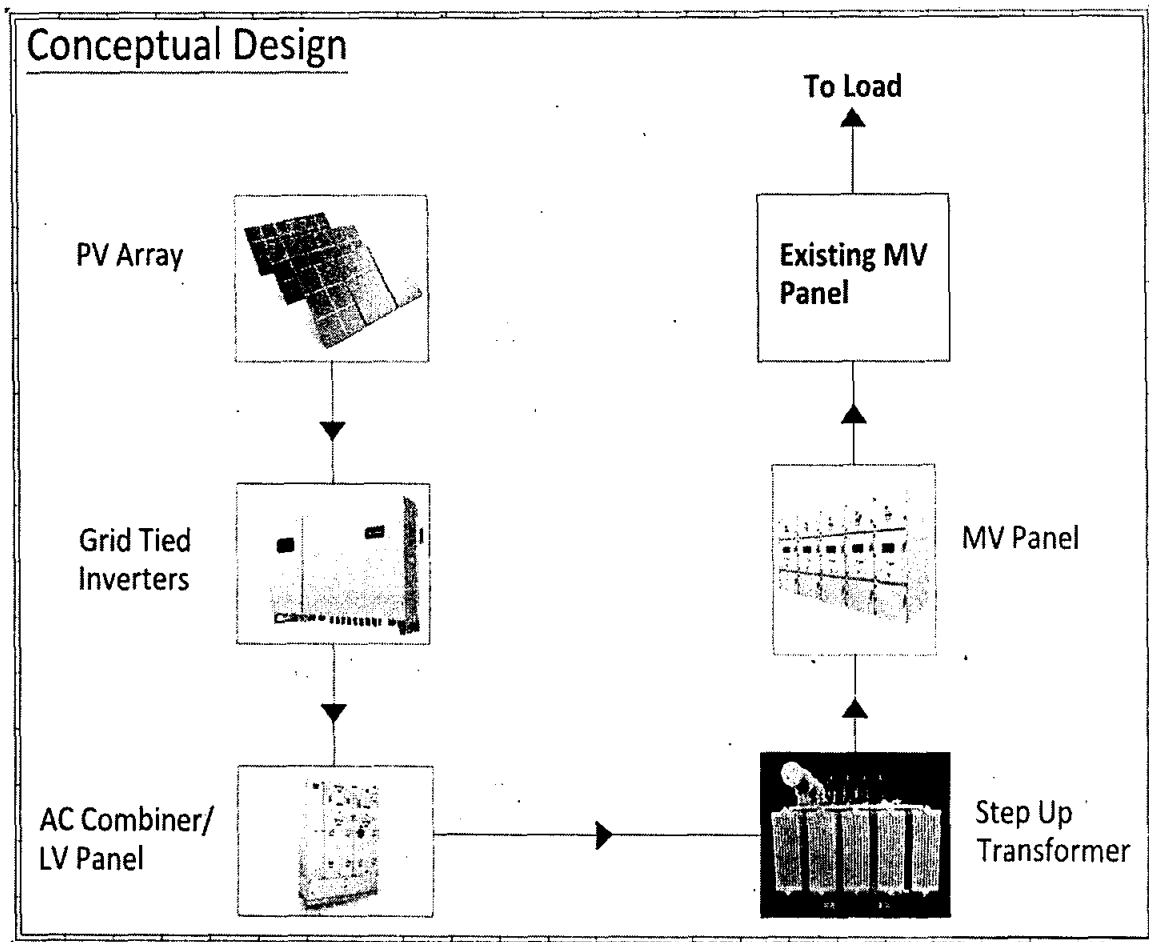
Land Coordinates of the Generation Facility/Solar Power Plant/Solar Farm
of the Licensee

Site 03: Khuzdar and Jinnah Camp Site



<u>Sr. No.</u>	<u>Latitude</u>	<u>Longitude</u>
Point 1	27.762326°N	66.624985°E
Point 2	27.760883°N	66.626400°E
Point 3	27.760307°N	66.625329°E
Point 4	27.760296°N	66.624334°E
Point 5	27.760988°N	66.623938°E

**Process Flow Diagram of the Generation Facility/Solar Power
Plant/Solar Farm of the Licensees**



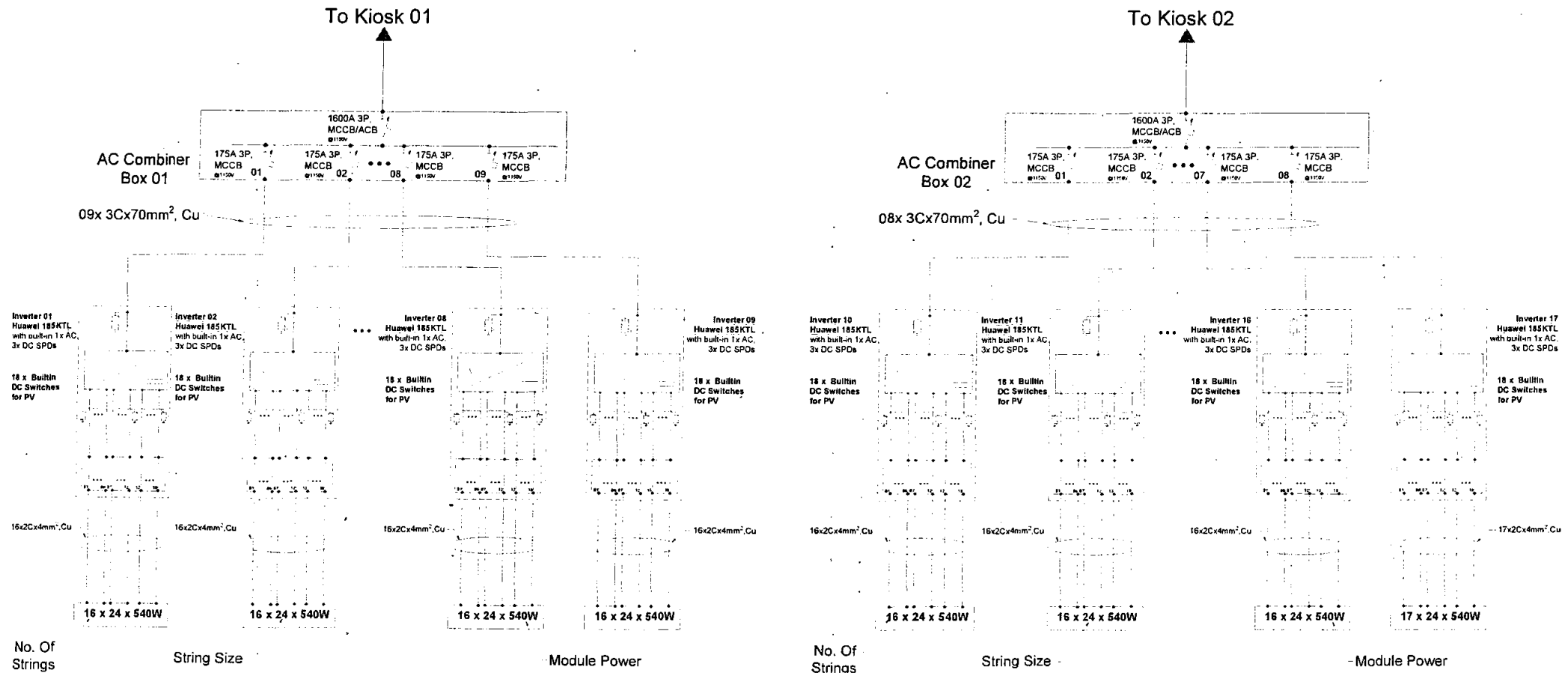
Single Line Diagram

LV/DC Side

South Zone-1 (Baluchistan)

Quetta 2(Mola Dad) -3.53MW-SPP

DC Cable
AC Cable



Inverter	Huawei SUN2000-185KTL-H1	Module Type	Mono Crystalline Bifacial	Number of Strings per MPPT	02	Project No.	NEL-1120-QTA3472-GM	Contractor: Nizam Energy (Pvt.) Ltd.
Total Number of Inverters	17	Normal Module Power	540 Wp	PV per MPPT	25.92/12.96kW	DWG. No.	NEL-1120-QTA3472-GM-SLD	Project: PROCUREMENT OF GRID CONNECTED SOLAR PV PLANTS AGGREGATE UPTO 50MW AT VARIOUS PLACES IN PAKISTAN
Power of Inverter	175kW @40°C Max. Active Power 185kW (cosφ=1)	Total Number of Modules	6552	Site & Location of the Project	Quetta-2, Mola Dad	Designed by	Salman Qayyum	Client: MES
Number of MPPTs per Inv.	09	Number of Modules per String	24	Stage	Preliminary DWG	Checked by	Salman Qayyum	Title: Single Line Diagram
Total MPPTs	153	Total Number of Strings	273	Revision No.	Advanced Copy	Verified by	Zeeshan Bashir	
Max Current per MPPT	26A	Strings per Inverter	16/17			Date	21-11-2022	

Single Line Diagram of the Generation
Facility/Solar Power Plant/Solar Farm of the
Licensee

Site 01: Mola Dad LV/MV SLD

LV SLD

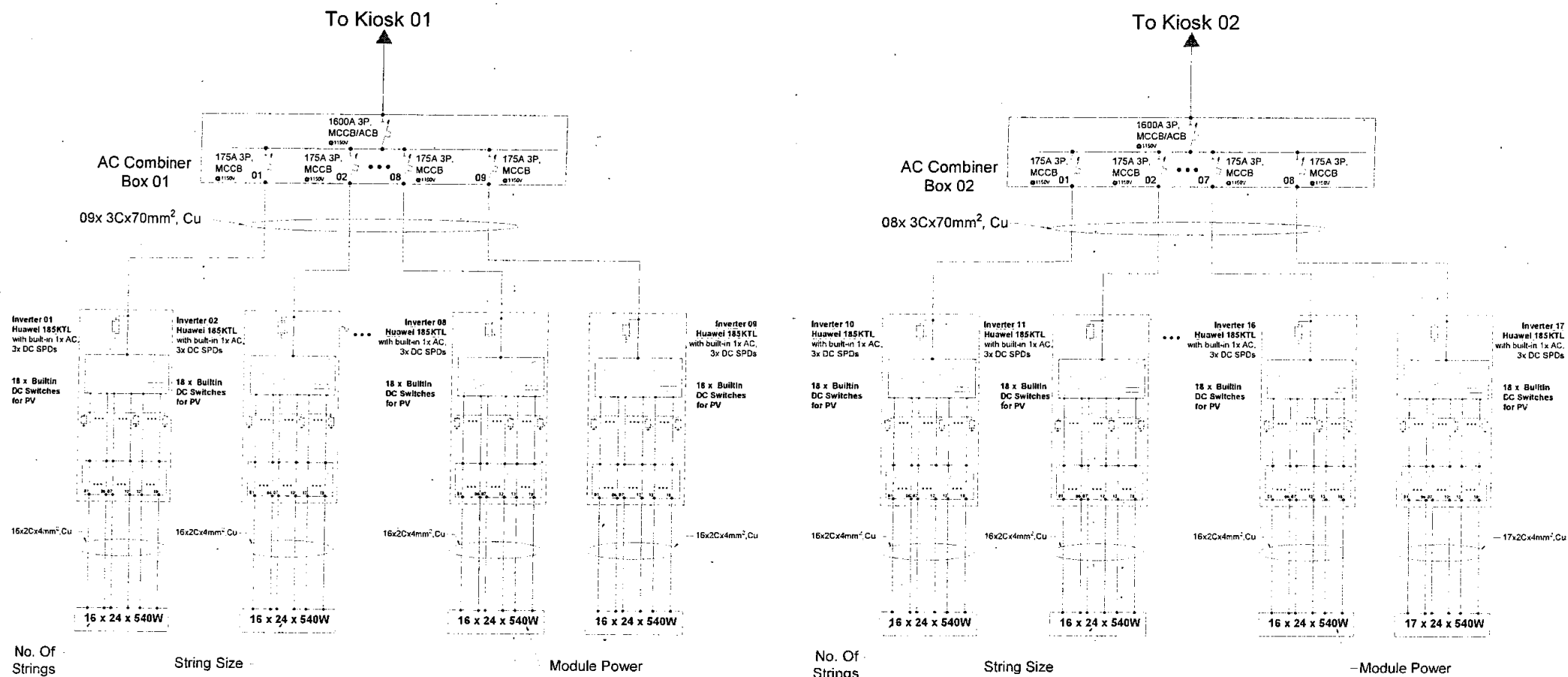
Single Line Diagram

LV/DC Side

South Zone-1 (Baluchistan)

Quetta 2(Mola Dad) -3.53MW-SPP

--- DC Cable
--- AC Cable



Inverter	Huawei SUN2000-185KTL-H1	Module Type	Mono Crystalline Bifacial	Number of Strings per MPPT	02	Project No.	NEL-1120-QTA3472-GM	Contractor:	Nizam Energy (Pvt.) Ltd.
Total Number of Inverters	17	Normal Module Power	540 Wp	PV per MPPT	25.92/12.96kW	DWG. No.	NEL-1120-QTA3472-GM-5LD	Project:	PROCUREMENT OF GRID CONNECTED SOLAR PV PLANTS AGGREGATE UPTO 50MW AT VARIOUS PLACES IN PAKISTAN
Power of Inverter	175kW @40°C Max. Active Power 185kW (cosφ=1)	Total Number of Modules	6552	Site & Location of the Project	Quetta-2, Mola Dad	Designed by	Salman Qayyum	Client:	MES
Number of MPPTs per Inv.	09	Number of Modules per String	24	Stage	Preliminary DWG	Checked by	Salman Qayyum	Title:	Single Line Diagram
Total MPPTs	153	Total Number of Strings	273	Revision No.	Advanced Copy	Verified by	Zeeshan Bashir		
Max Current per MPPT	26A	Strings per Inverter	16/17			Date	21-11-2022		

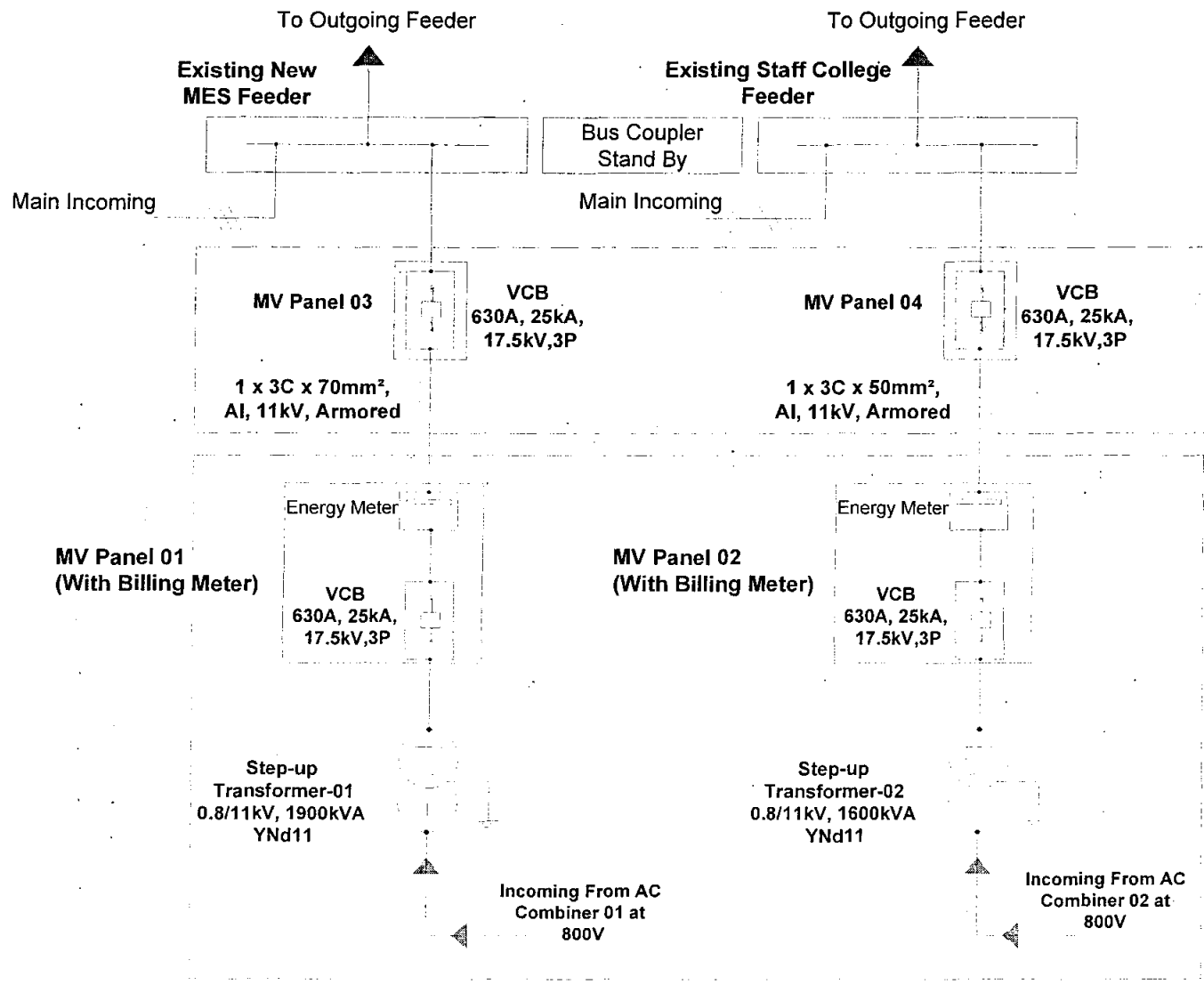
MV SLD

Single Line Diagram

AC MV Side

South Zone-1 (Baluchistan)

Quetta 2(Mola Dad) -3.53MW-SPP



AC Cable

Inverter	Huawei SUN2000-185KTL-H1	Module Type	Mono Crystalline Bifacial	Number of Strings per MPPT	02	Project No.	NEL-1120-QTA3472-GM	Contractor:	Nizam Energy (Pvt.) Ltd.
Total Number of Inverters	17	Nominal Module Power	540 Wp	PV per MPPT	25.92/12.96kW	DWG. No.	NEL-1120-QTA3472-GM-SLD	Project:	PROCUREMENT OF GRID CONNECTED SOLAR
Power of Inverter	175kW @40°C Max. Active Power 185kW (cosφ=1)	Total Number of Modules	6552	Site & Location of the Project	Quetta-2, Mola Dad	Designed by	Salman Qayyum		PV PLANTS AGGREGATE UPTO 50MW AT
Number of MPPTs per Inv.	09	Number of Modules per String	24	Stage	Preliminary DWG	Checked by	Salman Qayyum	Client:	MES
Total MPPTs	153	Total Number of Strings	273	Revision No.	Advanced Copy	Verify by	Zeeshan Bashir	Title:	Single Line Diagram
Max Current per MPPT	26A	Strings per Inverter	16/17			Date	21-11-2022		

Single Line Diagram of the Generation
Facility/Solar Power Plant/Solar Farm of the
Licensee

Site 02: 95EME LV/MV SLD

LV SLD

Single Line Diagram

LV/DC Side

South Zone-1 (Baluchistan)

Quetta 1(95EME) -4.47MW-SPP

To KIOSK 01(2400KVA)

DC Cable
AC Cable

AC
Combiner
Box 01

Inverter 11
Huawei 185KTL
with built-in 1x
AC,
3x DC SPDs

18 x Built-in
DC
Switches
for PV

16x2Cx4mm², Cu

16 x 24 x 540W

Inverter 15
Huawei 185KTL
with built-in 1x
AC,
3x DC SPDs

18 x Built-in
DC
Switches
for PV

16x2Cx4mm², Cu

16 x 24 x 540W

Inverter 16
Huawei 185KTL
with built-in 1x
AC,
3x DC SPDs

18 x Built-in
DC
Switches
for PV

14x2Cx4mm², Cu

16 x 24 x 540W

12x 3Cx70/95/120mm², Cu

Inverter 22
Huawei 185KTL
with built-in 1x
AC,
3x DC SPDs

18 x Built-in
DC
Switches
for PV

14x2Cx4mm², Cu

16 x 24 x 540W

No. Of Strings

String Size

Module Power

To Kiosk 03 (1000KVA)

To Kiosk 02 (1000KVA)

AC Combiner
Box 03

05x 3Cx70/95/120mm², Cu

Inverter 01
Huawei 185KTL
with built-in 1x AC,
3x DC SPDs

18 x Built-in
DC Switches
for PV

16x2Cx4mm², Cu

15 x 24 x 540W

Inverter 02
Huawei 185KTL
with built-in 1x AC,
3x DC SPDs

18 x Built-in
DC Switches
for PV

16x2Cx4mm², Cu

15 x 24 x 540W

Inverter 04
Huawei 185KTL
with built-in 1x AC,
3x DC SPDs

18 x Built-in
DC Switches
for PV

16x2Cx4mm², Cu

15 x 24 x 540W

Inverter 05
Huawei 185KTL
with built-in 1x AC,
3x DC SPDs

18 x Built-in
DC Switches
for PV

16x2Cx4mm², Cu

15 x 24 x 540W

Inverter 06
Huawei 185KTL
with built-in 1x AC,
3x DC SPDs

18 x Built-in
DC Switches
for PV

16x2Cx4mm², Cu

15 x 24 x 540W

Inverter 07
Huawei 185KTL
with built-in 1x AC,
3x DC SPDs

18 x Built-in
DC Switches
for PV

16x2Cx4mm², Cu

15 x 24 x 540W

AC Combiner
Box 02

05x 3Cx70/95/120mm², Cu

Inverter 08
Huawei 185KTL
with built-in 1x AC,
3x DC SPDs

18 x Built-in
DC Switches
for PV

16x2Cx4mm², Cu

15 x 24 x 540W

Inverter 09
Huawei 185KTL
with built-in 1x AC,
3x DC SPDs

18 x Built-in
DC Switches
for PV

16x2Cx4mm², Cu

15 x 24 x 540W

Inverter 10
Huawei 185KTL
with built-in 1x AC,
3x DC SPDs

18 x Built-in
DC Switches
for PV

16x2Cx4mm², Cu

16 x 24 x 540W

Module Power

No. Of Strings

String Size

Module Power

No. Of Strings

String Size

AC Cables Size Table From Inverter to Combiner

Cable Size	Distance
3Cx70mm ²	1-100m
3Cx70mm ²	101-150m
3Cx95mm ²	151-200m
3Cx120mm ²	201-370m

Inverter	Huawei SUN2000-185KTL-H1	Module Type	Mono Crystalline Bifacial
Total Number of Inverters	22(5+5+12)	Normal Module Power	540 Wp
Power of Inverter	175kW @40°C Max Active Power 185kW (cosφ=1)	Total Number of Modules	8280
Number of MPPTs per Inv.	09	Number of Modules per String	24
Total MPPTs	198	Total Number of Strings	345
Max Current per MPPT	26A	Strings per Inverter	15/16

Number of Strings per MPPT	02	Project No.	NEL-1120-QTA4401KwPGM
PV per MPPT	25.92/12.96kW	DWG. No.	NEL-1120-QTA4401KwPGM-SLD
Site & Location of the Project	Quetta-1, 95EME	Designed by	Saiman Qayyum
Stage	Preliminary DWG	Checked by	Saiman Qayyum
Revision No.	Advanced Copy	Verified by	Zaeshan Bashir
Date	12-12-2022		

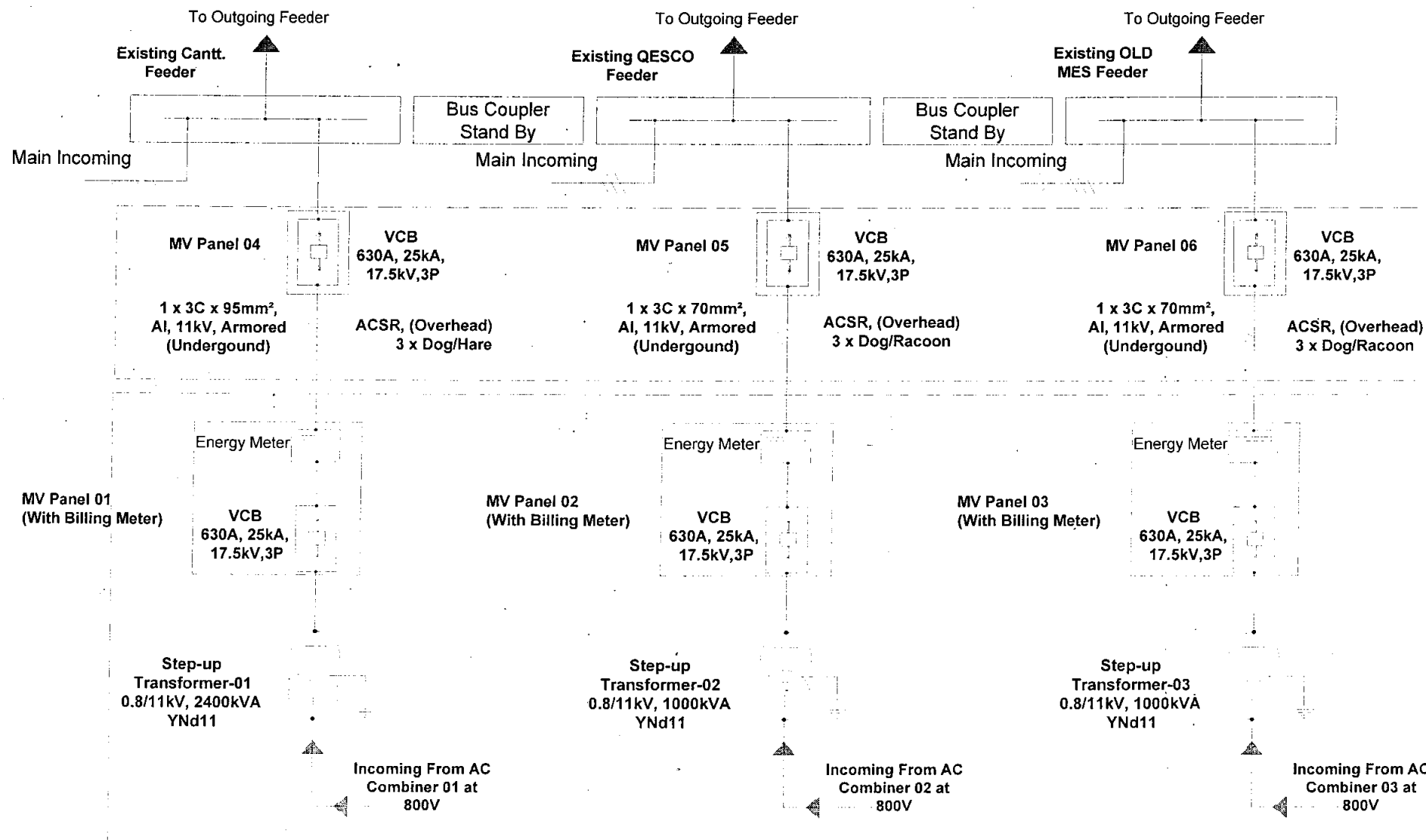
Project No.	NEL-1120-QTA4401KwPGM	Contractor:	Nizam Energy (Pvt.) Ltd.
DWG. No.	NEL-1120-QTA4401KwPGM-SLD	Project:	PROCUREMENT OF GRID CONNECTED SOLAR PV PLANTS AGGREGATE UPTO 50MW AT VARIOUS PLACES IN PAKISTAN
Designed by	Saiman Qayyum	Client:	MES
Checked by	Saiman Qayyum	Title:	Single Line Diagram
Verified by	Zaeshan Bashir		
Date	12-12-2022		

MV SLD

Single Line Diagram

AC MV Side

South Zone-1-(Baluchistan) Quetta 1(95EME) -4.47MW-SPP



AC Cable

Inverter	Huawei SUN2000-185KTL-H1	Module Type	Mono Crystalline Bifacial	Number of Strings per MPPT	02	Project No.	NEL-1120-QTA4401-GM	Contractor: Nizam Energy (Pvt.) Ltd.
Total Number of Inverters	22	Normal Module Power	540 Wp	PV per MPPT	25.92/12.96kW	DWG. No.	NEL-1120-QTA4401GM-SLD	Project: PROCUREMENT OF GRID CONNECTED SOLAR PV PLANTS AGGREGATE UPTO 50MW AT VARIOUS PLACES IN PAKISTAN
Power of Inverter	175kW @40°C Max. Active Power 185KW (cosφ=1)	Total Number of Modules	8280	Site & Location of the Project	Quetta-1, 95EME	Designed by	Salman Qayyum	Client: MES
Number of MPPTs per Inv.	09	Number of Modules per String	24	Stage	Preliminary DWG	Checked by	Salman Qayyum	Title: Single Line Diagram
Total MPPTs	198	Total Number of Strings	345	Revision No.	Advanced Copy	Verify by	Zeeshan Bashir	
Max Current per MPPT	26A	Strings per Inverter	15/16			Date	21-11-2022	

**Single Line Diagram of the Generation
Facility/Solar Power Plant/Solar Farm of the
Licensee**

Site 03: Khuzdar and Jinnah Camp LV/MV SLD

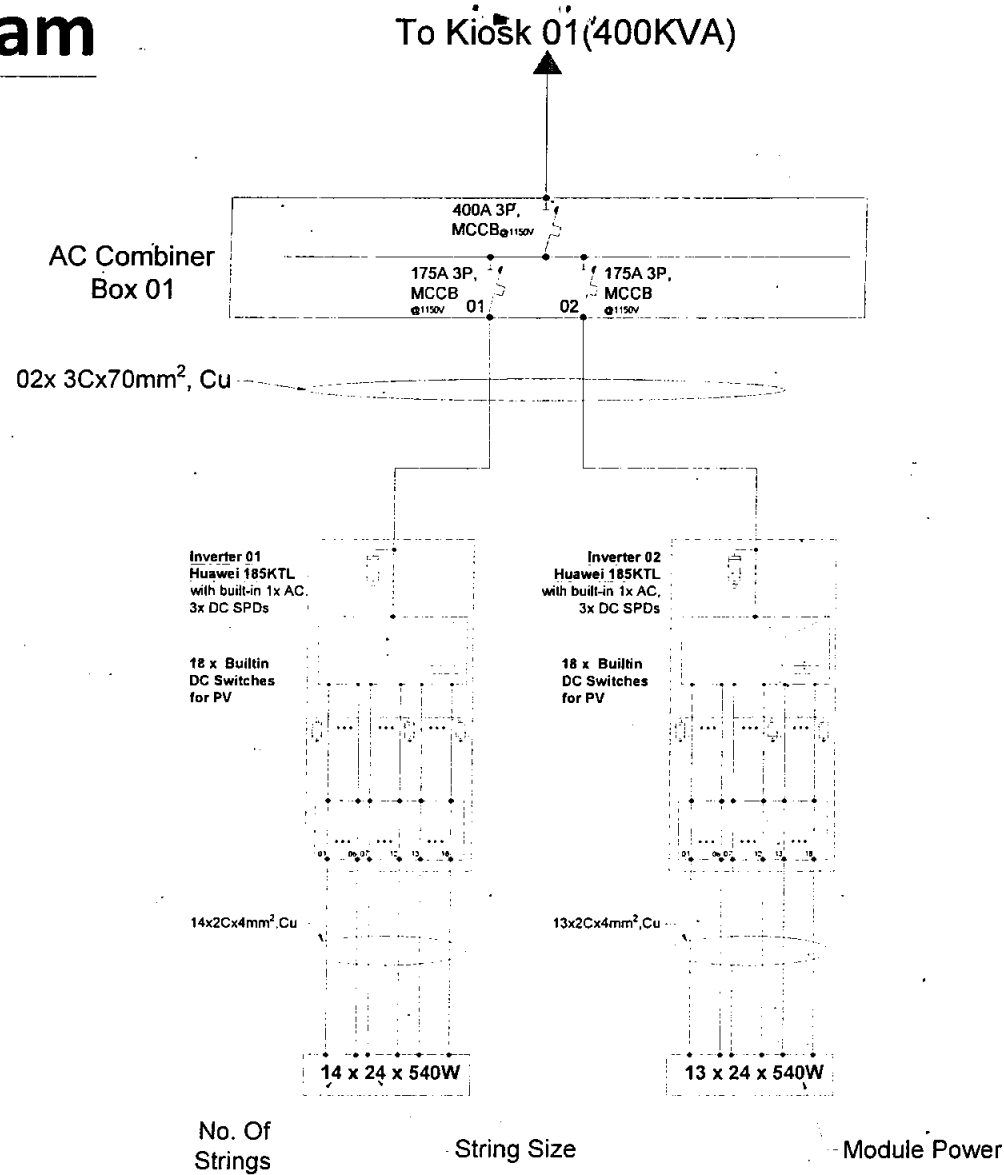
LV SLD

Single Line Diagram

LV/DC Side

South Zone-1 (Baluchistan)

Khuzdar Jinnah Camp -0.35MW-SPP



Inverter	Huawei SUN2000-185KTL-H1	Module Type	Mono Crystalline Bifacial	Number of Strings per MPPT	01/02	Project No.	VEL-0121-KHZIC300-GM	Contractor:	Nizam Energy (Pvt.) Ltd.
Total Number of Inverters	02	Normal Module Power	540 Wp	PV per MPPT	25.92/12.96kW	DWG. No.	HEL-0121-KHZIC300-GM-SLD	Project:	PROCUREMENT OF GRID CONNECTED SOLAR PV PLANTS AGGREGATE UPTO 50MW AT VARIOUS PLACES IN PAKISTAN
Power of Inverter	175kW @40°C Max Active Power 185kW (cosφ=1)	Total Number of Modules	648	Site & Location of the Project	Khuzdar Jinnah Camp	Designed by	Salman Qayyum	Client:	MES
Number of MPPTs per Inv.	09	Number of Modules per String	24	Stage	Preliminary DWG	Checked by	Salman Qayyum	Title:	Single Line Diagram
Total MPPTs	18	Total Number of Strings	27	Revision No.	Advanced Copy	Verified by	Zeeshan Bashir		
Max Current per MPPT	26A	Strings per Inverter	13/14			Date	21-11-2022		

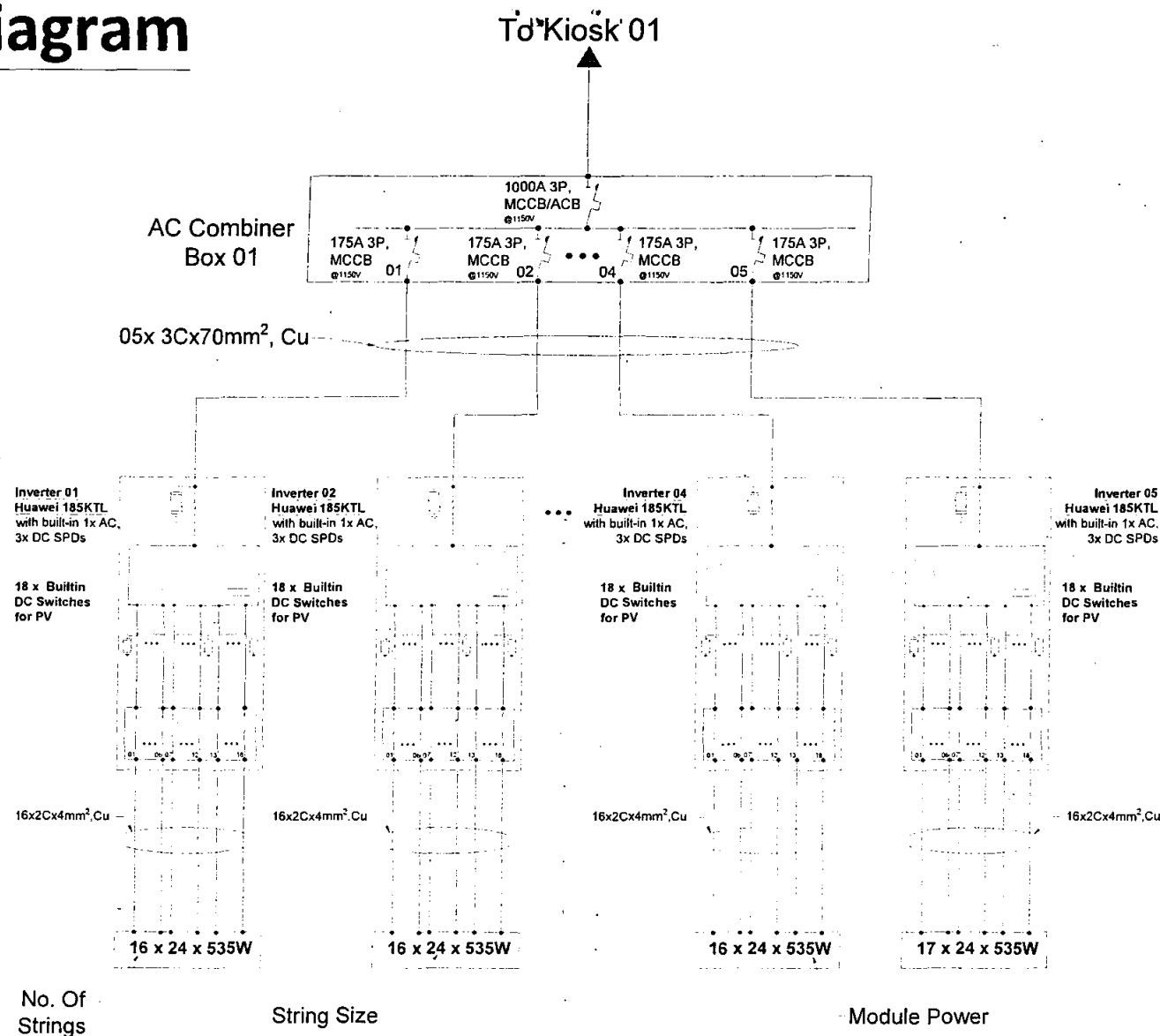
LV SLD

Single Line Diagram

LV/DC Side

South Zone-1 (Baluchistan)

Khuzdar -1.049MW-SPP



Inverter	Huawei SUN2000-185KTL-H1	Module Type	Mono Crystalline Bifacial	Number of Strings per MPPT	02	Project No.	NEL-0121-KH21030-GM
Total Number of Inverters	05	Norminal Module Power	540 Wp	PV per MPPT	25.44/12.72kW	DWG. No.	NEL-0121-KH21030-GM SLD
Power of Inverter	175kW @40°C Max. Active Power 185kW (cosφ=1)	Total Number of Modules	1944	Site & Location of the Project	Khuzdar	Designed by	Salman Qayyum
Number of MPPTs per Inv.	09	Number of Modules per String	24	Stage	Preliminary DWG	Checked by	Salman Qayyum
Total MPPTs	45	Total Number of Strings	81	Revision No.	Advanced Copy	Verified by	Zeeshan Bashir
Max Current per MPPT	26A	Strings per Inverter	16/17	Date	21-11-2022		

Contractor: Nizam Energy (Pvt.) Ltd.

Project: PROCUREMENT OF GRID CONNECTED SOLAR PV PLANTS AGGREGATE UPTO 50MW AT VARIOUS PLACES IN PAKISTAN

Client: MES

Title: Single Line Diagram

MV SLD

Single Line Diagram

MV Side

South Zone-1 (Baluchistan)

Khuzdar Jinnah Camp -0.35MW-SPP

Main
Incoming

Existing
Jinnah Camp
Feeder

To Outgoing
Feeder

MV Panel 02
MES Scope

VCB
630A,
25kA,

1 x 3C x 35mm²,
Al, 11kV, Armored
MES Scope

17.5kV,3P

Energy Meter

MV Protection

400kVA
Pad Mounted
Transformer With
MV Protection
Billing Meter

Step-up
Transformer-01
0.8/11kV,
400kVA
YNd11

Incoming From AC
Combiner 01 at
800V

DC Cable
AC Cable

Inverter	Huawei SUN2000-185KTL-H1	Module Type	Mono Crystalline Bifacial	Number of Strings per MPPT	02	Project No.	NEI-0121-KH2JC300-GM	Contractor:	Nizam Energy (Pvt.) Ltd.
Total Number of Inverters	02	Normal Module Power	540 Wp	PV per MPPT	25.92/12.96kW	DWG. No.	NEL-0121-KH2JC300-GM-SD	Project:	PROCUREMENT OF GRID CONNECTED SOLAR PV PLANTS AGGREGATE UPTO 50MW AT VARIOUS PLACES IN PAKISTAN
Power of Inverter	175kW @40°C Max. Active Power 185kW (cosφ=1)	Total Number of Modules	648	Site & Location of the Project	Khuzdar Jinnah Camp	Designed by	Salman Qayyum	Client:	MES
Number of MPPTs per Inv.	09	Number of Modules per String	24	Stage	Preliminary DWG	Checked by	Salman Qayyum	Title:	Single Line Diagram
Total MPPTs	18	Total Number of Strings	27	Revision No.	Advanced Copy	Verified by	Zeeshan Bashir		
Max Current per MPPT	26A	Strings per Inverter	13/14	Date	21-11-2022				

MV SLD

Single Line Diagram

MV Side

South Zone-1 (Baluchistan)

Khuzdar -1.049MW-SPP

Main
Incoming

Existing
Khuzdar Cantt
Feeder

To Outgoing
Feeder

MV Panel 02
MES Scope

1 x 3C x 50mm²,
Al, 11kV, Armored
MES Scope

VCB
630A,
25kA,

17.5kV,3P

Energy Meter

VCB
630A, 25kA,
17.5kV,3P

KIOSK Station 1000kVA
(With Billing Meter)
Nizam Energy Scope

Step-up
Transformer-01
0.8/11kV,
1000kVA
YNd11

Incoming From AC
Combiner 01 at
800V

DC Cable
AC Cable

Inverter	Huawei SUN2000-185KTL-H1	Module Type	Mono Crystalline Bifacial	Number of Strings per MPPT	02	Project No.	NEL-0121-KH21030-GM
Total Number of Inverters	05	Norminal Module Power	540 Wp	PV per MPPT	25.92/12.96kW	DWG. No.	NEL-0121-KH21030-GM-SDP
Power of Inverter	175kW @40°C Max. Active Power 185kW (cosφ=1)	Total Number of Modules	1944	Site & Location of the Project	Khuzdar	Designed by	Salman Qayyum
Number of MPPTs per Inv.	09	Number of Modules per String	24	Stage	Preliminary DWG	Checked by	Salman Qayyum
Total MPPTs	45	Total Number of Strings	81	Revision No.	Advanced Copy	Verified by	Zeeshan Bashir
Max Current per MPPT	26A	Strings per Inverter	16/17			Date	21-11-2022

Contractor: Nizam Energy (Pvt.) Ltd.

Project: PROCUREMENT OF GRID CONNECTED
SOLAR PV PLANTS AGGREGATE UPTO 50MW
AT VARIOUS PLACES IN PAKISTAN

Client: MES

Title: Single Line Diagram

**Interconnection Arrangement/Transmission Facilities for Dispersal of
Power from the Generation Facility/Solar Power Plant/Solar Farm of
the Licensee**

The electric power generated from the generation facility/Solar Power Plant/Solar Farm of the Licensee/Nizam Power (Private) Limited., will be delivered/supplied to a Bulk Power Consumer (BPC) in the name of Military Engineering Services (MES) Quetta located at Quetta Cantt: Mola Dad, 95- EME and Khuzdar and Jinnah Camp, in the province of Balochistan.

(2). The details pertaining to BPC, supply arrangement and other relating information is provided in the subsequent description of this Schedule-I. Any change in the above Interconnection Arrangement/Transmission Facility duly agreed by Licensee/ Nizam Power (Private) Limited., and Military Engineering Service Quetta, shall be communicated to the Authority in due course of time.

Details of Generation Facility/Solar Power Plant/Solar Farm

(A). General Information

(i).	Name of the Company/Licensee	Nizam Power (Private) Limited
(ii).	Registered/ Business office of the Company/Licensee	G-30/4 KDA Scheme No. 5, Block-8, Clifton Karachi, Pakistan.
(iii).	Location of the generation facility Solar Power Plant/ Solar Farm	Quetta Cantt. And Khuzdar Cantt. and Jinnah Camp
(iv).	Type of the generation facility/ Solar Power Plant/ Solar Farm	Solar Photovoltaic (PV)

(B). Solar Power Generation Technology & Capacity

(i).	Type of Technology	Photovoltaic (PV) Cell
(ii).	System Type	On Grid
(iii).	Installed Capacity of the generation facility Solar Power Plant/ Solar Farm (MW)	Site 01: Mola Dad 3.538080 MWp Site 02: 95 EME 4.471200 MWp Site 03: Khuzdar & Jinnah Camp 1.399680 MWp Total: 9.408960 MWp

(C). Solar Power Generation Technology & Capacity

Item Description	Site 01: MOLA DAD	Site 02: 95EME	Site 02: 95EME
Solar Panels – PV Modules			
Type of Module	JAM72D30-540/MB		
Type of Cell	Monocrystalline		
Dimension of each Module	2278x1134x35mm		
No. of Panel/Modules	17,424		
Total Module Area	2.58 m2		
Frame of Panel	Dual Glass, Halfcut, Bifacial		
Weight of one Module	31.6kg		

No of Solar Cells in each module	144		
Efficiency of module	20.80%		
Maximum Power (P _{max})	540W		
Voltage @ P _{max}	41.64V		
Current @ P _{max}	12.97A		
Open circuit voltage (V _{oc})	49.60V		
Short circuit current (I _{sc})	13.86A		
Maximum system open Circuit Voltage	1190.4V		
PV Array			
Nos. of Strings	273	345	108
Modules in a string	24 each	24 each	24 each
Inverters			
Capacity of each unit	175kW		
Manufacturer	Huawei Sun2000-185KTL-H1		
Input Operating Voltage Range	500-1500 V		
Number of Inverters	47		
Efficiency of inverter	99.03%		
Max. Allowable Input voltage	1500 V DC		
No. of MPPTs per inverter	9		
Max. Current Per MPPT	26 A		
Max. Power Point Tracking Range	500-1500 V		
Output electrical system	800 V, 3W + PE		
Rated Output Voltage	800 V		
Power Factor (adjustable)	0.8 LG - 0.8 LD		
Power control	MPP tracker		
Rated Frequency	50/60 Hz		
Environmental Enclosures	Relative Humidity	0-100%	
	Operating Elevation	4000 m	
	Operating temperature	-25 to +60°C	
Grid Operating protection	A	Input side disconnection device	
	B	Anti-Islanding Protection	
	C	AC over current protection	
	D	DC reverse polarity function	
	E	PV array string fault monitoring	
	F	AC surge arrestor	
	G	DC surge arrestor	
	H	DC insulation resistance detection	
Monitoring & Communication System			
System Data	Continuous online logging with data logging software to portal.	Huawei Weather Station	
		Huawei Smart Logger	
		Huawei NetEco 1000S	
		Internet/Ethernet and RS485	

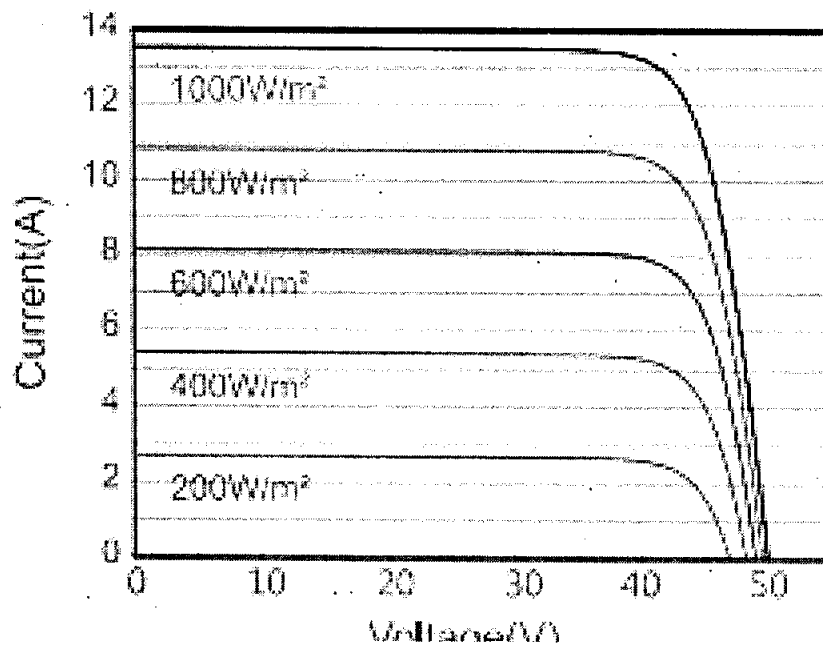
Transformers			
Rating	1x1900kVA + 1x1600kVA	1x2400kVA + 2x1000kVA	1x1000kVA + 1x400kVA
Type of transformer	Oil Immersed, YNd11	Oil Immersed, YNd11	Oil Immersed, YNd11
Purpose of transformer	Step-up (0.8 / 11kV)	Step-up (0.8 / 11kV)	Step-up (0.8 / 11kV)
Output Voltage	11 KV	11 KV	11 KV

(D). Other Details

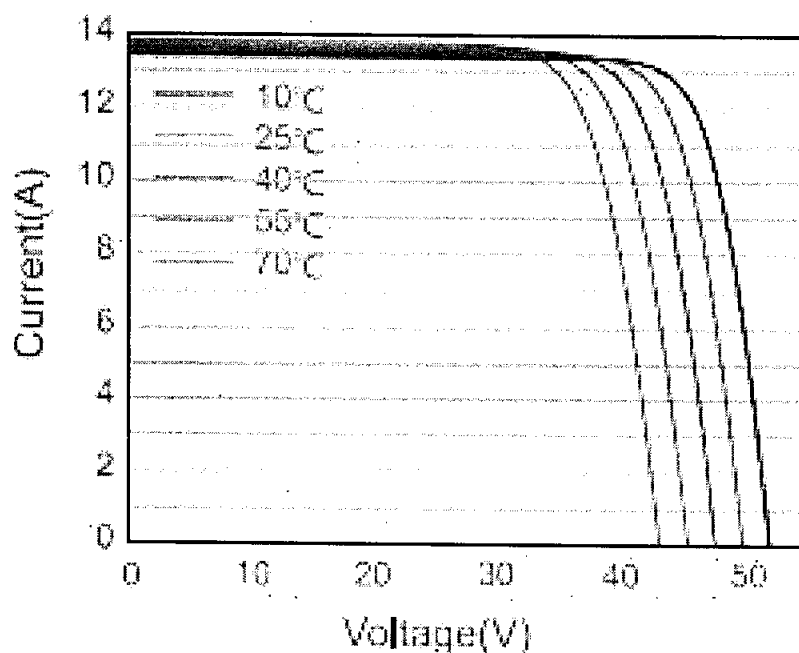
(i).	Expected COD of the generation facility Solar Power Plant/ Solar Farm	31 Dec,2023
(ii).	Expected useful Life of the generation facility Solar Power Plant/ Solar Farm from the COD	25 years

V-I Curve of Solar Cell of Generation Facility/Solar Power Plant/Solar Farm

Current-Voltage Curve JAM72D30-540/ME



Current-Voltage Curve JAM72D30-540/MB



Information Regarding Bulk Power Consumer(s)/BPC(s) i.e. MES Quetta to be Supplied by the Licensee i.e. Nizam Power Pvt. Ltd.

(i).	No. of Consumers	One (03)
(ii).	Location of consumers (distance and/or identity of premises)	1. MES Mola Dad, in Quetta Cantonment 2. MES 95EME in Quetta Cantonment 3. MES Khuzdar and Jinnah Camp
(iii).	Contracted Capacity and Load Factor for consumer	9.408960 MWp/90%
(iv).	Specify Whether	
	(a).	The consumer is an Associate undertaking of the Nizam Power Private Limited -If yes, specify percentage ownership of equity; MES/Quetta Cantt does not have direct association with Nizam Power Private Limited.
	(b).	There are common directorships: Currently, there are no common directors of MES/Quetta Cantt and Nizam Power Private Limited.
	(c).	Either can exercise influence or control over the other. No
(v).	Specify nature of contractual Relationship	
	(a).	Between each consumer and Nizam Power Private Limited. Nizam Power Private Limited will construct and operate solar plant and provide electricity for Quetta Cantt consumption.
	(b).	Consumer and QESCO. No Relationship.
(vi)	Any other network information deemed relevant for disclosure to or consideration of the Authority.	NA

Information Regarding Distribution Network for Supply of Electric Power to BPC in
the name of SECMC

Sr. No.	Description	Site 01: Mola Dad	Site 02: 95EME	Site 03: Khuzdar and Jinnah Camp
(i).	No. of Feeders	Two (02) 1. New MES 2. C&SC	Three (03) 1. Cantt 2. QESCO 3. Old MES	Three (02) 1. Khuzdar Cantt 2. Jinnah Camp
(ii).	Length of Each Feeder (Meter)	200m	1km	300m
(iv).	In respect of all the Feeders, describe the property (streets, farms, Agri land, etc.) through, under or over which they pass right up to the premises of customer, whether they cross-over.	The 11 kV feeders supplying power to Mola Dad substation is located on private property owned by the Military Engineering Services Quetta itself, without crossing of any public or third-party private property etc.	The 11 kV feeders supplying power to 95EME is located on private property owned by the Military Engineering Services Quetta itself, without crossing of any public or third-party private property etc.	The 11 kV feeders supplying power to Khuzdar Cantt and Jinnah Camp is located on private property owned by the Military Engineering Services itself, without crossing of any public or third-party private property etc.
(v).	Whether owned by Nizam Power Pvt. Ltd., Consumer or QESCO-(deal with each Feeder Separately)			
	(a).	If owned by QESCO, particulars of contractual arrangement	NA	NA
	(b).	Operation and maintenance responsibility for each feeder	Nizam Power Pvt. Ltd.	Nizam Power Pvt. Ltd.

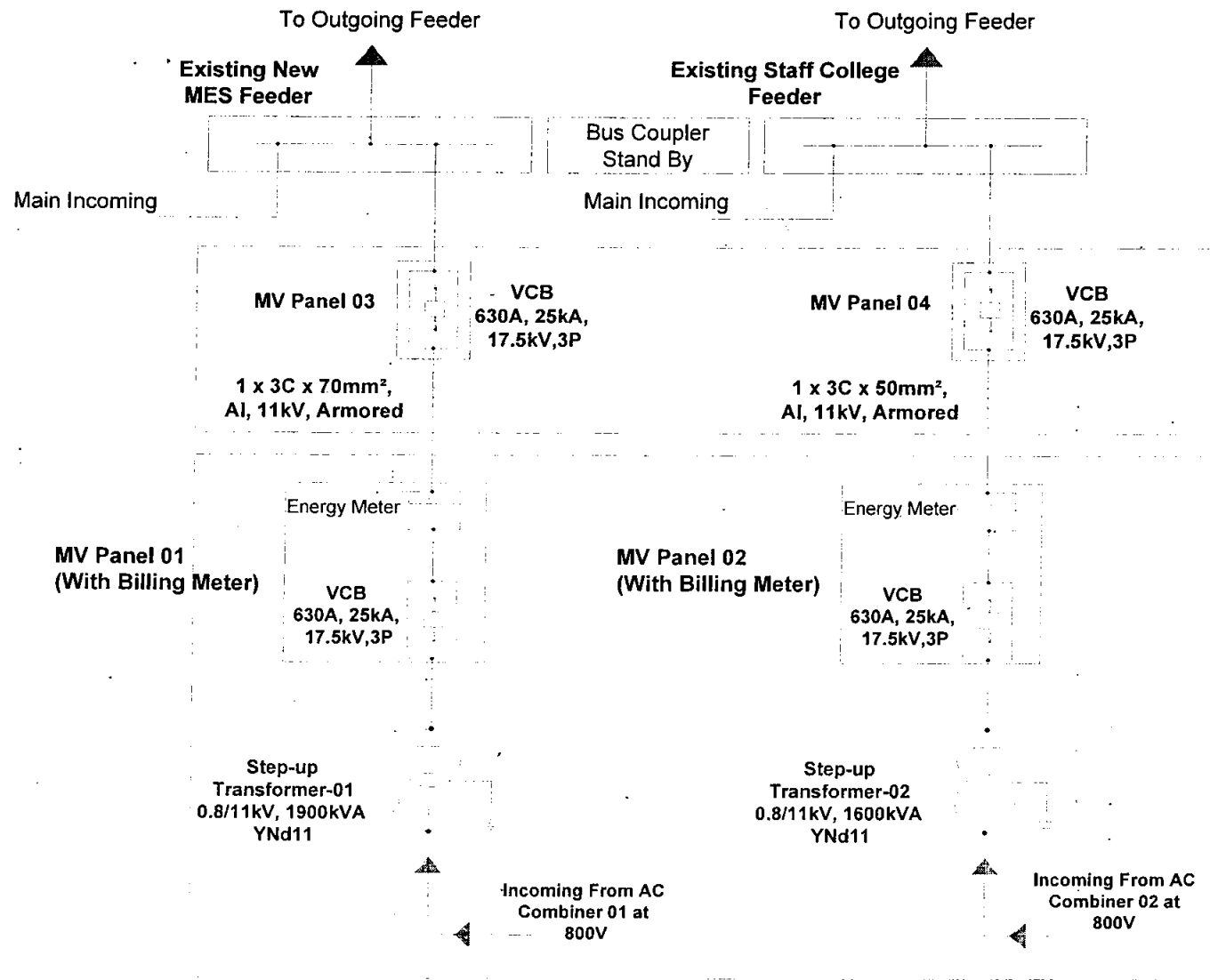
(vi).	Whether connection with network of QESCO exists (whether active or not)- If yes, provide details of connection arrangements (both technical and contractual)	NA	NA	NA
(vii).	Any other network information deemed relevant for disclosure to or consideration of the Authority.	NA	NA	NA

Generation License Nizam Power (Private) Limited
G-30/4 KDA Scheme No. 5, Block-8,
Clifton Karachi, Pakistan.

Schematic Diagram
for Supply of Power to the BPC from the Generation
Facility/Solar Power Plant /Solar Farm of the Licensee

Single Line Diagram AC MV Side

South Zone-1 (Baluchistan) Quetta 2(Mola Dad) -3.53MW-SPP



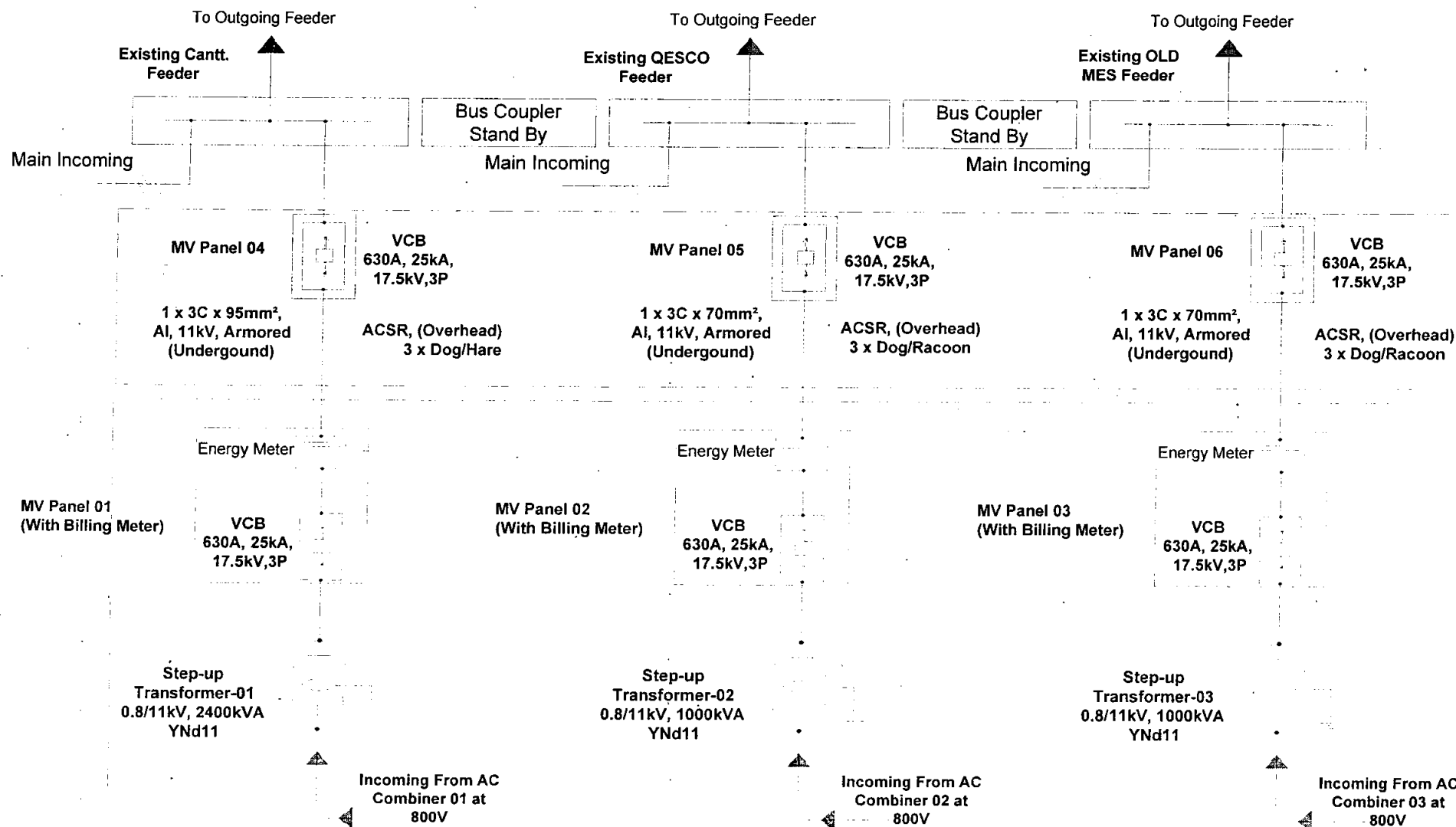
AC Cable

Inverter	Huawei SUN2000-185KTL-H1	Module Type	Mono Crystalline Bifacial	Number of Strings per MPPT	02	Project No.	NEL-1120-QTA3472-GM	Contractor: Nizam Energy (Pvt.) Ltd.
Total Number of Inverters	17	Normal Module Power	540 Wp	PV per MPPT	25.92/12.96kW	DWG. No.	NEL-1120-QTA3472-GM-SLD	Project: PROCUREMENT OF GRID CONNECTED SOLAR PV PLANTS AGGREGATE UPTO 50MW AT VARIOUS PLACES IN PAKISTAN
Power of Inverter	175kW @40°C Max. Active Power 185kW (cosφ=1)	Total Number of Modules	6552	Site & Location of the Project	Quetta-2, Mola Dad	Designed by	Salman Qayyum	Client: MES
Number of MPPTs per Inv.	09	Number of Modules per String	24	Stage	Preliminary DWG	Checked by	Salman Qayyum	Title: Single Line Diagram
Total MPPTs	153	Total Number of Strings	273	Revision No.	Advanced Copy	Verify by	Zeeshan Bashir	
Max Current per MPPT	26A	Strings per Inverter	16/17			Date	21-11-2022	

Single Line Diagram

AC MV Side

South Zone-1 (Baluchistan)
Quetta 1(95EME) -4.47MW-SPP



Inverter	Huawei SUN2000-185KTL-H1	Module Type	Mono Crystalline Bifacial	Number of Strings per MPPT	02	Project No.	NEL-1120-QTA4401-GM	Contractor:	Nizam Energy (Pvt.) Ltd.
Total Number of Inverters	22	Normal Module Power	540 Wp	PV per MPPT	25.92/12.96kW	DWG. No.	NEL-1120-QTA4401GM-SLD	Project:	PROCUREMENT OF GRID CONNECTED SOLAR
Power of Inverter	175kW @40°C Max. Active Power 185kW (cosφ=1)	Total Number of Modules	8280	Site & Location of the Project	Quetta-1, 95EME	Designed by	Salman Qayyum	Client:	PV PLANTS AGGREGATE UPTO 50MW AT VARIOUS PLACES IN PAKISTAN
Number of MPPTs per Inv.	09	Number of Modules per String	24	Stage	Preliminary DWG	Checked by	Salman Qayyum	Title:	MES
Total MPPTs	198	Total Number of Strings	345	Revision No.	Advanced Copy	Verify by	Zeeshan Bashir		Single Line Diagram
Max Current per MPPT	26A	Strings per Inverter	15/16			Date	21-11-2022		

Single Line Diagram

MV Side

South Zone-1 (Baluchistan)

Khuzdar -1.049MW-SPP

Main
Incoming

Existing
Khuzdar Cantt
Feeder

To Outgoing
Feeder

MV Panel 02
MES Scope

VCB
630A,
25kA,

1 x 3C x 50mm²,
Al, 11kV, Armored
MES Scope

17.5kV,3P

Energy Meter

VCB
630A, 25kA,
17.5kV,3P

KIOSK Station 1000kVA
(With Billing Meter)
Nizam Energy Scope

Step-up
Transformer-01
0.8/11kV,
1000kVA
YNd11

Incoming From AC
Combiner 01 at
800V

DC Cable
AC Cable

Inverter	Huawei SUN2000-185KTL-H1	Module Type	Mono Crystalline Bifacial	Number of Strings per MPPT	02	Project No.	NEL-0121-KHZ1030-GM	Contractor:	Nizam Energy (Pvt.) Ltd.
Total Number of Inverters	05	Normal Module Power	540 Wp	PV per MPPT	25.92/12.96kW	DWG. No.	NEL-0121-KHZ1030-GM-SLD	Project:	PROCUREMENT OF GRID CONNECTED SOLAR PV PLANTS AGGREGATE UPTO 50MW AT VARIOUS PLACES IN PAKISTAN
Power of Inverter	175kW @40°C Max. Active Power 185kW (cosφ=1)	Total Number of Modules	1944	Site & Location of the Project	Khuzdar	Designed by	Salman Qayyum	Client:	MES
Number of MPPTs per Inv.	09	Number of Modules per String	24	Stage	Preliminary DWG	Checked by	Salman Qayyum	Title:	Single Line Diagram
Total MPPTs	45	Total Number of Strings	81	Revision No.	Advanced Copy	Verified by	Zeeshan Bashir		
Max Current per MPPT	26A	Strings per Inverter	16/17			Date	21-11-2022		

Single Line Diagram

MV Side

South Zone-1 (Baluchistan)

Khuzdar Jinnah Camp -0.35MW-SPP

Main
Incoming

Existing
Jinnah Camp
Feeder

To Outgoing
Feeder

MV Panel 02
MES Scope

VCB
630A,
25kA,

1 x 3C x 35mm²,
Al, 11kV, Armored
MES Scope

17.5kV,3P

Energy Meter

MV Protection

400kVA
Pad Mounted
Transformer With
MV Protection
Billing Meter

Step-up
Transformer-01
0.8/11kV,
400kVA
YNd11

Incoming From AC
Combiner 01 at
800V

DC Cable
AC Cable

Inverter	Huawei SUN2000-185KTL-H1	Module Type	Mono Crystalline Bifacial	Number of Strings per MPPT	02	Project No.	NEL-0121-KHZIC300-GM	Contractor:	Nizam Energy (Pvt.) Ltd.
Total Number of Inverters	02	Normal Module Power	540 Wp	PV per MPPT	25.92/12.96kW	DWG. No.	NEL 0121 KHZIC300 GM-SLD	Project:	PROCUREMENT OF GRID CONNECTED SOLAR PV PLANTS AGGREGATE UPTO 50MW AT VARIOUS PLACES IN PAKISTAN
Power of Inverter	175kW @40°C Max. Active Power 185kW (cosφ=1)	Total Number of Modules	648	Site & Location of the Project	Khuzdar Jinnah Camp	Designed by	Salman Qayyum	Client:	MES
Number of MPPTs per Inv.	09	Number of Modules per String	24	Stage	Preliminary DWG	Checked by	Salman Qayyum	Title:	Single Line Diagram
Total MPPTs	18	Total Number of Strings	27	Revision No.	Advanced Copy	Verified by	Zeeshan Bashir		
Max Current per MPPT	26A	Strings per Inverter	13/14			Date	21-11-2022		

APPLICATION FOR MODIFICATION IN GENERATION
LICENSE NO. SGC150/2020 FOR 9.5MW SOLAR
POWER PLANTS BY NIZAM POWER (PVT) LIMITED.



ANNEXURE-5
MES ARMY Modified (SCHEDULE-II)

SCHEDULE-II

The Total Installed Gross ISO Capacity of the Generation Facility/Power Plant/Solar Plant (MW), Total Annual Full Load (Hours), Average Sun Availability, Total Gross Generation of the Generation Facility/Solar Farm (in kWh), Annual Energy Generation (25 years Equivalent Net Annual Production-AEP) KWh and Net Capacity Factor of the Generation Facility/Solar Farm of Licensee are given in this Schedule.

SCHEDULE-II

(1).	Total Installed Capacity of the Generation Facility/Solar Power Plant/Solar Farm	9.408960 MWP
(2).	Average Sun Hour Availability/Day (Irradiation on Inclined Surface)	8 to 8.5 Hours
(3).	No. of days per year	365
(4).	Annual generating capacity of Generation Facility/Solar Power Plant/Solar Farm (As Per Simulation)	Site 01: Mola Dad 7,990 MWh Site 02: 95 EME 9,540 MWh Site 03: Khuzdar & Jinnah Camp 3,000 MWh Total: 20,530 MWH
(5).	Total expected generation of the Generation Facility/Solar Power Plant/Solar Farm during the twenty-five (25) years term of this license	Site 01: Mola Dad 182,731 MWh Site 02: 95 EME 218,180 MWh Site 03: Khuzdar & Jinnah Camp 68,610 MWh Total: 469,521
(6).	Annual generation of Generation Facility/Solar Power Plant/Solar Farm based on 24 hours working	Site 01: Mola Dad 21.89 MWh/day Site 02: 95 EME 26.137 MWh/day Site 03: Khuzdar & Jinnah Camp 8.219 MWh/day Total: 58.074 MWh/day
(7).	Net Capacity Factor of Generation Facility/Solar Power Plant/Solar Farm	Site 01: Mola Dad 25.78% Site 02: 95 EME 24.36% Site 03: Khuzdar & Jinnah Camp 24.47% Overall: 24.9%

Note

All the above figures are indicative as provided by the Licensee. The Net Delivered Energy available to Power Purchaser for dispatch will be determined through procedures contained in the Power Purchase Agreement (PPA) or the Applicable Document(s).

APPLICATION FOR MODIFICATION IN GENERATION
LICENSE NO. SGC150/2020 FOR 9.5MW SOLAR
POWER PLANTS BY NIZAM POWER (PVT) LIMITED.



ANNEXURE-6

NEW added Site LUMS (SCHEDULE-I)

SCHEDULE-I

**The Location, Size (i.e.Capacity in kWp), Type of Technology,
Interconnection Arrangements, Technical Limits,
Technical/Functional Specifications and other details specific to
the Generation Facilities of the Licensee are described in this
Schedule.**

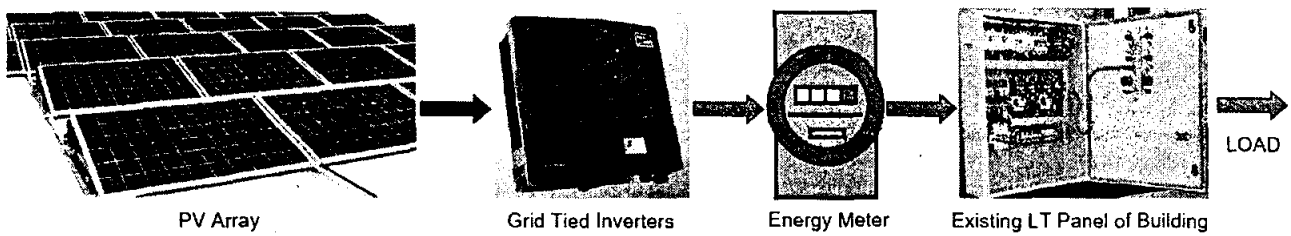
Location of the Generation Facility/Solar Power Plant/Solar Farm of the Licensee



The location of LUMS 397kW solar plant is on multiple rooftops within the premises of Lahore University of Management Sciences situated in DHA Phase 5, Khayaban-e-Jinnah Road, opposite Sector U, Punjab Small Industries Housing Society, Lahore, Punjab and is accessible by all means of transportation.

System Location		
<u>Sr. No.</u>	<u>Latitude</u>	<u>Longitude</u>
Super Store	31.471700°	74.410111°
M6	31.471137°	74.412140°
M5	31.470991°	74.411692°
M7	31.469690°	74.411924°
REDC	31.469915°	74.410281°
Mosque	31.469381°	74.409251°
F3	31.469983°	74.408148°
F4	31.470687°	74.407175°
F5	31.470258°	74.406793°
EDH	31.471094°	74.410612°
Admission Office	31.471380°	74.410189°
SBASSE	31.471959°	74.411521°

**Process Flow Diagram of the Generation Facility/Solar Power
Plant/Solar Farm of the Licensee**

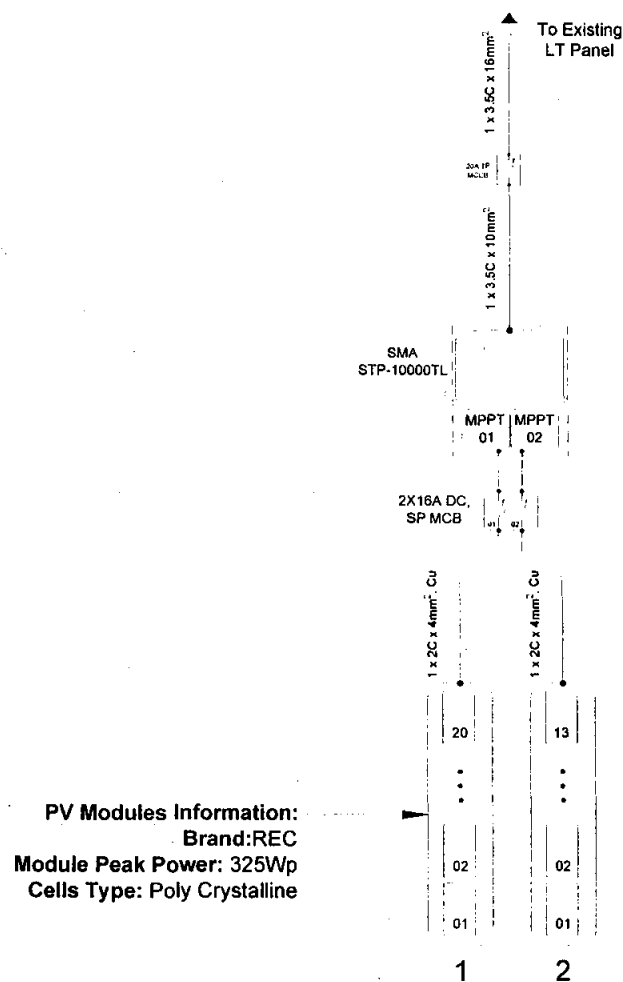


Generation License Nizam Power (Private) Limited
G-30/4 KDA Scheme No. 5, Block-8,
Clifton Karachi, Pakistan.

**Single Line Diagram of the Generation Facility/Solar Power
Plant/Solar Farm of the Licensee**

SINGLE LINE DIAGRAM

10.7KW ADMISSION OFFICE

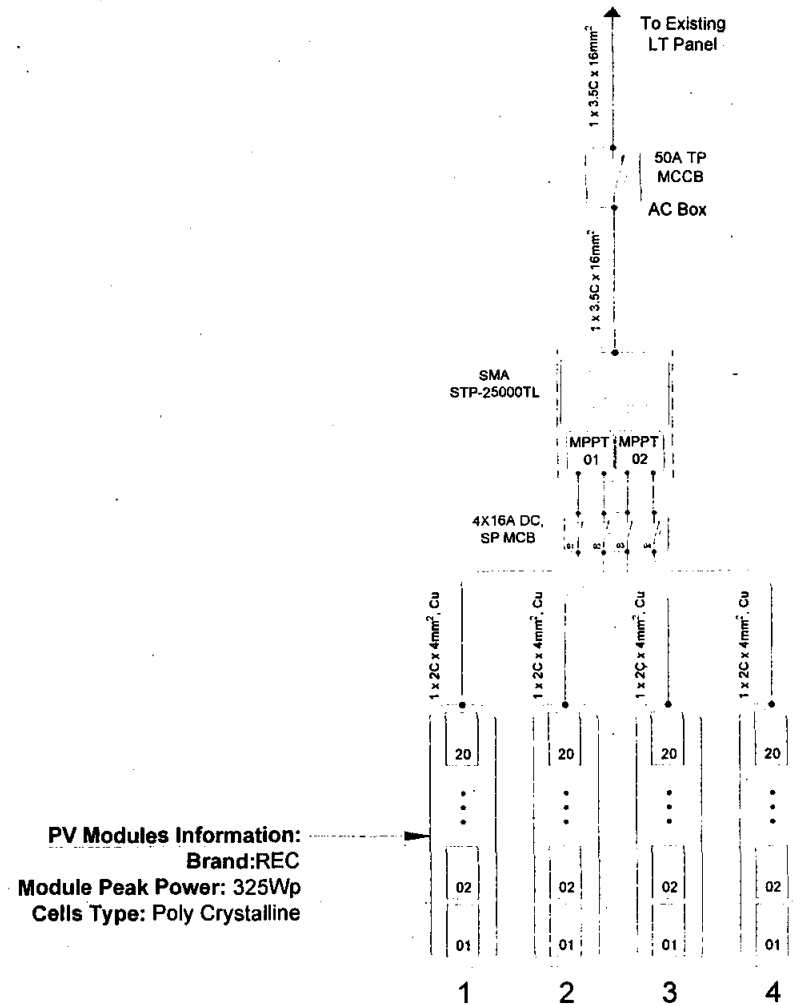


Inverter	SMA STP 10000 TL	Module Type	Poly Crystalline	Number of Strings per MPPT	01	Project	NEL-0920-LUMS-SLD-RT
Total Number of Inverters	01	Nominal Module Power	325 Wp	PV per MPPT	4.22/6.5 kW	DWG. No.	NEL-0920-LUMS-SLD-RT
Power of Inverter	10 kW	Total Number of Modules	33	Site & Location	Lahore	Drafted by	Fahad Mukhtar
Number of MPPTs per Inv.	02	Number of Modules per String	13/20	Stage	Asbuilt Drawings	Designed by	Salman Qayyum
Total MPPTs	02	Total Number of Strings	02	Revision No.	Advanced Copy	Verified by	Muhammad Walid
Max Current per MPPT	18/10	Strings per Inverter	02	Date	10-September-2020	Approved by	Design TEAM

Contractor	Nizam Energy (Pvt.) Ltd.
Project	400kWp PV Grid Connected Project at LUMS, Lahore
Client	LUMS-Lahore.
Title	Single Line Diagram

SINGLE LINE DIAGRAM

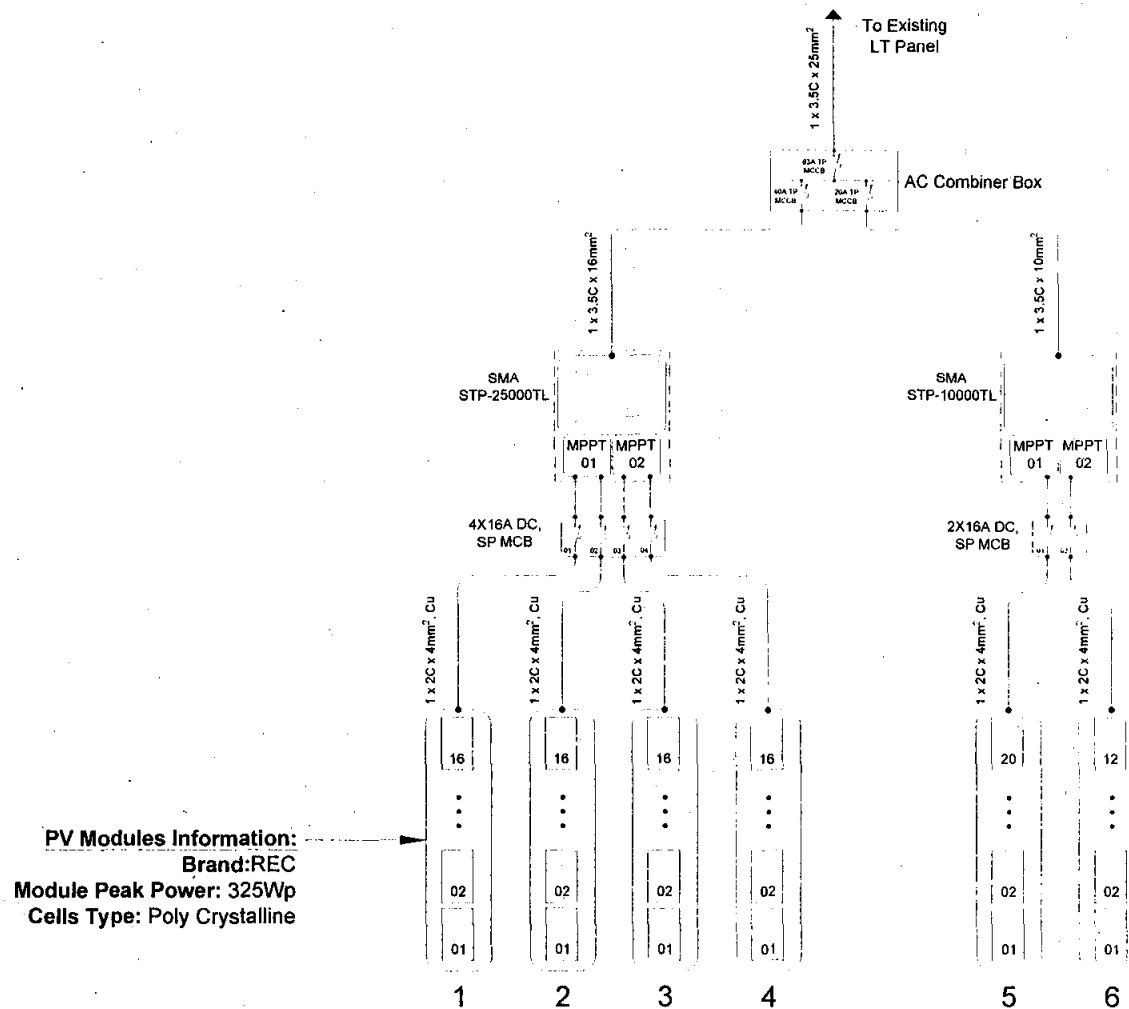
26KW EDH



Inverter	SMA STP 25000 TL	Module Type	Poly Crystalline	Number of Strings per MPPT	02	Project	NEL-0920-LUMS-SLD-RT	Contractor	Nizam Energy (Pvt.) Ltd.
Total Number of Inverters	01	Normal Module Power	325 Wp	PV per MPPT	13 kW	DWG. No.	NEL-0920-LUMS-SLD-RT	Project	400kWp PV Grid Connected Project at LUMS, Lahore
Power of Inverter	25 kW	Total Number of Modules	80	Site & Location	Lahore	Drafted by	Fahad Mukhtar	Client	LUMS-Lahore.
Number of MPPTs per Inv.	02	Number of Modules per String	20	Stage	Asbuilt Drawings	Designed by	Salman Qayyum	Title	Single Line Diagram
Total MPPTs	02	Total Number of Strings	04	Revision No.	Advanced Copy	Verified by	Muhammad Walid		
Max Current per MPPT	33	Strings per Inverter	04	Date	10-September-2020	Approved by	Design TEAM		

SINGLE LINE DIAGRAM

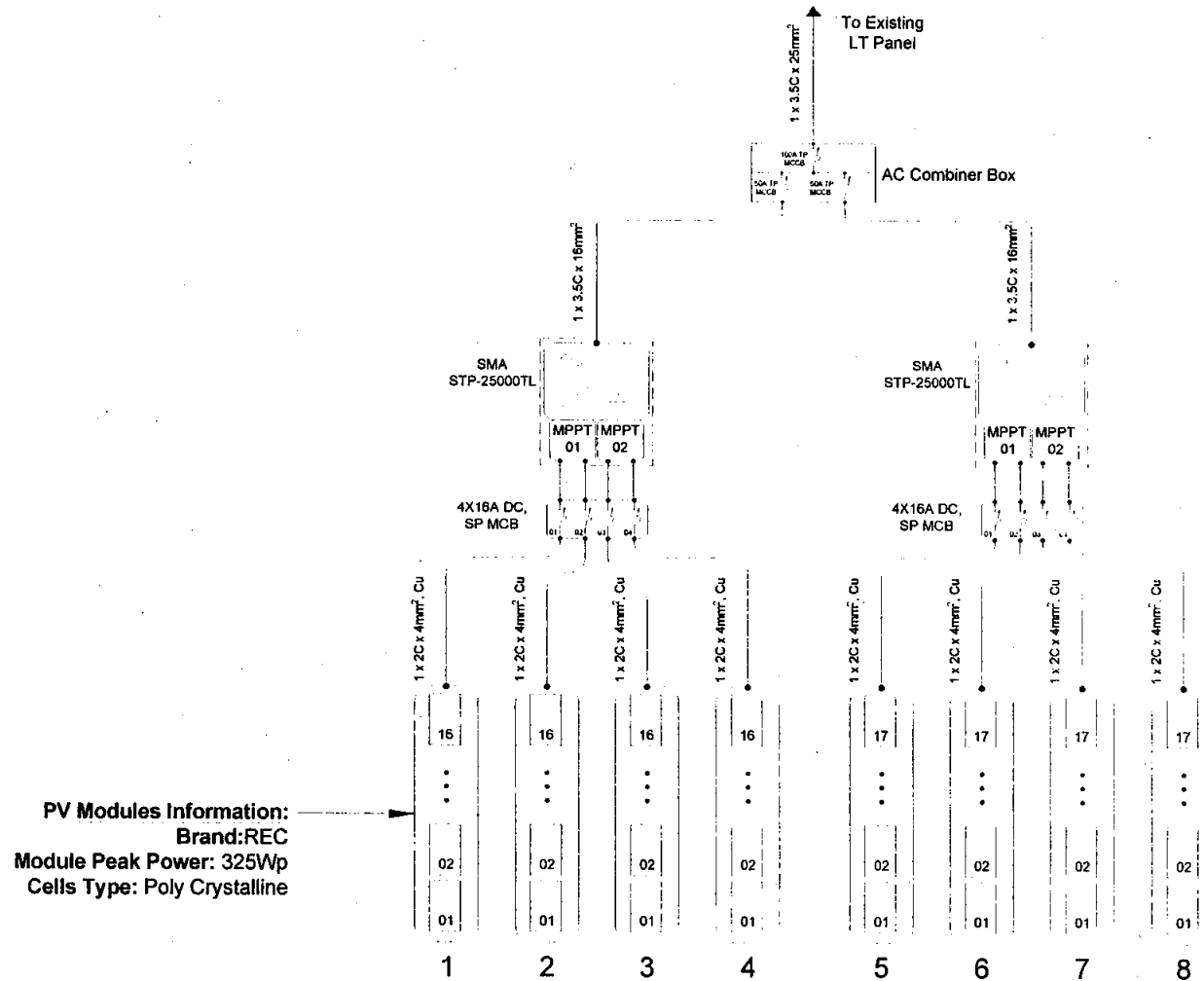
31.2 KW F3



Inverter	SMA STP 10000 TL SMA STP 25000 TL	Module Type	Poly Crystalline	Number of Strings per MPPT	01/02	Project	NEL-0920-LUMS-SLD-RT	Contractor	Nizam Energy (Pvt.) Ltd.
Total Number of Inverters	02	Normal Module Power	325 Wp	PV per MPPT	3.9/6.5/10.4 kW	DWG. No.	NEL-0920-LUMS-SLD-RT	Project	400kWp PV Grid Connected Project at LUMS, Lahore
Power of Inverter	10/25 kW	Total Number of Modules	96	Site & Location	Lahore	Drafted by	Fahad Mukhtar	Client	LUMS-Lahore.
Number of MPPTs per Inv.	02	Number of Modules per String	12/16/20	Stage	Asbuilt Drawings	Designed by	Salman Qayyum	Title	Single Line Diagram
Total MPPTs	04	Total Number of Strings	06	Revision No.	Advanced Copy	Verified by	Muhammad Walid		
Max Current per MPPT	18/10/33	Strings per Inverter	02/04	Date	10-September-2020	Approved by	Design TEAM		

SINGLE LINE DIAGRAM

42.9KW F4



PV Modules Information:
Brand: REC
Module Peak Power: 325Wp
Cells Type: Poly Crystalline

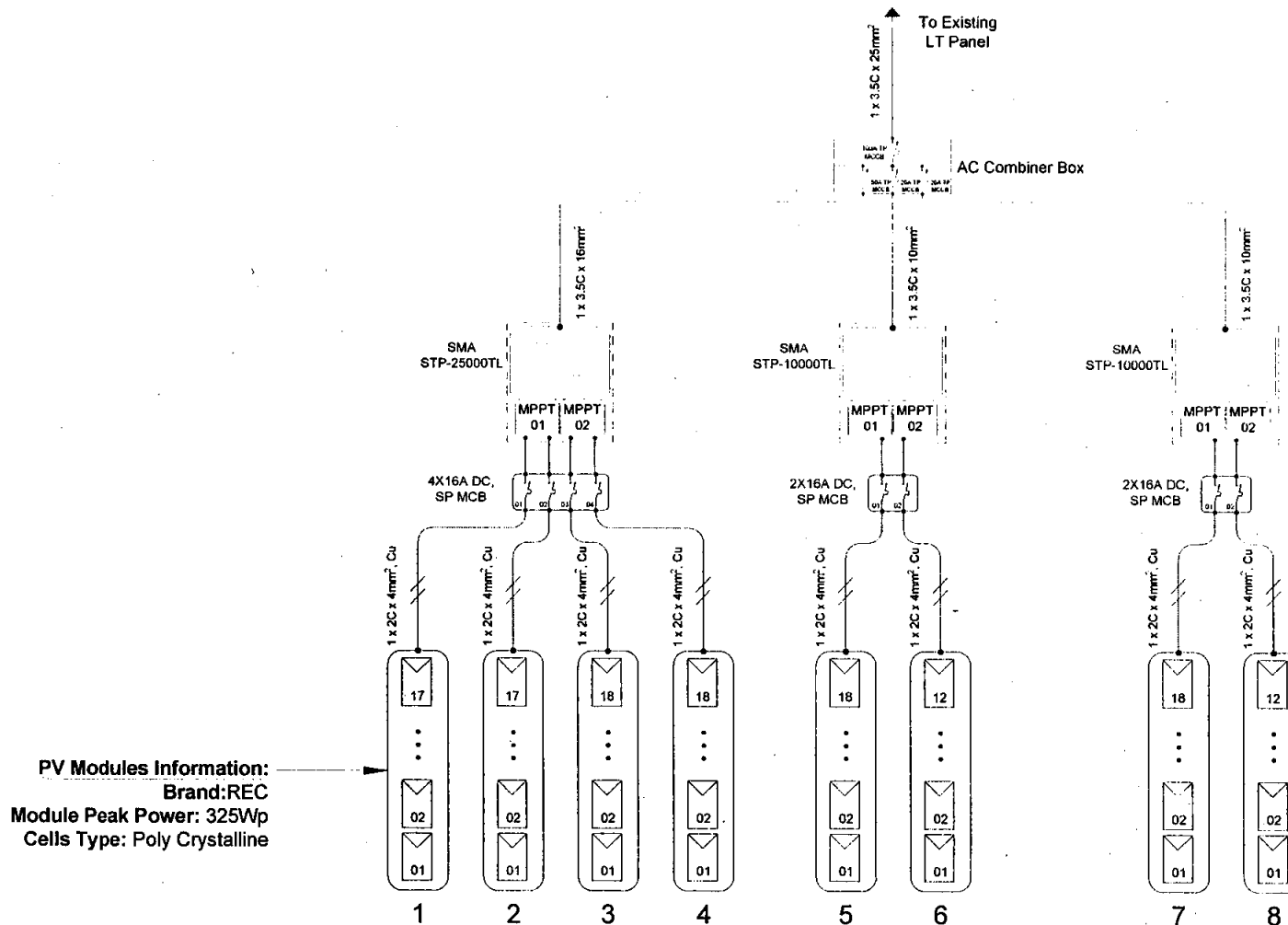
Inverter	SMA STP 25000 TL	Module Type	Poly Crystalline	Number of Strings per MPPT	02	Project	NEL-0920-LUMS-SLD-RT
Total Number of Inverters	02	Normal Module Power	325 Wp	PV per MPPT	10.4/11 kW	DWG. No.	NEL-0920-LUMS-SLD-RT
Power of Inverter	25 kW	Total Number of Modules	132	Site & Location	Lahore	Drafted by	Fahad Mukhtar
Number of MPPTs per Inv.	02	Number of Modules per String	16/17	Stage	Asbuilt Drawings	Designed by	Salman Qayyum
Total MPPTs	04	Total Number of Strings	08	Revision No.	Advanced Copy	Verified by	Muhammad Walid
Max Current per MPPT	33	Strings per Inverter	04	Date	10-September-2020	Approved by	Design TEAM

Contractor	Nizam Energy (Pvt.) Ltd.
Project	400kWp PV Grid Connected Project at LUMS, Lahore
Client	LUMS-Lahore.
Title	Single Line Diagram



SINGLE LINE DIAGRAM

44.9KW F5

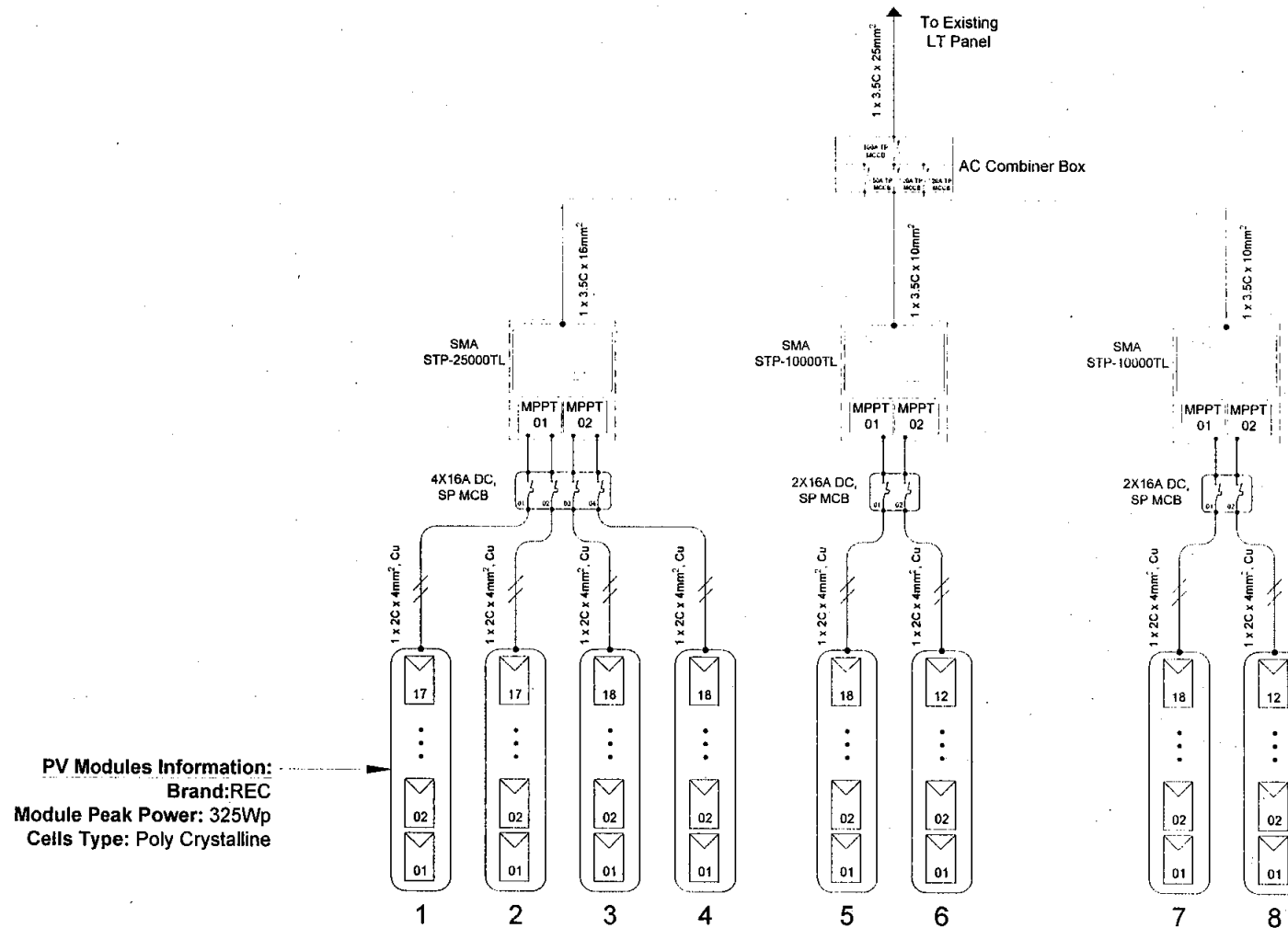


Inverter	SMA STP 10000 TL SMA STP 25000 TL	Module Type	Poly Crystalline	Number of Strings per MPPT	01/02	Project	NEL-0920-LUMS-SLD-RT
Total Number of Inverters	03	Normalinal Module Power	345 Wp	PV per MPPT	4.1/6.2/11.7/ 12.4 kW	DWG. No.	NEL-0920-LUMS-SLD-RT
Power of Inverter	10/25 kW	Total Number of Modules	130	Site & Location	Lahore	Drafted by	Fahad Mukhtar
Number of MPPTs per Inv.	02	Number of Modules per String	12/17/18	Stage	Asbuilt Drawings	Designed by	Salman Qayyum
Total MPPTs	06	Total Number of Strings	08	Revision No.	Advanced Copy	Verified by	Muhammad Walid
Max Current per MPPT	18/10/33	Strings per Inverter	02/04	Date	10-September-2020	Approved by	Design TEAM

Contractor	Nizam Energy (Pvt.) Ltd.
Project	400kWp PV Grid Connected Project at LUMS, Lahore
Client	LUMS-Lahore.
Title	Single Line Diagram

SINGLE LINE DIAGRAM

44.9KW M5



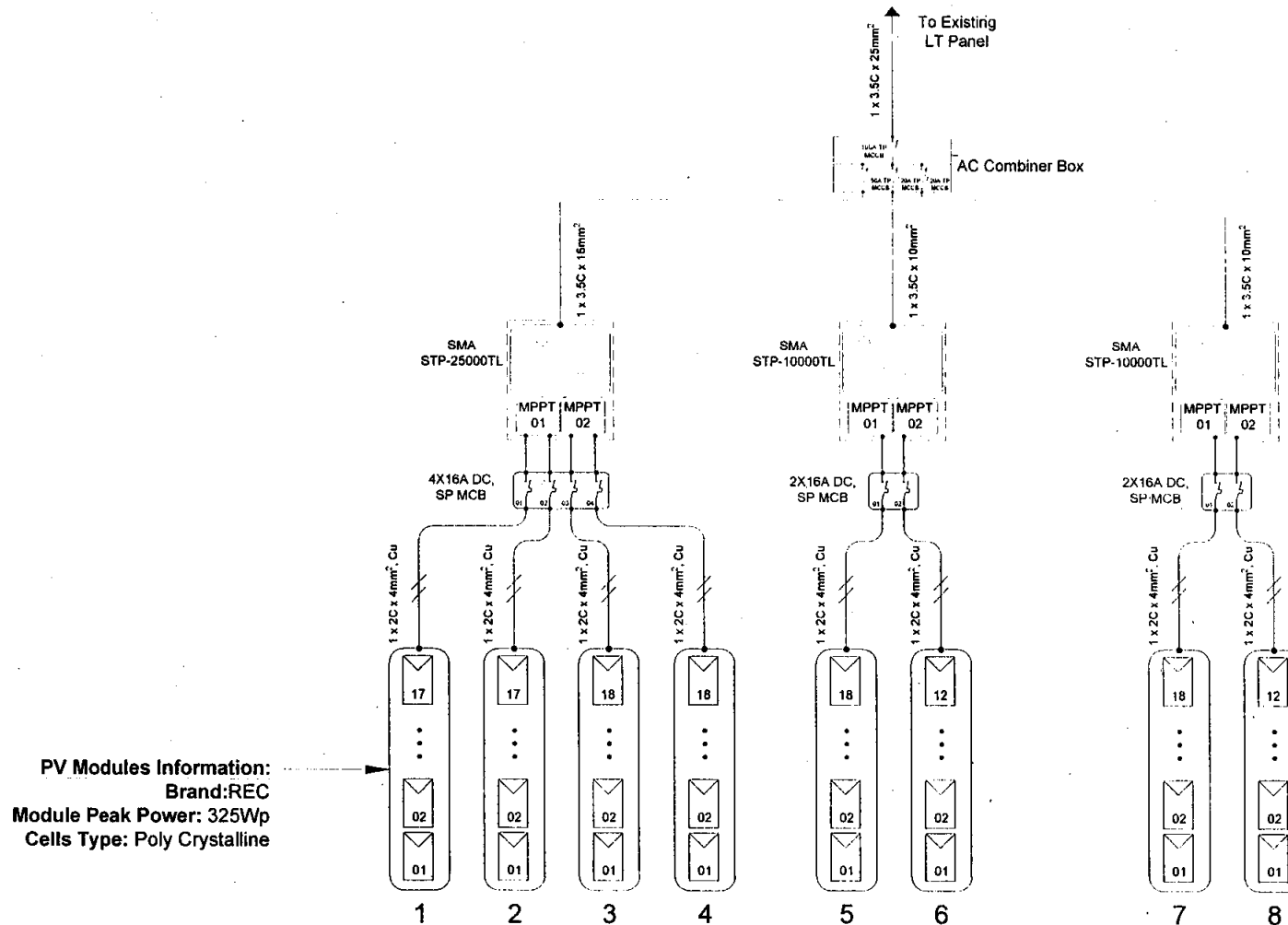
Inverter	SMA STP 10000 TL SMA STP 25000 TL	Module Type	Poly Crystalline	Number of Strings per MPPT	01/02	Project	NEL-0920-LUMS-SLD-RT
Total Number of Inverters	03	Normal Module Power	345 Wp	PV per MPPT	4.1/6.2/11.7/ 12.4 kW	DWG. No.	NEL-0920-LUMS-SLD-RT
Power of Inverter	10/25 kW	Total Number of Modules	130	Site & Location	Lahore	Drafted by	Fahad Mukhtar
Number of MPPTs per Inv.	02	Number of Modules per String	12/17/18	Stage	Asbuilt Drawings	Designed by	Salman Qayyum
Total MPPTs	06	Total Number of Strings	08	Revision No.	Advanced Copy	Verified by	Muhammad Walid
Max Current per MPPT	18/10/33	Strings per inverter	02/04	Date	10-September-2020	Approved by	Design TEAM

Contractor	Nizam Energy (Pvt.) Ltd.
Project	400kWp PV Grid Connected Project at LUMS, Lahore
Client	LUMS-Lahore.
Title	Single Line Diagram



SINGLE LINE DIAGRAM

44.9KW M6



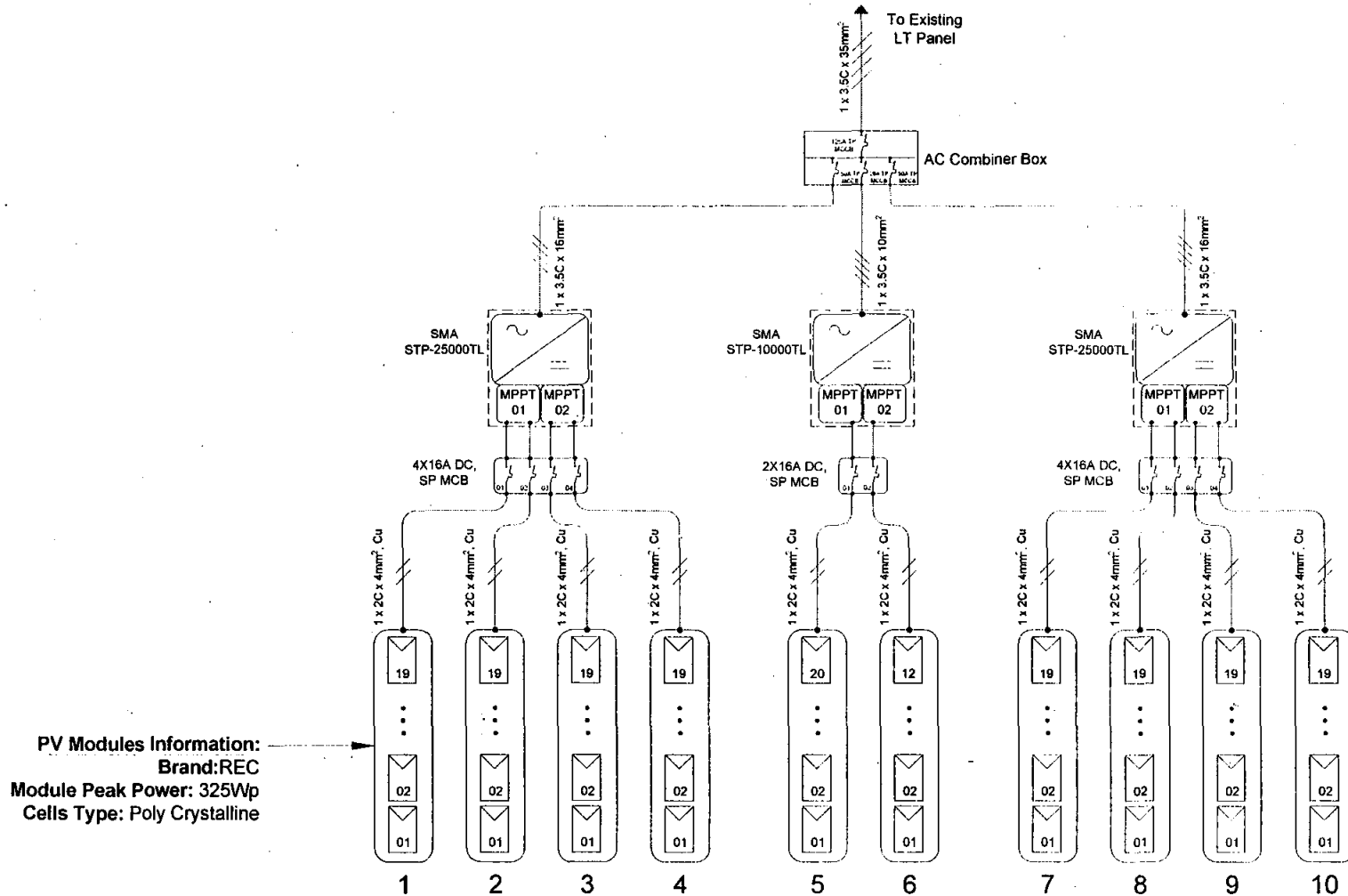
Inverter	SMA STP 10000 TL SMA STP 25000 TL	Module Type	Poly Crystalline	Number of Strings per MPPT	01/02	Project	NEL-0920-LUMS-SLD-RT
Total Number of Inverters	03	Normal Module Power	345 Wp	PV per MPPT	4.1/6.2/11.7/ 12.4 kW	DWG. No.	NEL-0920-LUMS-SLD-RT
Power of Inverter	10/25 kW	Total Number of Modules	130	Site & Location	Lahore	Drafted by	Fahad Mukhtar
Number of MPPTs per Inv.	02	Number of Modules per String	12/17/18	Stage	Asbuilt Drawings	Designed by	Salman Qayyum
Total MPPTs	06	Total Number of Strings	08	Revision No.	Advanced Copy	Verified by	Muhammad Walid
Max Current per MPPT	18/10/33	Strings per Inverter	02/04	Date	10 September 2020	Approved by	Design TEAM

Contractor	Nizam Energy (Pvt.) Ltd.
Project	400kWp PV Grid Connected Project at LUMS, Lahore
Client	LUMS-Lahore.
Title	Single Line Diagram



SINGLE LINE DIAGRAM

63.5KW M7

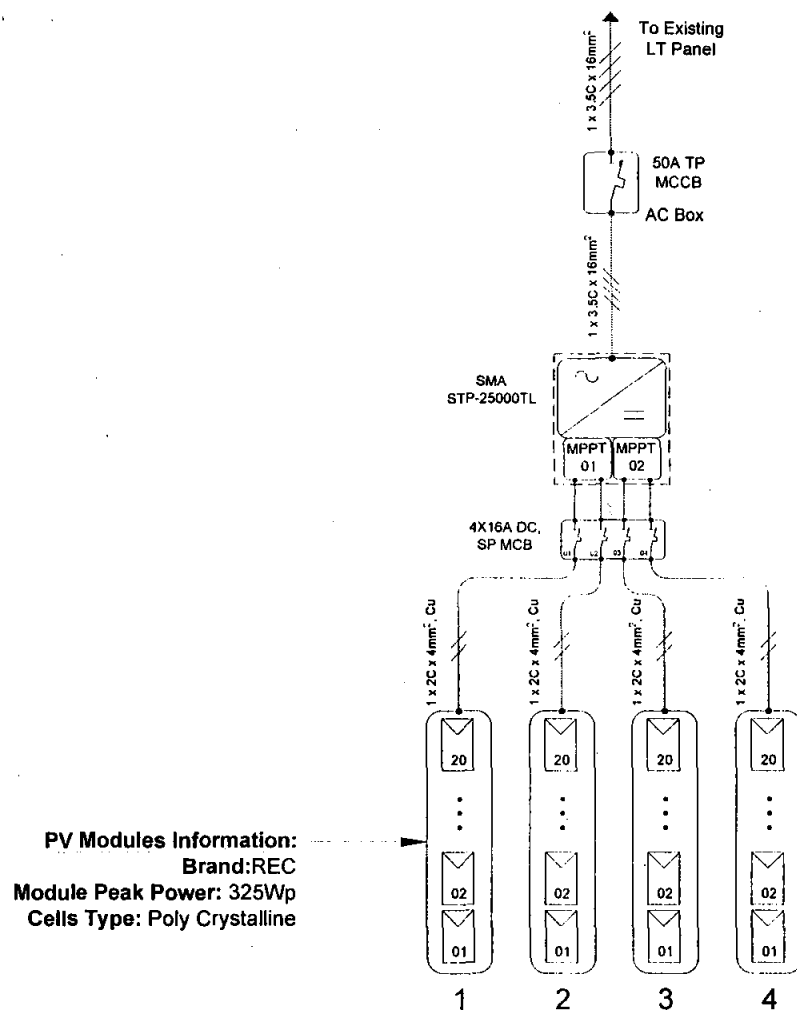


Inverter	SMA STP 10000 TL SMA STP 25000 TL	Module Type	Poly Crystalline	Number of Strings per MPPT	01/02	Project
Total Number of Inverters	03	Normal Module Power	345 Wp	PV per MPPT	4.1/6.9/13.1 kW	NEL-0920-LUMS-SLD-RT
Power of Inverter	25/10 kW	Total Number of Modules	184	Site & Location	Lahore	NEL-0920-LUMS-SLD-RT
Number of MPPTs per Inv.	02	Number of Modules per String	12/19/20	Stage	Asbuilt Drawings	Fahad Mukhtar
Total MPPTs	06	Total Number of Strings	10	Revision No.	Advanced Copy	Salman Qayyum
Max Current per MPPT	18/10/33	Strings per Inverter	02/04	Date	10-September-2020	Muhammad Walid
					Approved by	Design TEAM

Contractor	Nizam Energy (Pvt.) Ltd.
Project	400kWp PV Grid Connected Project at LUMS, Lahore
Client	LUMS-Lahore.
Title	Single Line Diagram

SINGLE LINE DIAGRAM

27.6 KW MOSQUE



Inverter	SMA STP 25000 TL
Total Number of Inverters	01
Power of Inverter	25 kW
Number of MPPTs per Inv.	02
Total MPPTs	02
Max Current per MPPT	33

Module Type	Poly Crystalline	Number of Strings per MPPT	02
Normal Module Power	345 Wp	PV per MPPT	13.8 KW
Total Number of Modules	80	Site & Location	Lahore
Number of Modules per String	20	Stage	Asbuilt Drawings
Total Number of Strings	04	Revision No.	Advanced Copy
Strings per Inverter	04	Date	10-September-2020

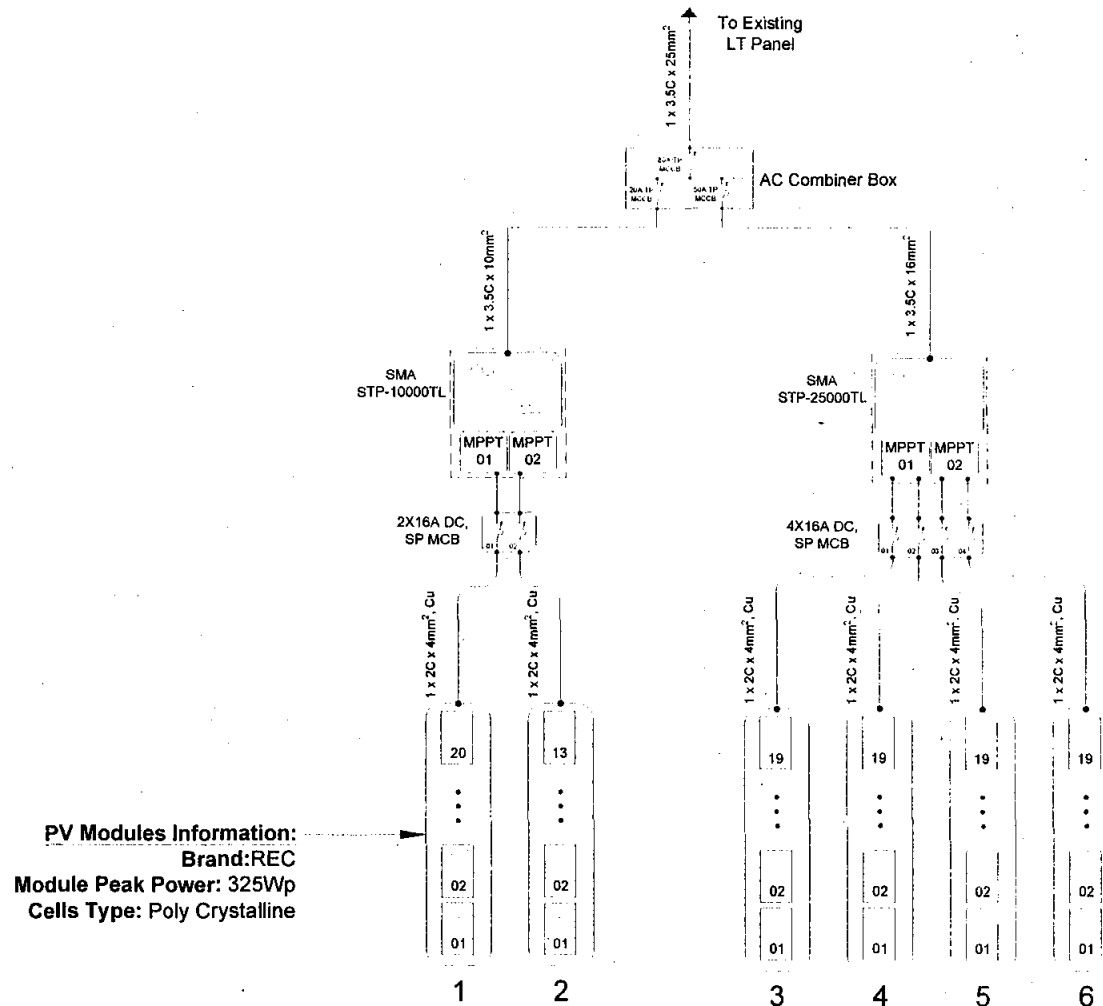
Project No.	NEL-0920-LUMS-SLD-RT
DWG. No.	NEL-0920-LUMS-SLD-RT
Drafted by	Fahad Mukhtar
Designed by	Salman Qayyum
Verified by	Muhammad Walid
Approved by	Design TEAM

Contractor	Nizam Energy (Pvt.) Ltd.
Project	400kWp PV Grid Connected Project at LUMS, Lahore
Client	LUMS-Lahore.
Title	Single Line Diagram



SINGLE LINE DIAGRAM

35.4KW REDC



Inverter	SMA STP 10000 TL SMA STP 25000 TL	Module Type	Poly Crystalline	Number of Strings per MPPT	01/02	Project	NEL-0920-LUMS-SLD-RT	Contractor	Nizam Energy (Pvt.) Ltd.
Total Number of Inverters	02	Nominal Module Power	325 Wp	PV per MPPT	4.2/6.5/12.35kW	DWG. No.	NEL-0920-LUMS-SLD-RT	Project	400kWp PV Grid Connected Project at LUMS, Lahore
Power of Inverter	10/25 kW	Total Number of Modules	109	Site & Location	Lahore	Drafted by	Fahad Mukhtar	Client	LUMS-Lahore.
Number of MPPTs per Inv.	02	Number of Modules per String	13/19/20	Stage	Asbuilt Drawings	Designed by	Salman Qayyum	Title	Single Line Diagram
Total MPPTs	04	Total Number of Strings	06	Revision No.	Advanced Copy	Verified by	Muhammad Walid		
Max Current per MPPT	18/10/33	Strings per Inverter	02/04	Date	10-September-2019	Approved by	Design TEAM		

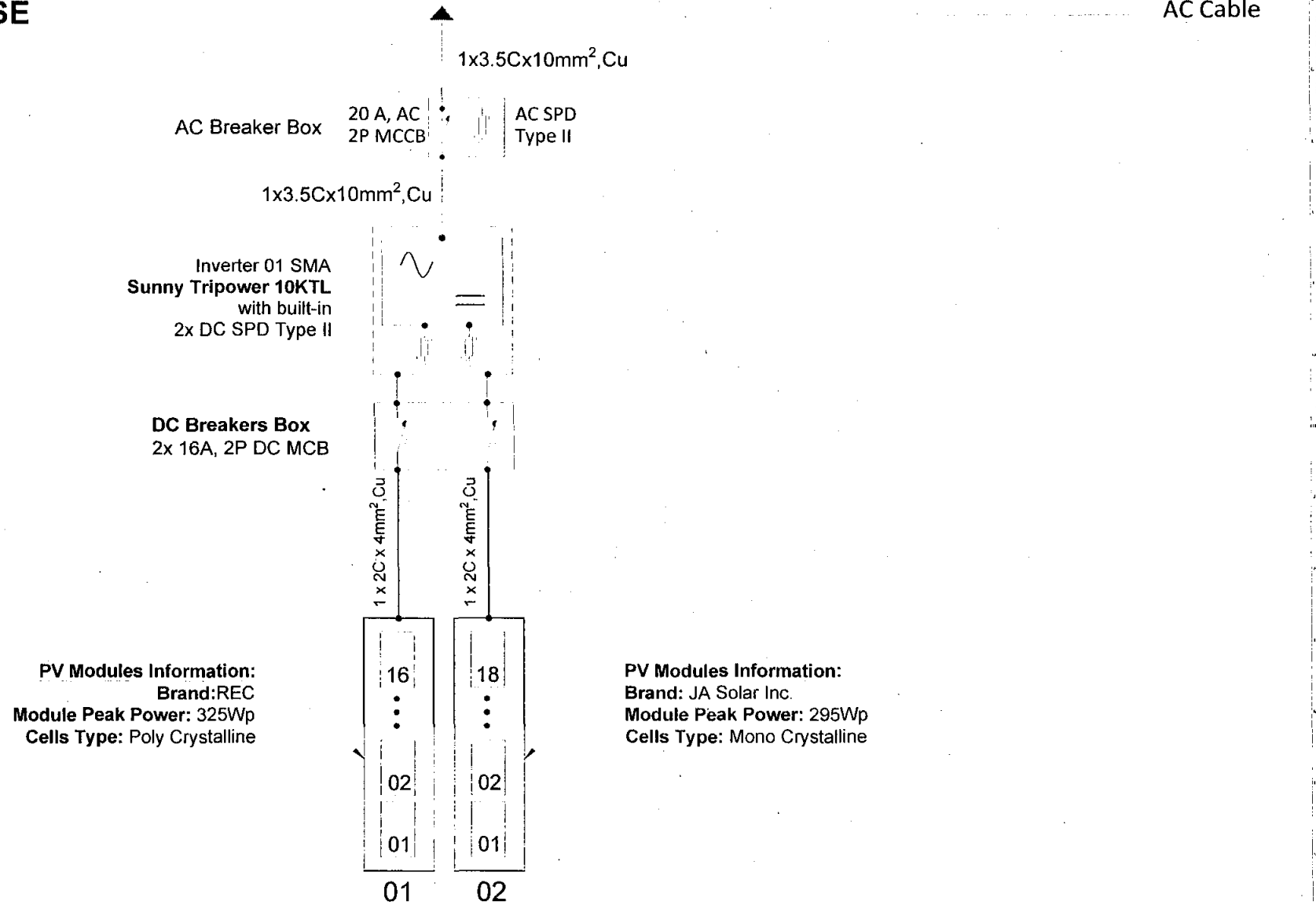
SINGLE LINE DIAGRAM

10.33KW SBASSE

To Existing LT Panel

DC Cable

AC Cable



Inverter	Sunny Tripower10KTL	Module Type	Poly/Mono Crystalline	Number of Strings per MPPT	01	Project No.	NEL-0920-LUMS-SLD-RT
Total Number of Inverters	01	Nominal Module Power	295/325Wp	PV per MPPT	5.2/5.31kW	DWG. No.	NEL-0920-LUMS-SLD-RT
Power of Inverter	10 kW	Total Number of Modules	34	Site & Location of the Project	Lahore	Designed by	Fahad Mukhtar
Number of MPPTs per Inv.	02	Number of Modules per String	16/18	Stage	Asbuilt Drawings	Checked by	Salman Qayyum
Total MPPTs	02	Total Number of Strings	02	Revision No.	Advanced Copy	Verified by	Muhammad Valid
Max Current per MPPT	20A/12A	Strings per Inverter	02	Date	10-09-2020		

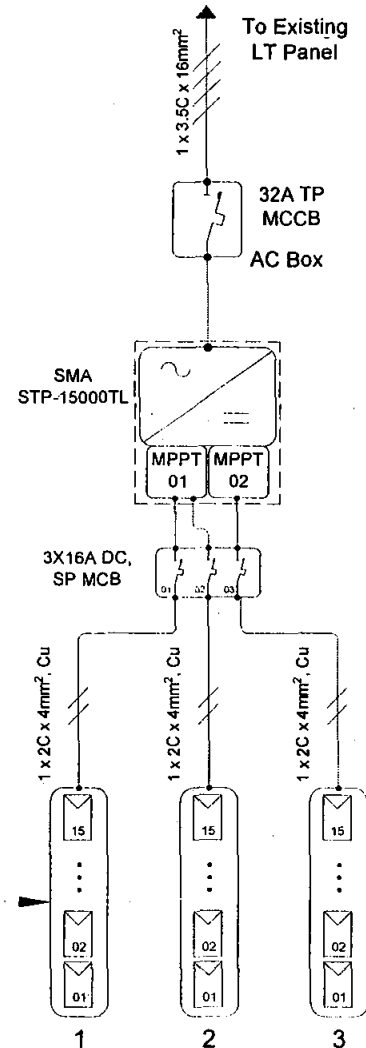
Contractor: Nizam Energy (Pvt.) Ltd.

Project: 400kWp PV Grid Connected Project at LUMS, Lahore.

Client: **LUMS-Lahore.**

Title: **Single Line Diagram**

SINGLE LINE DIAGRAM 14.6KW SUPER STORE



PV Modules Information:
Brand: REC
Module Peak Power: 325Wp
Cells Type: Poly Crystalline

Inverter	SMA STP 15000 TL	Module Type	Poly Crystalline	Number of Strings per MPPT	01/02	Project	NEL-0920-LUMS-SLD-RT	Contractor	Nizam Energy (Pvt.) Ltd.
Total Number of Inverters	01	Nominal Module Power	325 Wp	PV per MPPT	4.9/9.7 kW	DWG. No.	NEL-0920-LUMS-SLD-RT	Project	400kWp PV Grid Connected Project at LUMS, Lahore
Power of Inverter	15 kW	Total Number of Modules	45	Site & Location	Lahore	Drafted by	Fahad Mukhtar	Client	LUMS-Lahore.
Number of MPPTs per Inv.	02	Number of Modules per String	15	Stage	Asbuilt Drawings	Designed by	Salman Qayyum	Title	Single Line Diagram
Total MPPTs	02	Total Number of Strings	03	Revision No.	Advanced Copy	Verified by	Muhammad Walid		
Max Current per MPPT	33	Strings per Inverter	03	Date	10-September-2020	Approved by	Design TEAM		

**Interconnection Arrangement/Transmission Facilities for
Dispersal of Power from the Generation Facility/Solar Power
Plant/Solar Farm of the Licensee**

The electric power generated from the generation facility/Solar Power Plant/Solar Farm of the Licensee Nizam Power (Private) Limited., will be delivered/supplied to Lahore University of Management Sciences (LUMS). The system will be installed on numerous rooftops inside LUMS. The power generated through photovoltaic modules will be in direct current (DC) form that will be converted into alternating current (AC) by using inverters. This power is then passed through energy meters to be installed on each rooftop before being injected into low voltage distribution box of the same building. Circuit breakers shall be appropriately installed for protections.

Details of Generation Facility/Solar Power Plant/Solar Farm

(A). General Information

(i).	Name of the Company/Licensee	Nizam Power (Private) Limited
(ii).	Registered/ Business office of the Company/Licensee	G-30/4 KDA Scheme No. 5, Block-8, Clifton Karachi, Pakistan
(iii).	Location of the generation facility Solar Power Plant/ Solar Farm	Lahore University of Management Sciences (LUMS), DHA Phase 5, Khayaban-e-Jinnah Road, opposite Sector U, Punjab Small Industries Housing Society, Lahore, Punjab 54792
(iv).	Type of the generation facility/ Solar Power Plant/ Solar Farm	Solar Photovoltaic (PV)

(B). Solar Power Generation Technology & Capacity

(i).	Type of Technology	Photovoltaic (PV) Cell
(ii).	System Type	On Grid
(iii).	Installed Capacity of the generation facility Solar Power Plant/ Solar Farm (kWp)	397 kWp

(C). Technical Details of Equipment

Item Description			
Solar Panels – PV Modules	Type 1	Type 2	Type 3
Manufacturer and Brand	REC: REC325PE72	Canadian Solar: CS3U-345P	JA Solar: JAM6(K)-60-295/PR
Type of Cell	Polycrystalline	Polycrystalline	Monocrystalline
Dimension of each Module	1960 × 990 × 45 mm	2000 × 992 × 40 mm	1650 × 991 × 35 mm
No. of Panel/Modules	511	654	18
Total Module Area(in m2)	1.94	1.98	1.63
Frame of Panel	Anodized Aluminium Alloy	Anodized Aluminium Alloy	Anodized Aluminium Alloy
Weight of one Module	27 kg	22.6 kg	18 kg
No of Solar Cells in each module	72	72	60
Efficiency of module	16.72%	17.39%	18.04%
Maximum Power (P_{max})	325 watts	345 watts	295 watts
Voltage @ P_{max}	38.5V	38.6V	33.03V
Current @ P_{max}	8.46A	8.94A	9.21A
Open circuit voltage (V_{oc})	46.4 V	46.1 V	39.64V
Short circuit current (I_{sc})	9.05 A	9.44 A	9.66A
Maximum system open Circuit Voltage	1000V	1000V	1000V
PV Array			
Nos. of Strings	Varies (See SLDs)	Varies (See SLDs)	
Modules in a string	Varies (See SLDs)	Varies (See SLDs)	

Inverters	Type 1	Type 2	Type 3
Capacity of each unit	10kW	15kW	25kW
Manufacturer and Brand	SMA Sunny Tripower 10000TL	SMA Sunny Tripower 15000TL	SMA Sunny Tripower 25000TL
Input Operating Voltage Range	150-1000 V	150-1000 V	150-1000 V
Number of Inverters	11	1	11

Efficiency of inverter	98.1%	98.2 %	98.3%
Max. Allowable Input voltage	1000 V	1000 V	1000 V
No. of MPPTs per inverter	2	2	2
Max. Current Per MPPT	A: 22 A, B: 11 A / 33 A (per string)	33 A / 11 A (inputs)	33A (inputs)
Max. Power Point Tracking Range	320-800 V	360 V to 800 V	390 V to 800 V
Output electrical system			
Rated Output Voltage	230 V / 400 V	3 / N / PE; 220 / 380 V 3 / N / PE; 230 / 400 V 3 / N / PE; 240 / 415 V	3 / N / PE; 220 / 380 V 3 / N / PE; 230 / 400 V 3 / N / PE; 240 / 415 V
Power Factor (adjustable)	0.8 Lagging to 0.8 Leading	0.8 Lagging to 0.8 Leading	0.8 Lagging to 0.8 Leading
Rated Frequency	50Hz	50 Hz	50 Hz
Relative Humidity	N/A	100%	100%
Operating Elevation			
Operating temperature	-25 °C ... +60 °C	-25 °C ... +60 °C	-25 °C ... +60 °C
Protection Devices	DC reverse-polarity protection / reverse current protection	Input-side disconnection point	DC-side disconnection device
	ESS switch-disconnector	Ground fault monitoring / grid monitoring	Ground fault monitoring / grid monitoring
	AC short circuit protection	DC surge arrester SPD type III / SPD type II	DC surge arrester (Type II) can be integrated
	Ground fault monitoring	DC reverse polarity protection / AC short-circuit current capability / galvanically isolated	DC reverse polarity protection / AC short-circuit current capability / galvanically isolated
	Grid monitoring (SMA Grid Guard)	All-pole sensitive residual-current monitoring unit / Electronic string current monitoring	All-pole sensitive residual-current monitoring unit
	Galvanically isolated / all-pole sensitive fault current monitoring unit	Protection class (as per IEC 62109-1) / overvoltage category (as per IEC 62109-1)	Protection class (according to IEC 62109-1) / overvoltage category (according to IEC 62109-1)
	DC overvoltage protector type II		

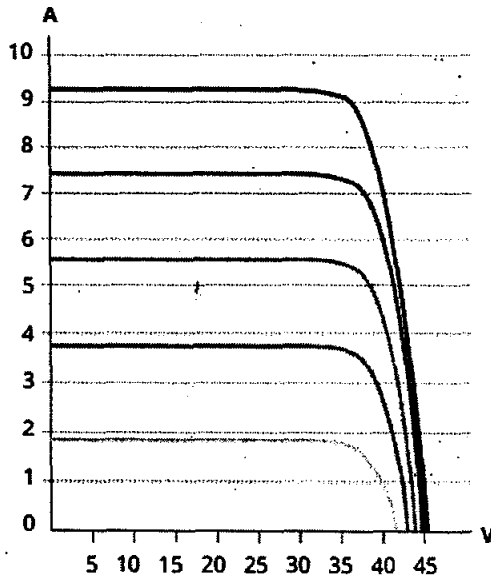
	String failure detection		
	Protection class / overvoltage category		
Monitoring & Communication System	Interfaces: RS485 / Bluetooth	Interface: RS485, Bluetooth®, Speedwire / Webconnect	Interface: RS485, Speedwire/Webconnect

(D). Other Details

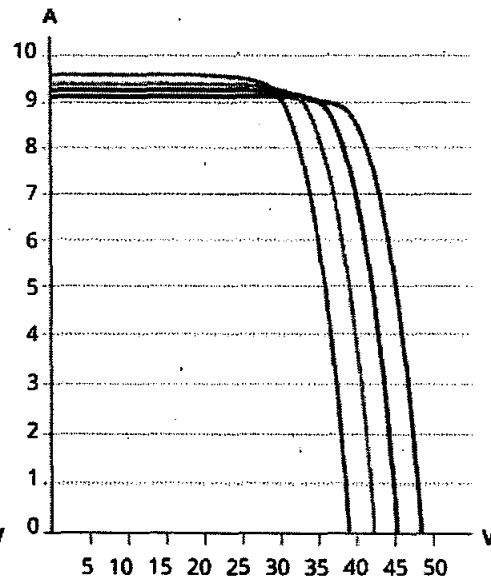
(i).	Expected COD of the generation facility Solar Power Plant/ Solar Farm	April 30 th , 2021
(ii).	Expected useful Life of the generation facility Solar Power Plant/ Solar Farm from the COD	10 years as per power purchase agreement with LUMS.

V-I Curve of Solar Cell of Generation Facility/Solar Power Plant/ Solar Farm

CS3U-340P / I-V CURVES

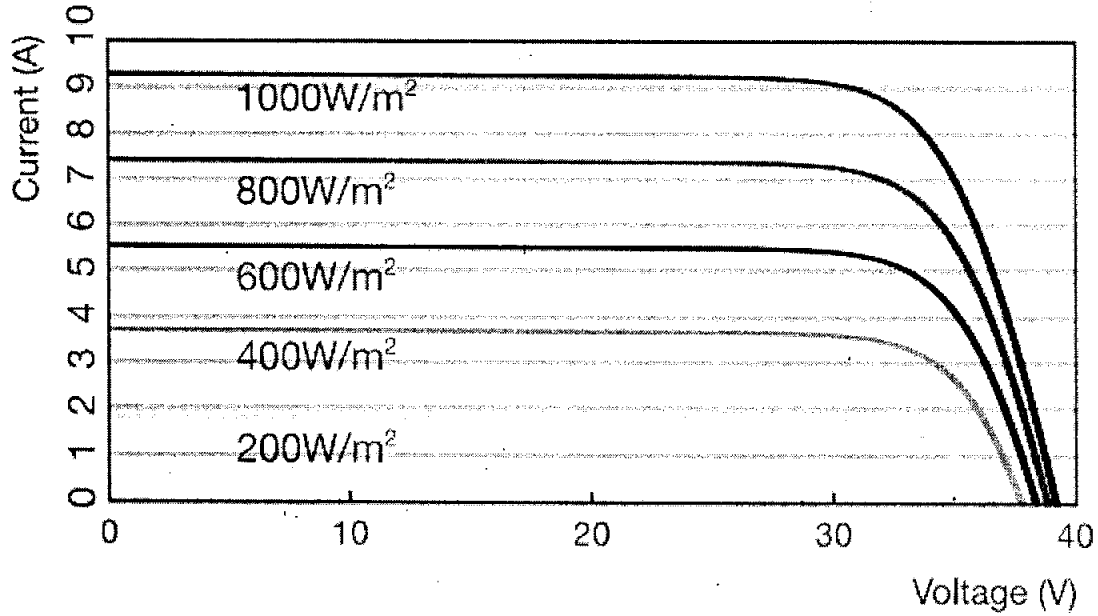


■ 1000 W/m^2
■ 800 W/m^2
■ 600 W/m^2
■ 400 W/m^2
■ 200 W/m^2

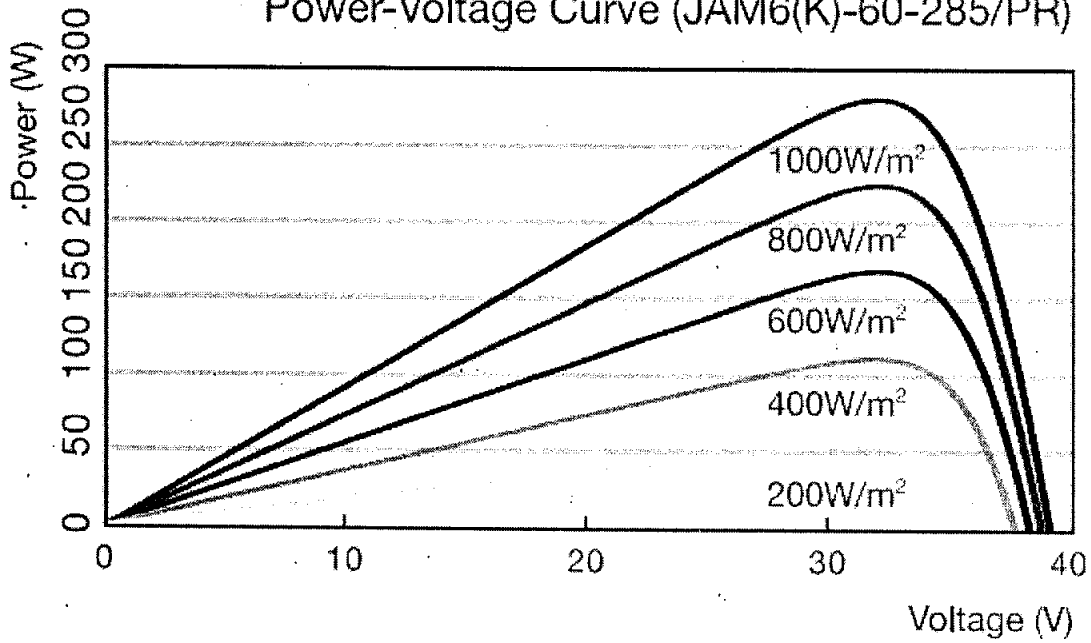


■ 5 $^{\circ}C$
■ 25 $^{\circ}C$
■ 45 $^{\circ}C$
■ 65 $^{\circ}C$

Current-Voltage Curve (JAM6(K)-60-285/PR)



Power-Voltage Curve (JAM6(K)-60-285/PR)



**Information Regarding Power Purchaser i.e., LUMS to be
Supplied by the Licensee i.e. Nizam Power Pvt. Ltd.**

(i).	No. of Consumers	1 Campus of LUMS
(ii).	Location of consumers (distance and/or identity of premises)	DHA Phase 5, Khayaban-e-Jinnah Road, opposite Sector U, Punjab Small Industries Housing Society, Lahore, Punjab 54792
(iii).	Contracted Capacity and Load Factor for consumer	400 kWp/20%
(iv).	Specify Whether	
	(a). The consumer is an Associate undertaking of Nizam Power Private Limited -If yes, specify percentage ownership of equity;	LUMS does not have direct association with Nizam Power Private Limited.
	(b). There are common directorships:	Currently, there are no common directors of LUMS and Nizam Power Private Limited.
	(c). Either can exercise influence or control over the other.	No
(v).	Specify nature of contractual Relationship	
	(a). Between consumer and Nizam Power Private Limited.	Nizam Power Private Limited will construct and operate solar plant and provide electricity to LUMS.
	(b). Consumer and LESCO	Yes. Consumer Reference number is 24 11562 9035109U

(vi)	Any other network information deemed relevant for disclosure to or consideration of the Authority.	NA
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**Information Regarding Distribution Network for Supply of
Electric Power to LUMS**

Sr. No.	Description	Site
(i).	No. of Feeders	01
(ii).	Length of Each Injection (Meter)	In respective building DB. Distance less than 150m.
(iv).	In respect of all the Feeders, describe the property (streets, farms, Agri land, etc.) through, under or over which they pass right up to the premises of customer, whether they cross-over.	N/A
(v).	Whether owned by Nizam Power Pvt. Ltd., Consumer or LESCO-(deal with each Feeder Separately)	
	(a).	If owned by LESCO, particulars of contractual arrangement
	(b).	Operation and maintenance responsibility for each feeder
(vi).	Whether connection with network of LESCO exists (whether active or not)- If yes, provide details of connection arrangements (both technical and contractual)	Yes. LUMS has existing 11kV connections from LESCO.

(vii).	Any other network information deemed relevant for disclosure to or consideration of the Authority.	NA
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Generation License Nizam Power (Private) Limited
G-30/4 KDA Scheme No. 5, Block-8,
Clifton, Karachi, Pakistan.

Schematic Diagram
for Supply of Power to the BPC from the Generation
Facility/Solar Power Plant /Solar Farm of the Licensee

LUMS P.V PROJECT

General Layout

(SBASSE)

Unit: Meter (m)

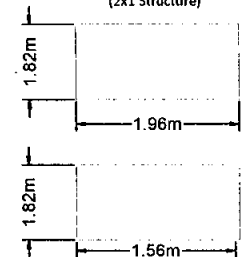


Module Tables

Boundaries

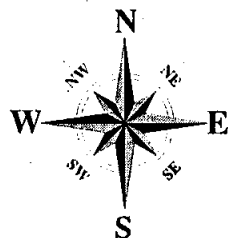
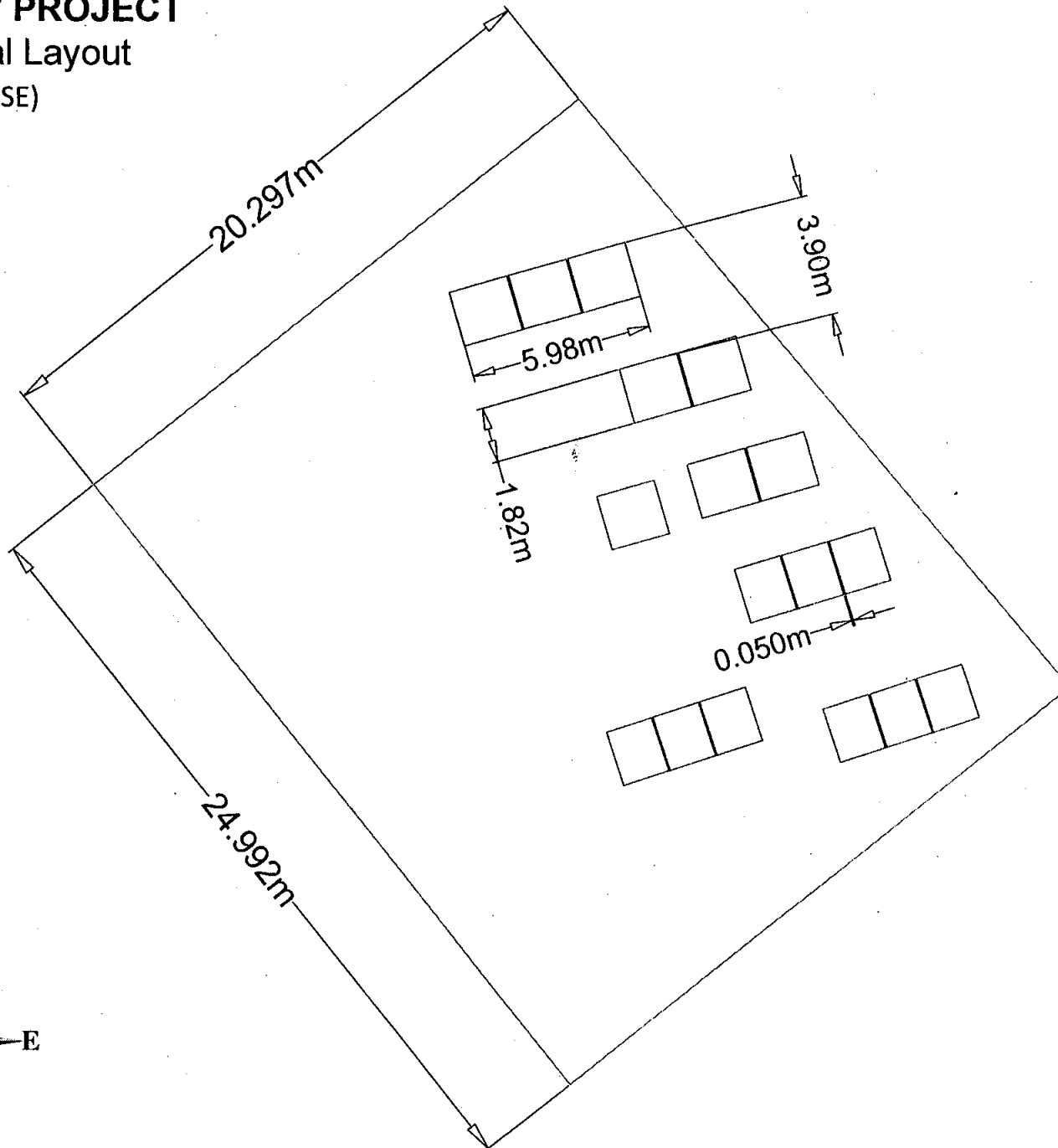
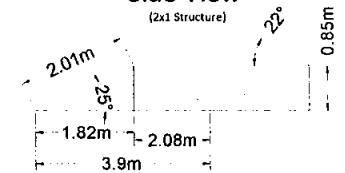
Top View

(2x1 Structure)



Side View

(2x1 Structure)



Building Name	SBASSE
Total Installed Capacity	10.33 kWp
Module Power(STC)	285W & 325 W
Modules 285W	18
Modules 325W	16
Total No. of Modules	34
2x1 Structures	17
Fix Tilt	25°
Azimuth Angle	19° SE
Drafted by	Fahad Mukhtar
Designed by	Salman Qayyum
Verified by	Muhammad Walid
Project No.	NEL-0920-LUMS-RT
Drawing No.	NEL-0920-LUMS-RT-GL
DWG Reference No.	NEL-0920-LUMS-RT-GL-10
Revision No.	Advanced Copy

Project 400 KWp Grid Tie Project at LUMS-LAHORE, Pakistan.

Title General Layout

Site Coordinates : 31°28'18.80"N 74°24'41.95"E Nizam Energy Pvt. Ltd.

LUMS P.V PROJECT

General Layout

(Admission Office)

Unit: Meter (m)

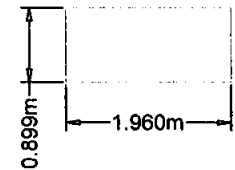


Module Tables

Boundaries

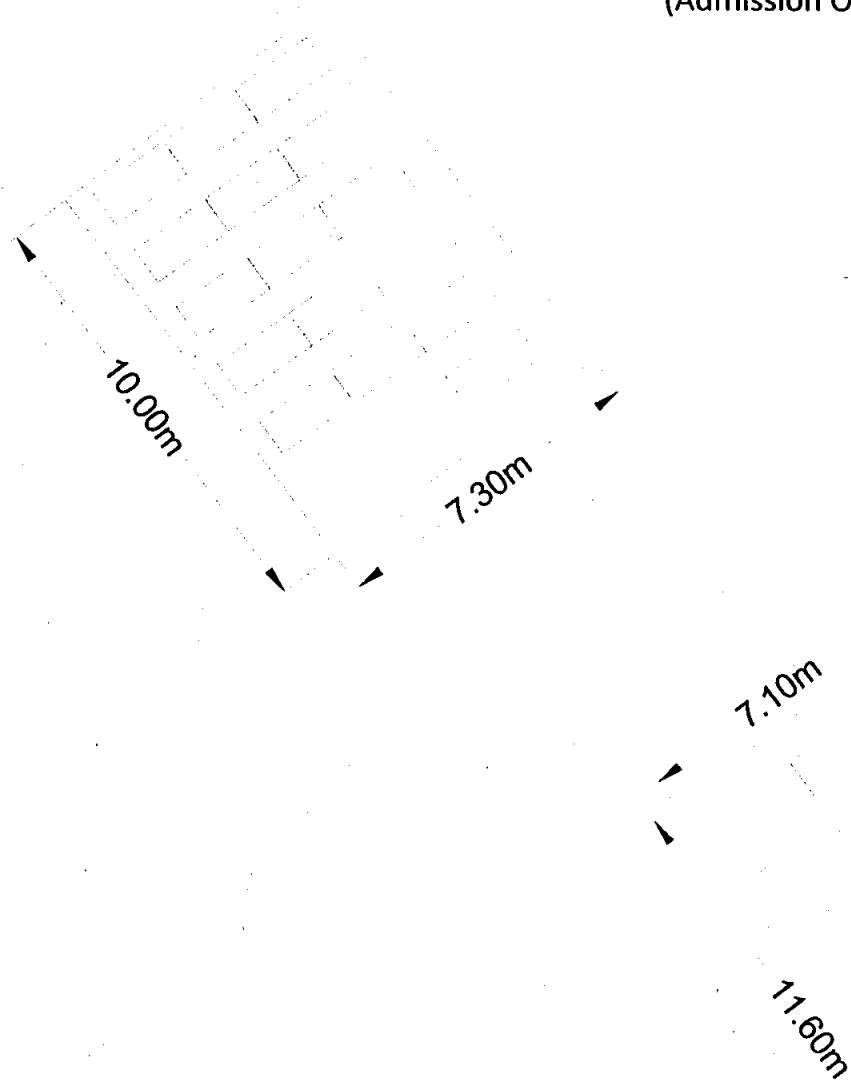
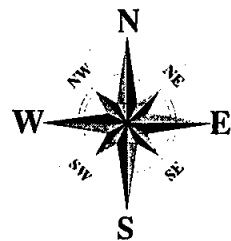
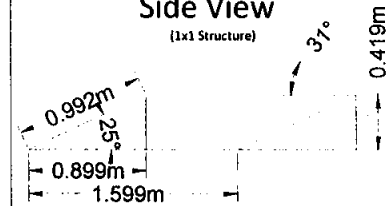
Top View

(1x1 Structure)



Side View

(1x1 Structure)



Building Name	Admission Office
Total Installed Capacity	10.7 kWp
Module Power(STC)	325 W
No. of Modules	33
Pitch	1.6m
Fix tilt	25°
Azimuth Angle	36° SE
Drafted by	Fahad Mukhtar
Designed by	Salman Qayyum
Verified by	Muhammad Walid
Project No.	NEL-0920-LUMS-RT
Drawing No.	NEL-0920-LUMS-RT-GL
DWG Reference No.	NEL-0920-LUMS-RT-GL-11
Revision No.	Advanced Copy

Project	400 KWp Grid Tie Project at LUMS-LAHORE, Pakistan.
Title	General Layout

Site Coordinates : 31°28'16.71"N 74°24'36.56"E

Nizam Energy Pvt. Ltd.

LUMS P.V PROJECT

General Layout

(EDH)

Unit: Meter (m)

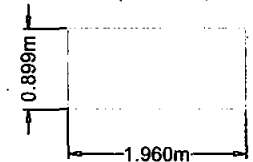


Module Tables

Boundaries

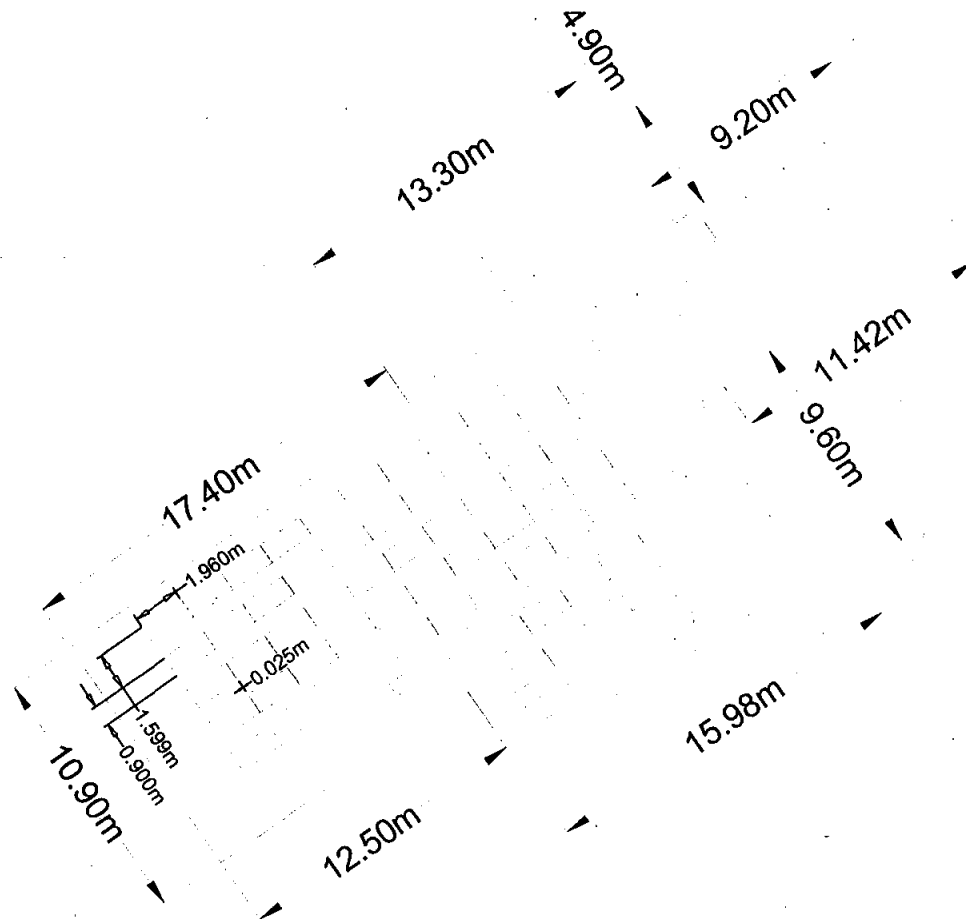
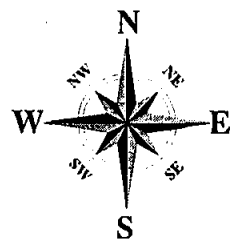
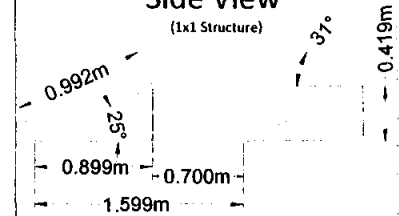
Top View

(1x1 Structure)



Side View

(1x1 Structure)



Building Name	EDH
Total Installed Capacity	26.00 kWp
Module Power(STC)	325 W
No. of Modules	80
Pitch	1.6m
Fix Tilt	25°
Azimuth Angle	35° SE
Drafted by	Fahad Mukhtar
Designed by	Salman Qayyum
Verified by	Muhammad Walid
Project No.	NEL-0920-LUMS-RT
Drawing No.	NEL-0920-LUMS-RT-GL
DWG Reference No.	NEL-0920-LUMS-RT-GL-26
Revision No.	Advanced Copy

Project 400 KWp Grid Tie Project at LUMS-LAHORE, Pakistan.

Title General Layout

Site Coordinates :31°28'16.09"N 74°24'38.10"E Nizam Energy Pvt. Ltd.

LUMS P.V PROJECT

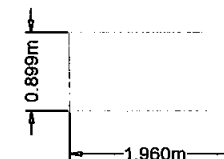
General Layout (Females Hostel 3)

Unit: Meter (m)

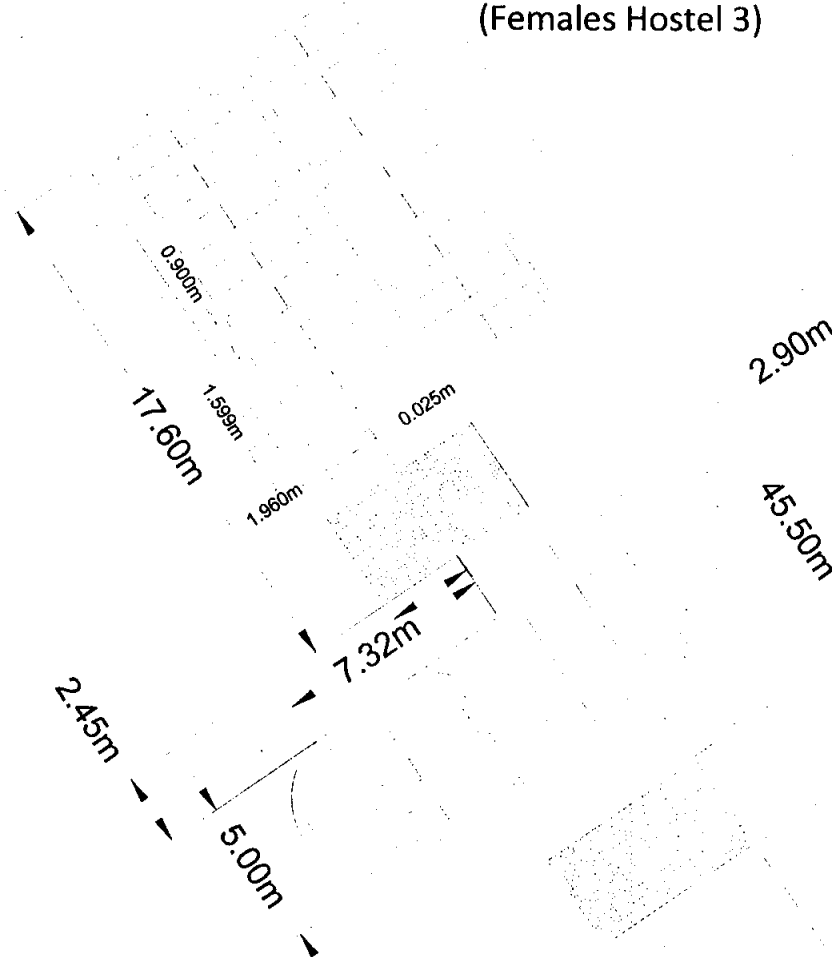
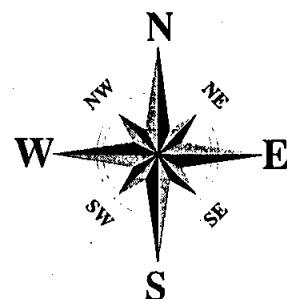
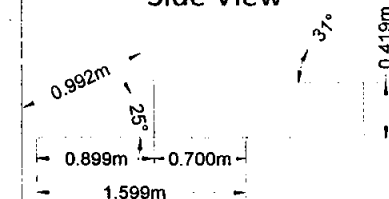


Module Tables
Boundaries

Top View
(1x1 Structure)



Side View



Building Name	Females Hostel #3 (F 3)
Total Installed Capacity	31.20 kWp
Module Power(STC)	325 W
No. of Modules	96
Pitch	1.6m
Fix Tilt	25°
Azimuth Angle	34°SE
Drafted by	Fahad Mukhtar
Designed by	Salman Qayyum
Verified by	Muhammad Walid
Project No.	NEL-0920-LUMS-RT
Drawing No.	NEL-0920-LUMS-RT-GL
DWG Reference No.	NEL-0920-LUMS-RT-GL-31
Revision No.	Advanced Copy

Project 400 KWp Grid Tie Project at
LUMS-LAHORE, Pakistan.
Title General Layout

Nizam Energy Pvt. Ltd.

Site Coordinates : 31°28'12.13"N 74°24'28.72"E

LUMS P.V PROJECT

General Layout

(Female Hostel 4)

Unit: Meter (m)

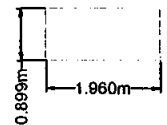


Module Tables

Boundaries

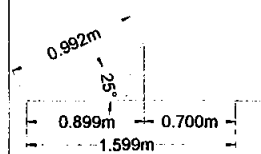
Top View

(1x1 Structure)

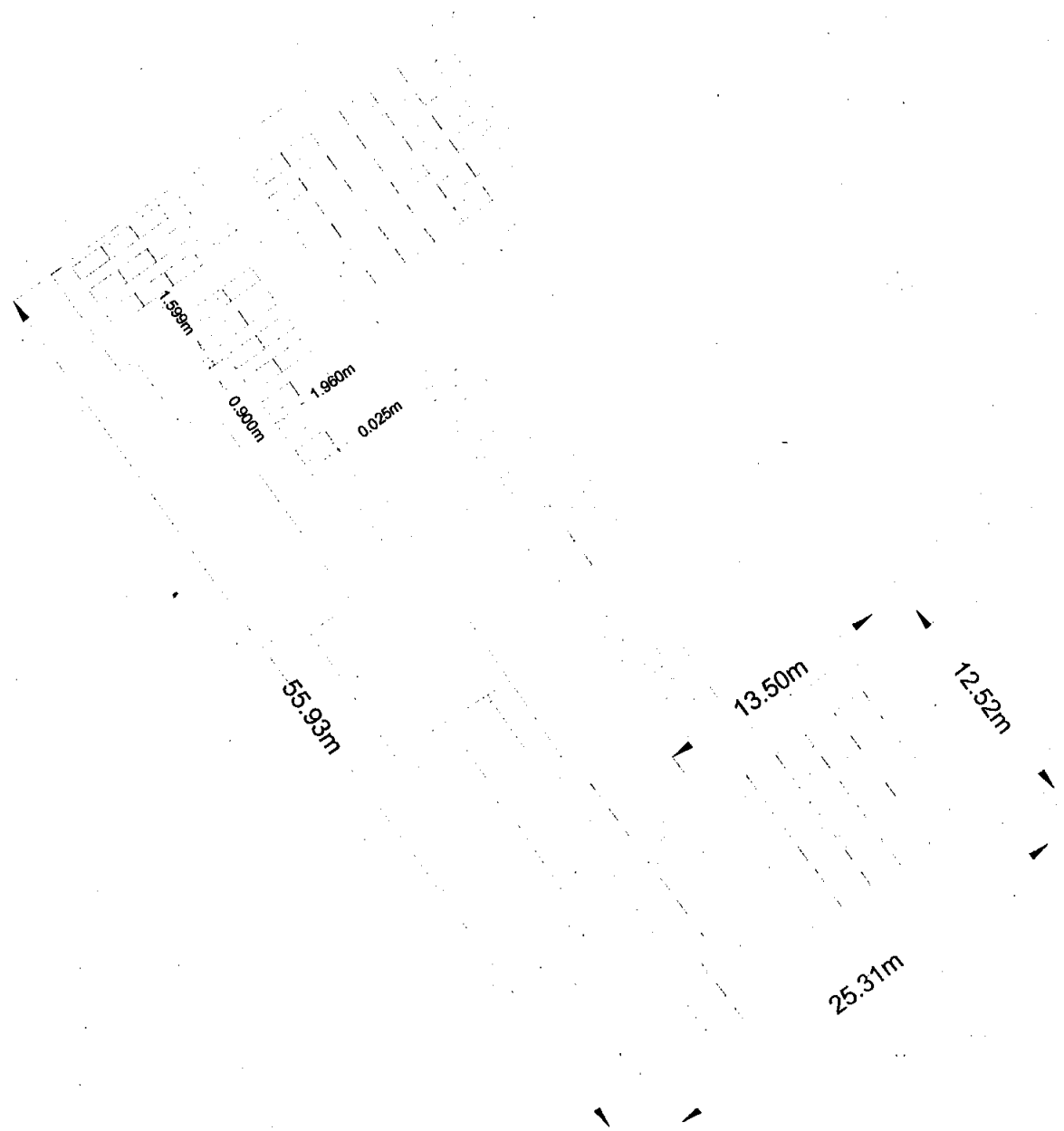
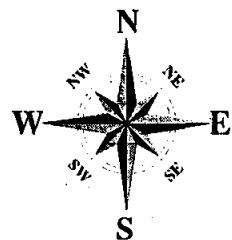


Side View

(1x1 Structure)



0.419m



Building Name	Females Hostel #4 (F 4)
Total Installed Capacity	42.9 kWp
Module Power(STC)	325 W
No. of Modules	132
Pitch	1.6m
Fix Tilt	25°
Azimuth angle	36° SE
Drafted by	Fahad Mukhtar
Designed by	Salman Qayyum
Verified by	Muhammad Walid
Project No.	NEL-0920-LUMS-RT
Drawing No.	NEL-0920-LUMS-RT-GL
DWG Reference No.	NEL-0920-LUMS-RT-GL-43
Revision No.	Advanced Copy

Project 400 KWp Grid Tie Project at LUMS-LAHORE, Pakistan.
Title General Layout

Site Coordinates : 31°28'13.44"N 74°24'23.84"E

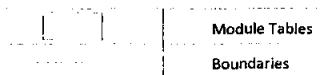
Nizam Energy Pvt. Ltd.

LUMS P.V PROJECT

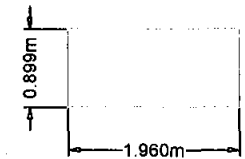
General Layout

(Females Hostel 5)

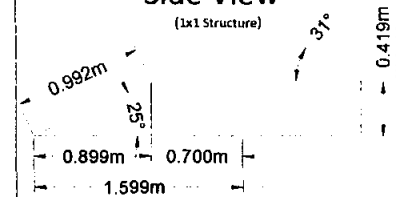
Unit: Meter (m)



Top View
(1x1 Structure)



Side View
(1x1 Structure)



Building Name	Females Hostel #5 (F 5)
Total Installed Capacity	44.9
Module Power(STC)	345 W
No. of Modules	130
Pitch	1.6m
Fix Tilt	25°
Azimuth Angle	37°SE
Drafted by	Fahad Mukhtar
Designed by	Salman Qayyum
Verified by	Muhammad Walid
Project No.	NEL-0920-LUMS-RT
Drawing No.	NEL-0920-LUMS-RT-GL
DWG Reference No.	NEL-0920-LUMS-RT-GL-45
Revision No.	Advanced Copy

Project	400 KwP Grid Tie Project at LUMS-LAHORE, Pakistan.
Title	General Layout

Nizam Energy Pvt. Ltd.



Site Coordinates : 31°28'13.44"N 74°24'23.84"E

LUMS P.V PROJECT

General Layout

(Males Hostel 5)

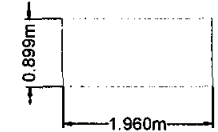
Unit: Meter (m)



	Module Tables
	Boundaries

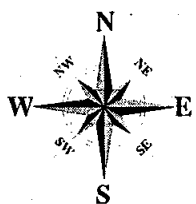
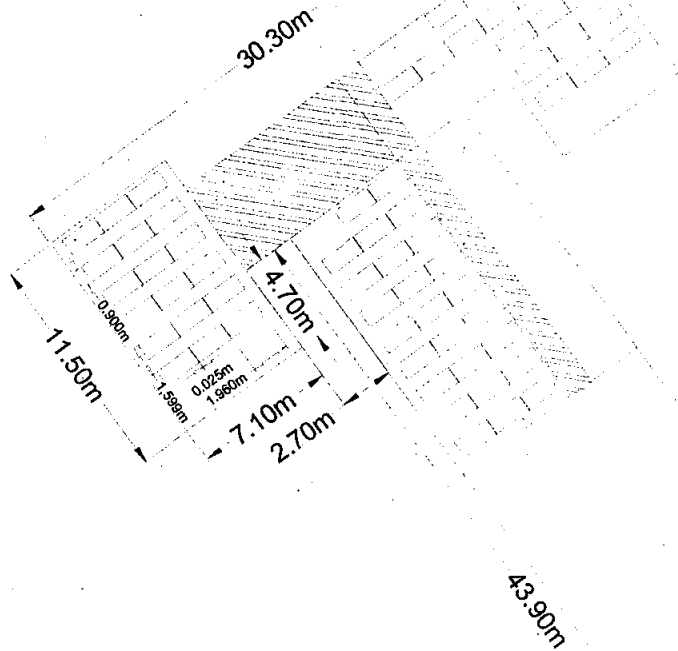
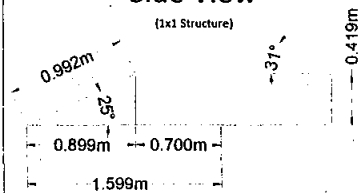
Top View

(1x1 Structure)



Side View

(1x1 Structure)



Building Name	Males Hostel #5 (M 5)
Total Installed Capacity	44.9 kWp
Module Power(STC)	345 W
No. of Modules	130
Pitch	1.6m
Fix Tilt	25°
Azimuth Angle	36° SE
Drafted by	Fahad Mukhtar
Designed by	Salman Qayyum
Verified by	Muhammad Walid
Project No.	NEL-0920-LUMS-RT
Drawing No.	NEL-0920-LUMS-RT-GL
DWG Reference No.	NEL-0920-LUMS-RT-GL-45
Revision No.	Advanced Copy
Project	400 KWp Grid Tie Project at LUMS-LAHORE, Pakistan.
Title	General Layout

Site Coordinates : 31°28'15.30"N 74°24'42.13"E

Nizam Energy Pvt. Ltd.

Unit: Meter (m)

LUMS P.V PROJECT

General Layout

(Males Hostel 6)

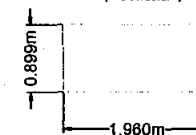


Module Tables

Boundaries

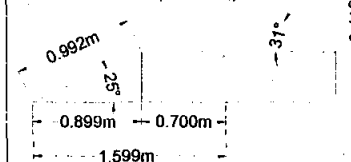
Top View

(1x1 Structure)



Side View

(1x1 Structure)



Building Name	Males Hostel #6 (M 6)
Total Installed Capacity	44.9 kWp
Module Power(STC)	345 W
No. of Modules	130
Pitch	1.6m
Fix Tilt	25°
Azimuth Angle	36° SE
Drafted by	Fahad Mukhtar
Designed by	Salman Qayyum
Verified by	Muhammad Walid
Project No.	NEL-0920-LUMS-RT
Drawing No.	NEL-0920-LUMS-RT-GL
DWG Reference No.	NEL-0920-LUMS-RT-GL-45
Revision No.	Advanced Copy
Project	400 KWp Grid Tie Project at LUMS-LAHORE, Pakistan.
Title	General Layout

Site Coordinates : 31°28'16.13"N 74°24'43.21"E Nizam Energy Pvt. Ltd.

LUMS P.V PROJECT

General Layout (Males Hostel 7)

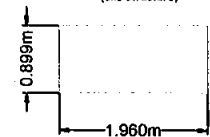
Unit: Meter (m)



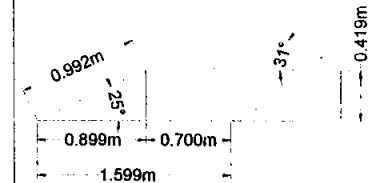
Module Tables

Boundaries

Top View
(1x1 Structure)



Side View



Building Name	Males Hostel #7 (M 7)
Total Installed Capacity	63.5 kWp
Module Power(STC)	345 W
No. of Modules	184
Pitch	1.6m
Fix Tilt	25°
Azimuth Angle	37° SE
Drafted by	Fahad Mukhtar
Designed by	Salman Qayyum
Verified by	Muhammad Walid
Project No.	NEL-0920-LUMS-RT
Drawing No.	NEL-0920-LUMS-RT-GL
DWG Reference No.	NEL-0920-LUMS-RT-GL-63
Revision No.	Advanced Copy
Project	400 KWp Grid Tie Project at LUMS-LAHORE, Pakistan.
Title	General Layout

Site Coordinates :31°28'11.68"N 74°24'41.94"E

Nizam Energy Pvt. Ltd.

LUMS P.V PROJECT

General Layout

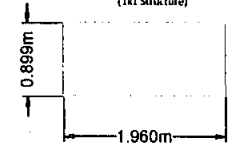
(Mosque)

Unit: Meter (m)

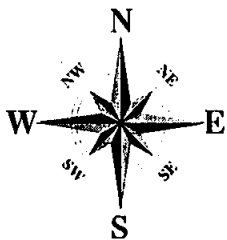
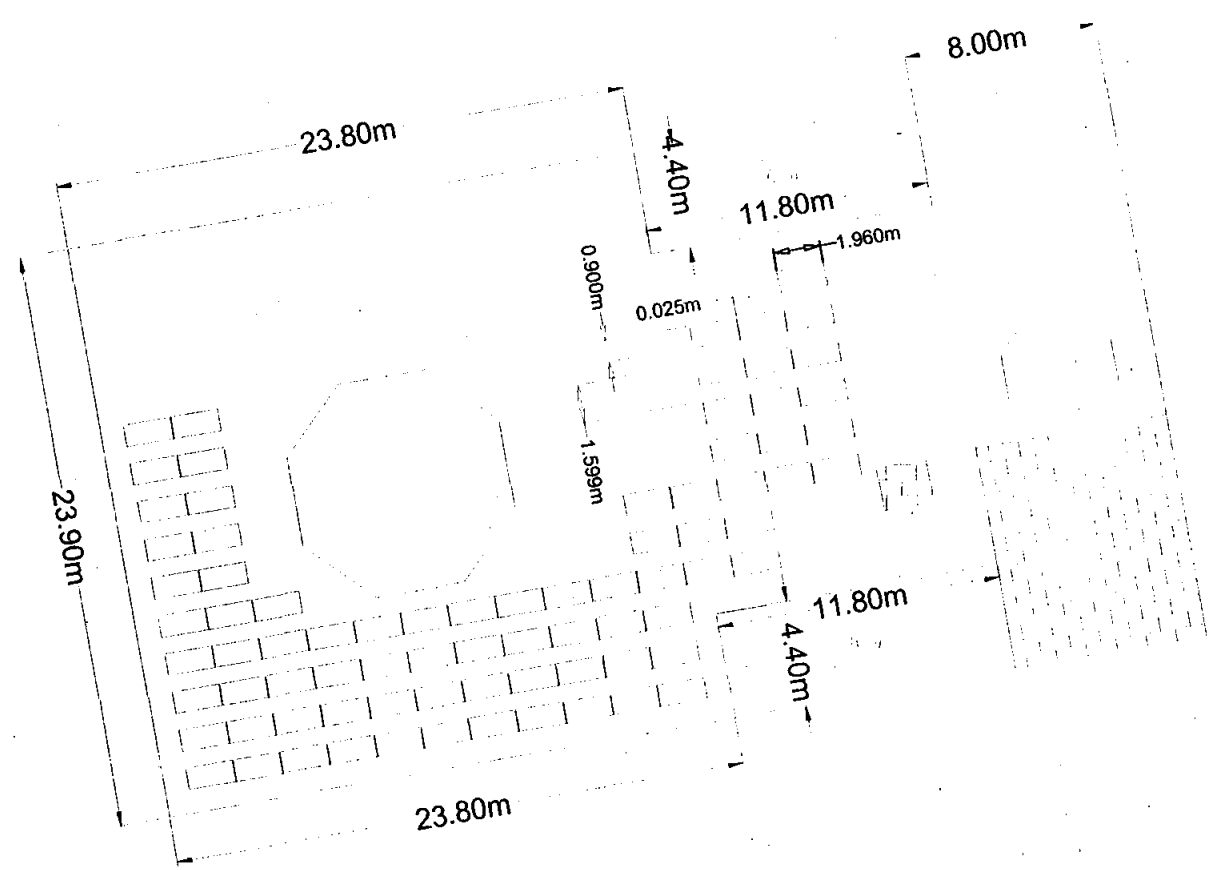
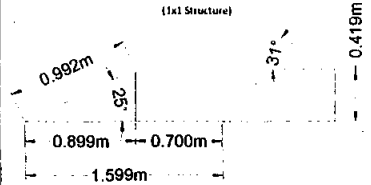


Module Tables
Boundaries

Top View
(1x1 Structure)



Side View
(1x1 Structure)



Building Name	Mosque
Total Installed Capacity	27.6 kWp
Module Power(STC)	345 W
No. of Modules	80
Pitch	1.6m
Fix Tilt	25°
Azimuth Angle	10° SE
Drafted by	Fahad Mukhtar
Designed by	Salman Qayyum
Verified by	Muhammad Walid
Project No.	NEL-0920-LUMS-RT
Drawing No.	NEL-0920-LUMS-RT-GL
DWG Reference No.	NEL-0920-LUMS-RT-GL-28
Revision No.	Advanced Copy
Project	400 KWp Grid Tie Project at LUMS-LAHORE, Pakistan.
Title	General Layout

Site Coordinates : 31°28'10.20"N 74°24'33.26"E Nizam Energy Pvt. Ltd.

LUMS P.V PROJECT

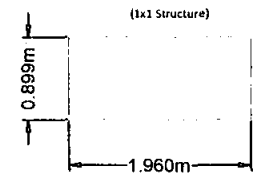
General Layout

(REDC)

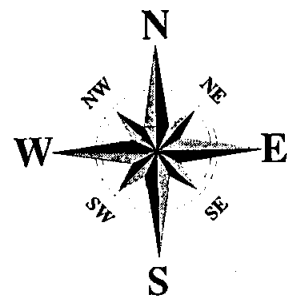
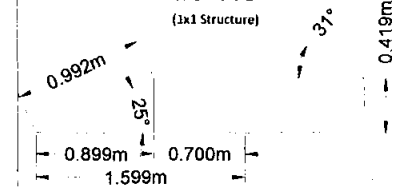
Unit: Meter (m)



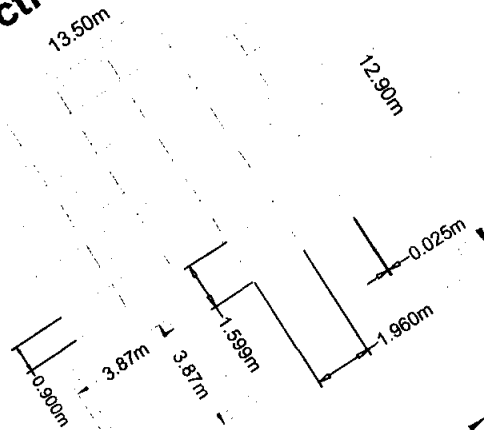
Top View



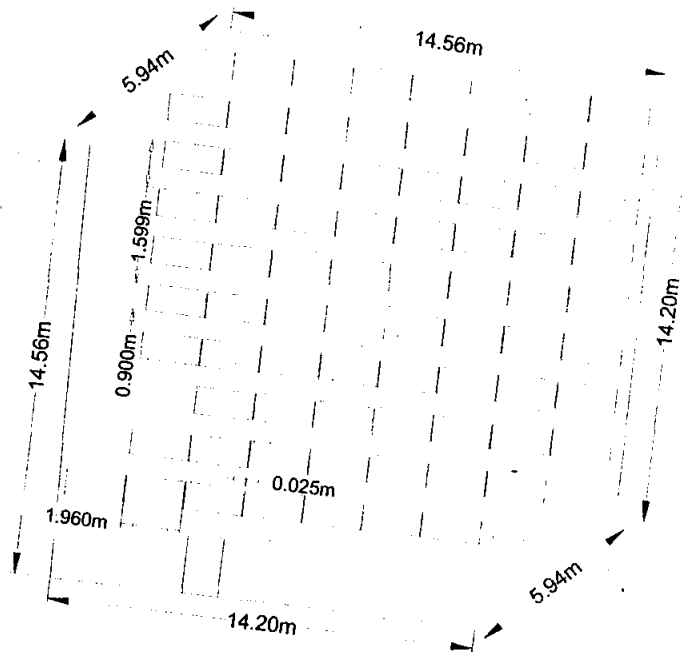
Side View



Section A



Section B



Building Name	REDC
Total Installed Capacity	35.4 kWp
Module Power(STC)	325 W
Section A No of Modules	33
Section A Azimuth	33° SE
Section B No of Modules	76
Section B Azimuth	7° SW
Total Modules	109
Pitch	1.6m
Fix Tilt	25°
Drafted by	Fahad Mukhtar
Designed by	Salman Qayyum
Verified by	Muhammad Walid
Project No.	NEL-0920-LUMS-RT
Drawing No.	NEL-0920-LUMS-RT-GL
DWG Reference No.	NEL-0920-LUMS-RT-GL-35
Revision No.	Advanced Copy

Project	400 KWp Grid Tie Project at LUMS-LAHORE, Pakistan.
Title	General Layout

Site Coordinates : 31°28'12.10"N 74°24'36.49"E

Nizam Energy Pvt. Ltd.

LUMS P.V PROJECT

General Layout

(Super Store Building)

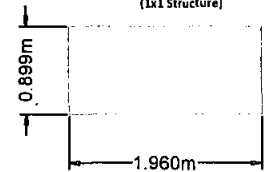
Unit: Meter (rn)



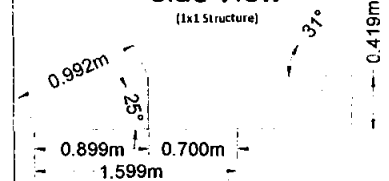
Module Tables

Boundaries

Top View
(1x1 Structure)



Side View
(1x1 Structure)



Building Name	Super Store
Total Installed Capacity	14.62 kWp
Module Power(STC)	325 W
No. of Modules	45
Pitch	1.6m
Fix Tilt	25°
Azimuth Angle	38° SE
Drafted by	Fahad Mukhtar
Designed by	Salman Qayyum
Verified by	Muhammad Walid
Project No.	NEL-0920-LUMS-RT
Drawing No.	NEL-0920-LUMS-RT-GL
DWG Reference No.	NEL-0920-LUMS-RT-GL-15
Revision No.	Advanced Copy

Project 400 KWp Grid Tie Project at
LUMS-LAHORE, Pakistan.

Title General Layout

Site Coordinates : 31°28'18.00"N 74°24'36.33"E

Nizam Energy Pvt. Ltd.



Grid Tied PV Project at LUMS, Lahore.

PV Placement Layout



Super Store

No. of Panels = 45
 PV Capacity = $45 * 325$
 PV Capacity= 14.625kWp

SBASSE

No. of Panels = 34
 PV Capacity = $16 * 325 + 18 * 285$
 PV Capacity= 10.33kWp

Admission Office

No. of Panels = 33
 PV Capacity = $33 * 325$
 PV Capacity= 10.725kWp

EDH

No. of Panels = 80
 PV Capacity = $80 * 325$
 PV Capacity= 26kWp

M6

No. of Panels = 130
 PV Capacity = $130 * 345$
 PV Capacity= 44.85kWp

M5

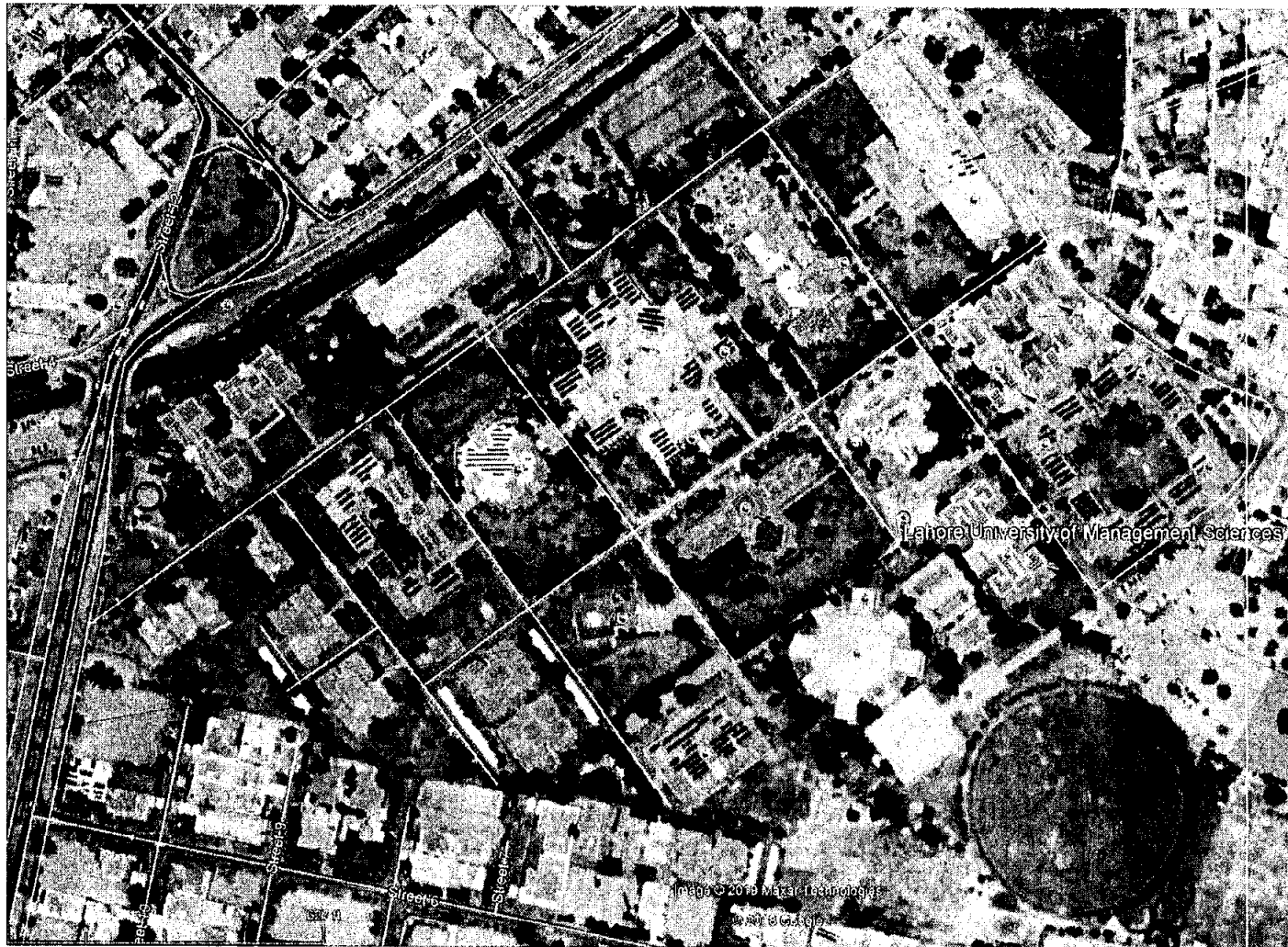
No. of Panels = 130
 PV Capacity = $130 * 345$
 PV Capacity= 44.85kWp

M7

No. of Panels = 184
 PV Capacity = $184 * 345$
 PV Capacity= 63.48kWp

REDC

No. of Panels = 109
 PV Capacity = $109 * 325$
 PV Capacity= 35.425kWp



F5

No. of Panels = 130
 PV Capacity = $130 * 345$
 PV Capacity= 44.85kWp

F4

No. of Panels = 132
 PV Capacity = $132 * 325$
 PV Capacity= 42.9kWp

F3

No. of Panels = 96
 PV Capacity = $96 * 325$
 PV Capacity= 31.2kWp

Mosque

No. of Panels = 80
 PV Capacity = $80 * 345$
 PV Capacity= 27.6kWp



PV Placement Layout

10.7 KWp at Admission Office LUMS-LAHORE, Pakistan.



Site Coordinates : 31°28'16.71"N 74°24'36.56"E

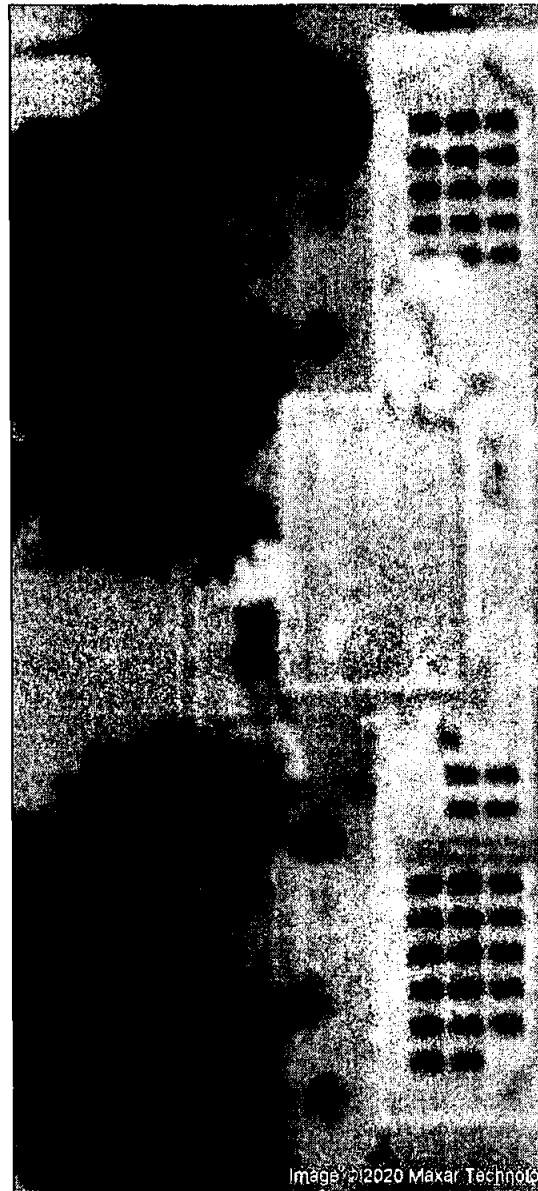


Image © 2020 Maxar Technology



Project 400 KWp Grid Tie Project at
LUMS-LAHORE, Pakistan.

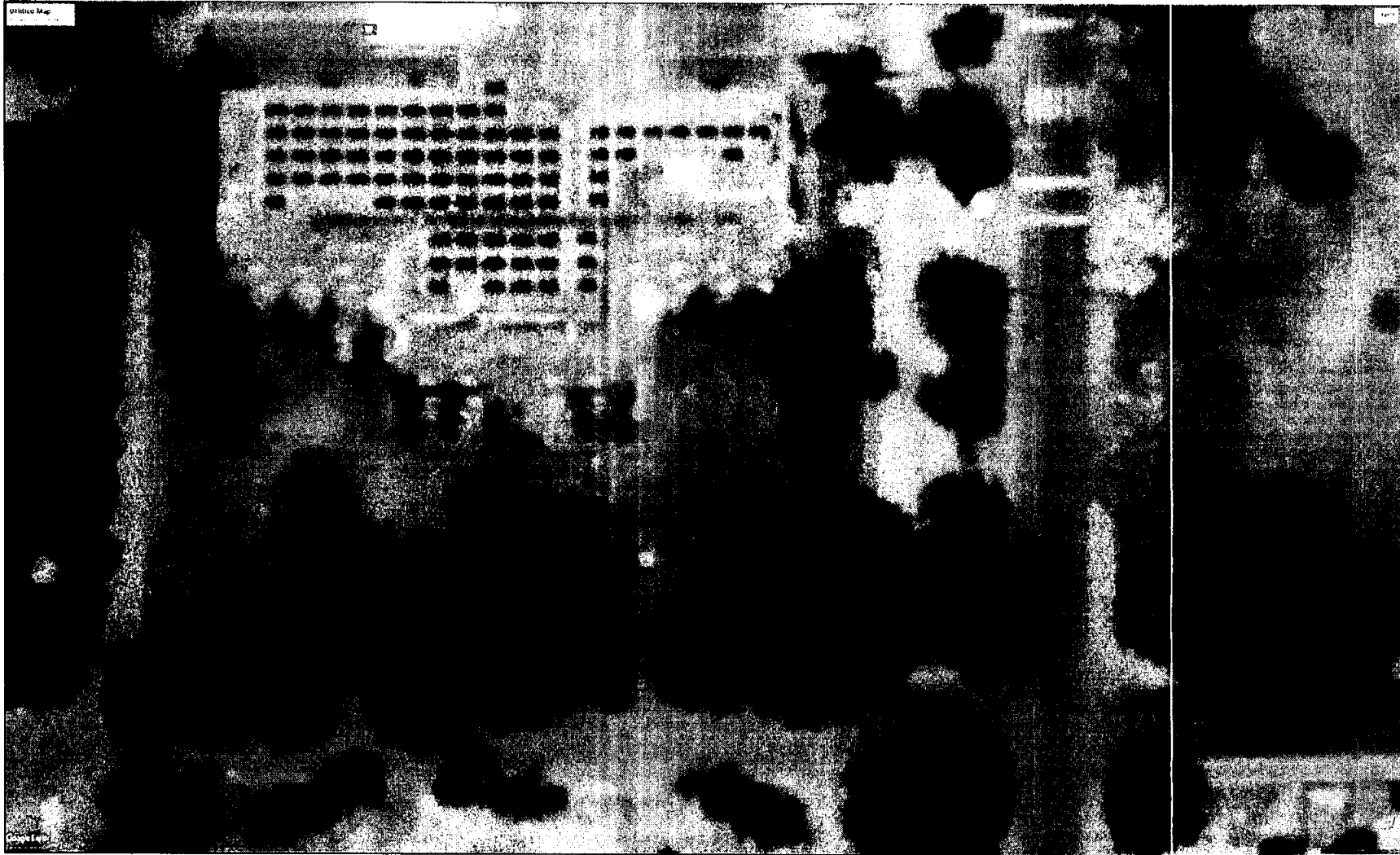
Nizam Energy Pvt. Ltd.

PV Placement Layout

26 KWp at EDH LUMS-LAHORE, Pakistan.



Site Coordinates :31°28'16.09"N 74°24'38.10"E



Project 400 KWp Grid Tie Project at
LUMS-LAHORE, Pakistan.

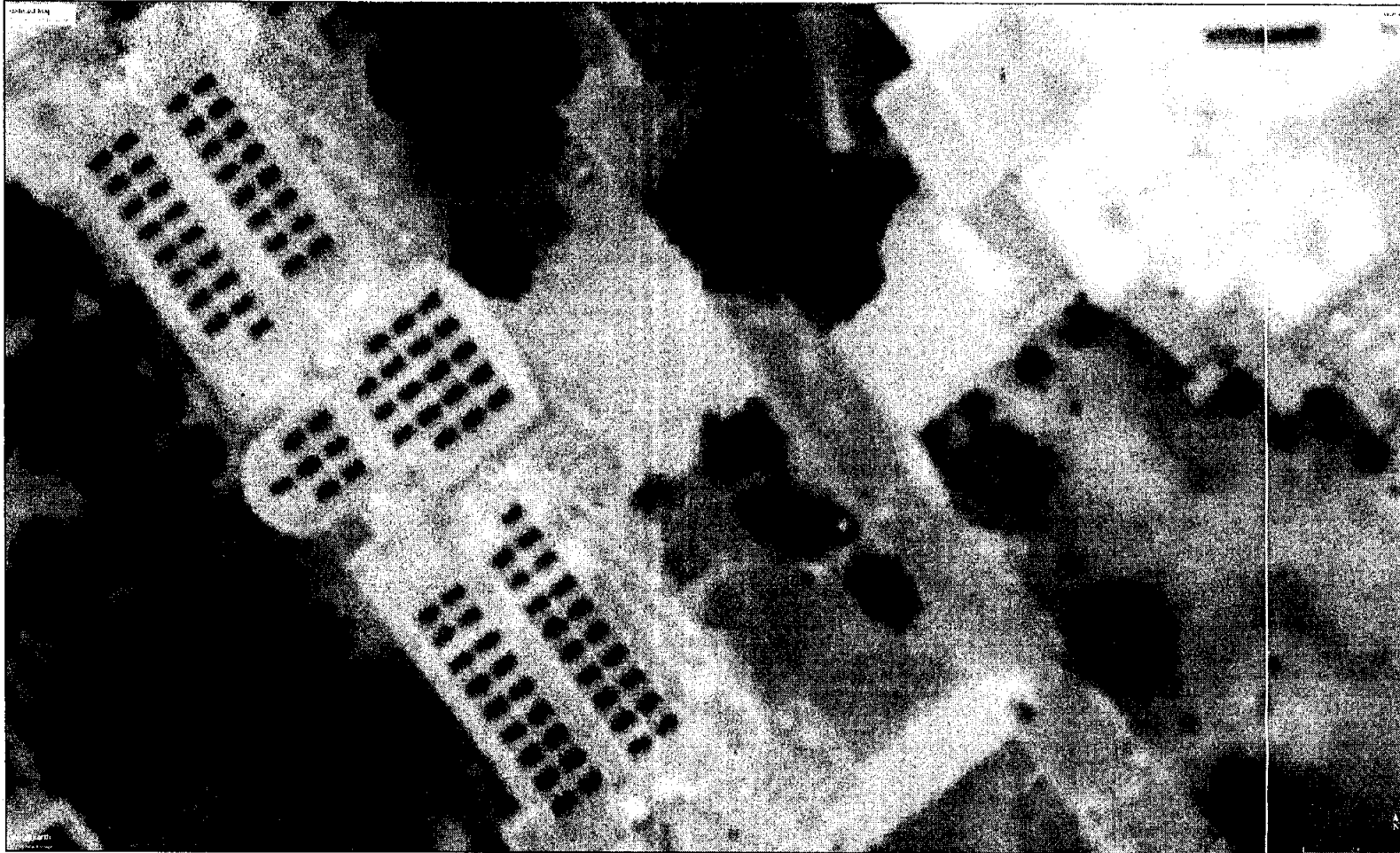
Nizam Energy Pvt. Ltd.

PV Placement Layout

31.2 KWp at Females Hostel 3 LUMS-LAHORE, Pakistan.



Site Coordinates : 31°28'12.13"N 74°24'28.72"E



Project 400 KWp Grid Tie Project at
LUMS-LAHORE, Pakistan.

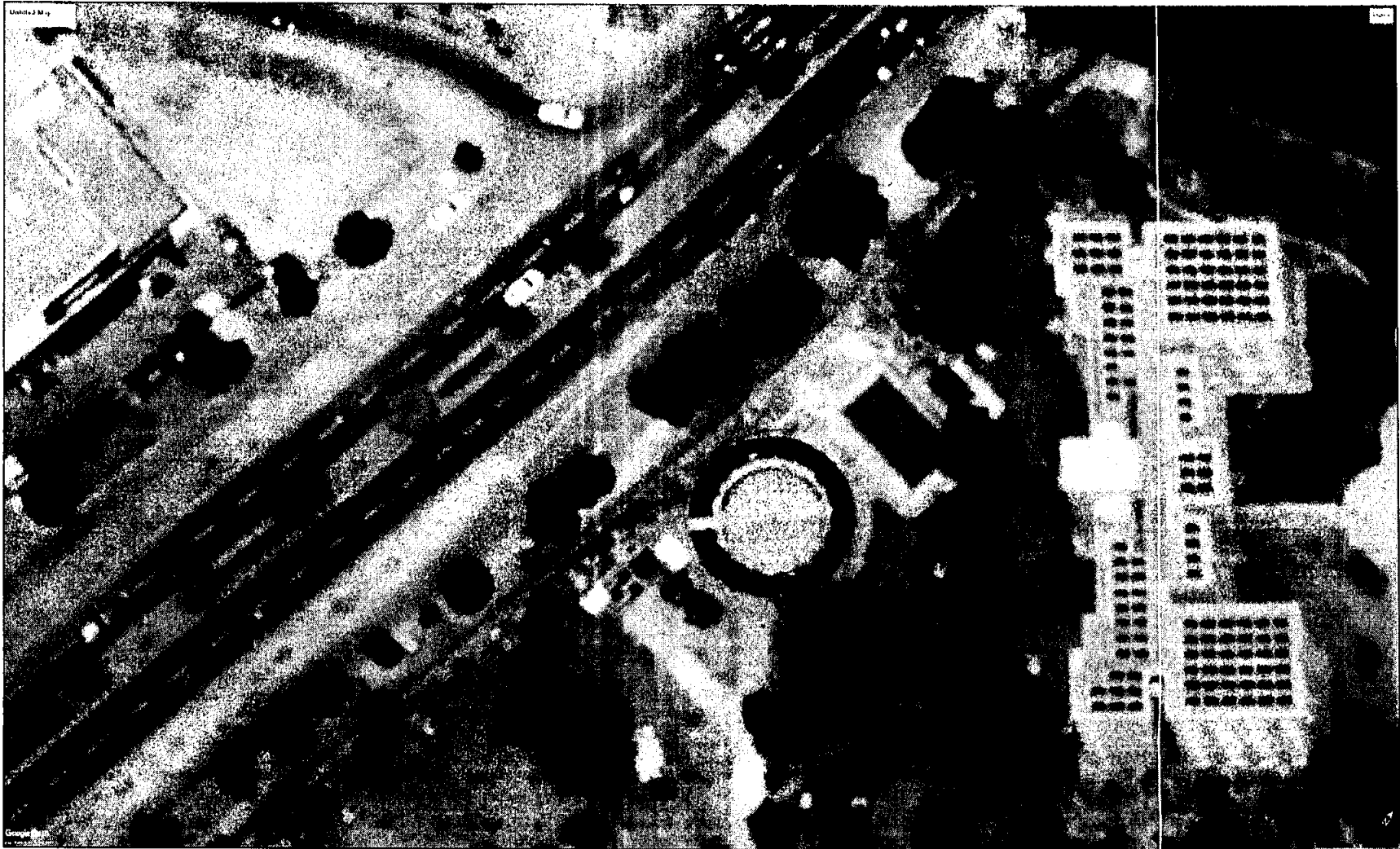
Nizam Energy Pvt. Ltd.

PV Placement Layout

42.9 KWp at Females Hostel 4 LUMS-LAHORE, Pakistan.



Site Coordinates : 31°28'13.44"N 74°24'23.84"E



Project 400 KWp Grid Tie Project at
LUMS-LAHORE, Pakistan.

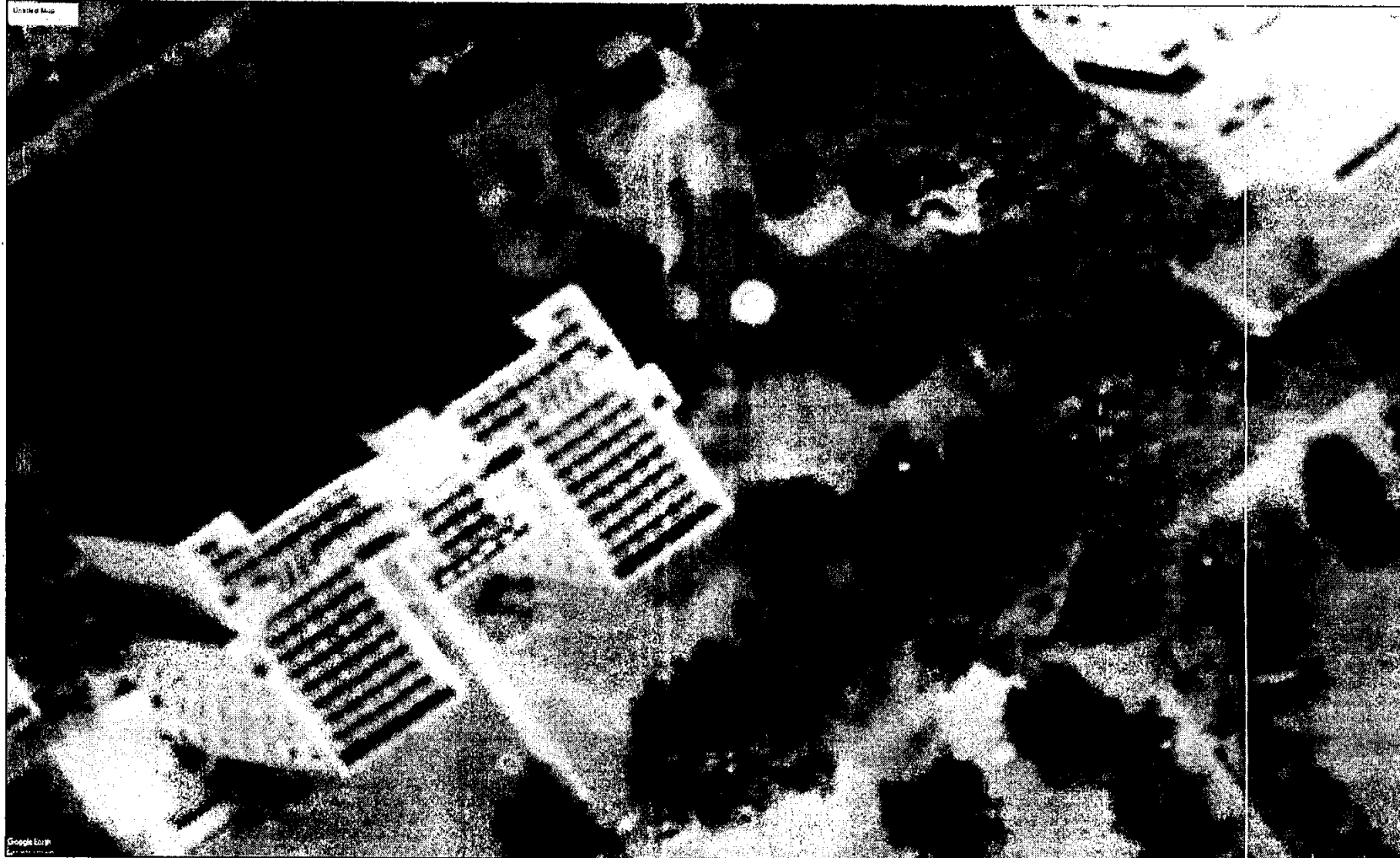
Nizam Energy Pvt. Ltd.

PV Placement Layout

44.9 KWp at Females Hostel 5 LUMS-LAHORE, Pakistan.



Site Coordinates : 31°28'13.44"N 74°24'23.84"E



Project : 400 KWp Grid Tie Project at
LUMS-LAHORE, Pakistan.

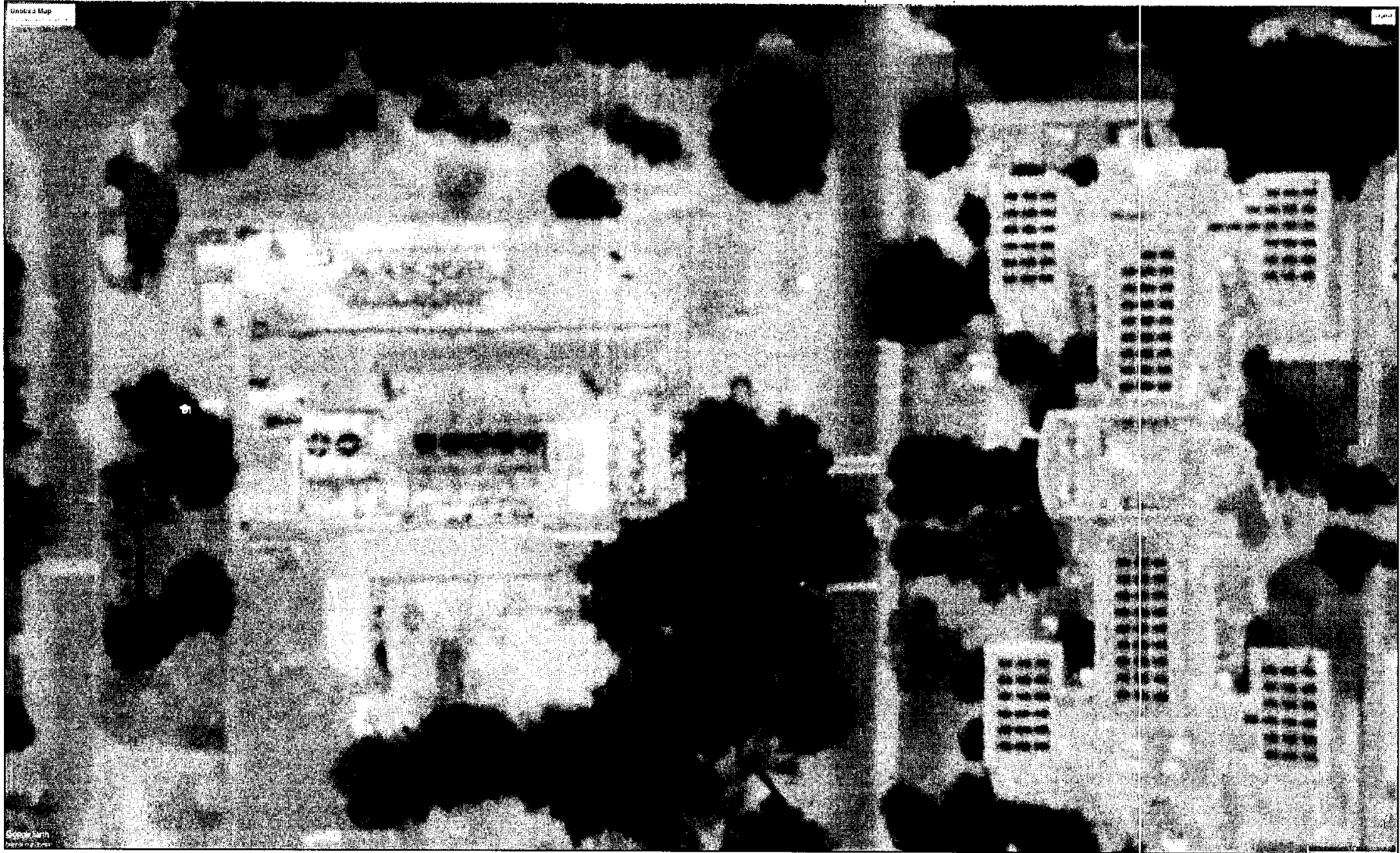
Nizam Energy Pvt. Ltd.

PV Placement Layout

44.9 KWp at Males Hostel 5 LUMS-LAHORE, Pakistan.



Site Coordinates : 31°28'15.30"N 74°24'42.13"E



Project 400 KWp Grid Tie Project at
LUMS-LAHORE, Pakistan.

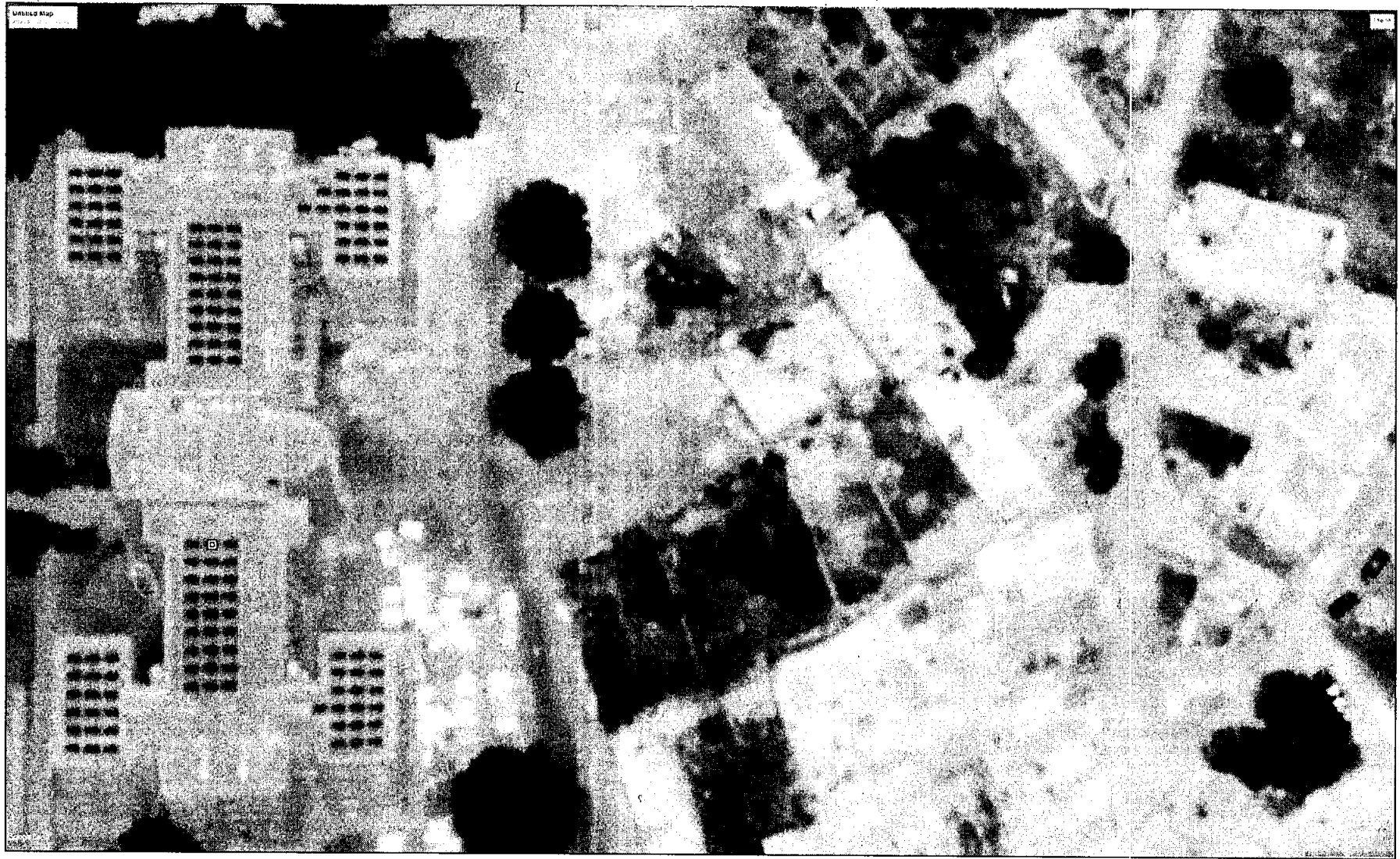
Nizam Energy Pvt. Ltd.

PV Placement Layout

44.9 KWp at Males Hostel 6 LUMS-LAHORE, Pakistan.



Site Coordinates : 31°28'16.13"N 74°24'43.21"E



Project | 400 KWp Grid Tie Project at
LUMS-LAHORE, Pakistan.

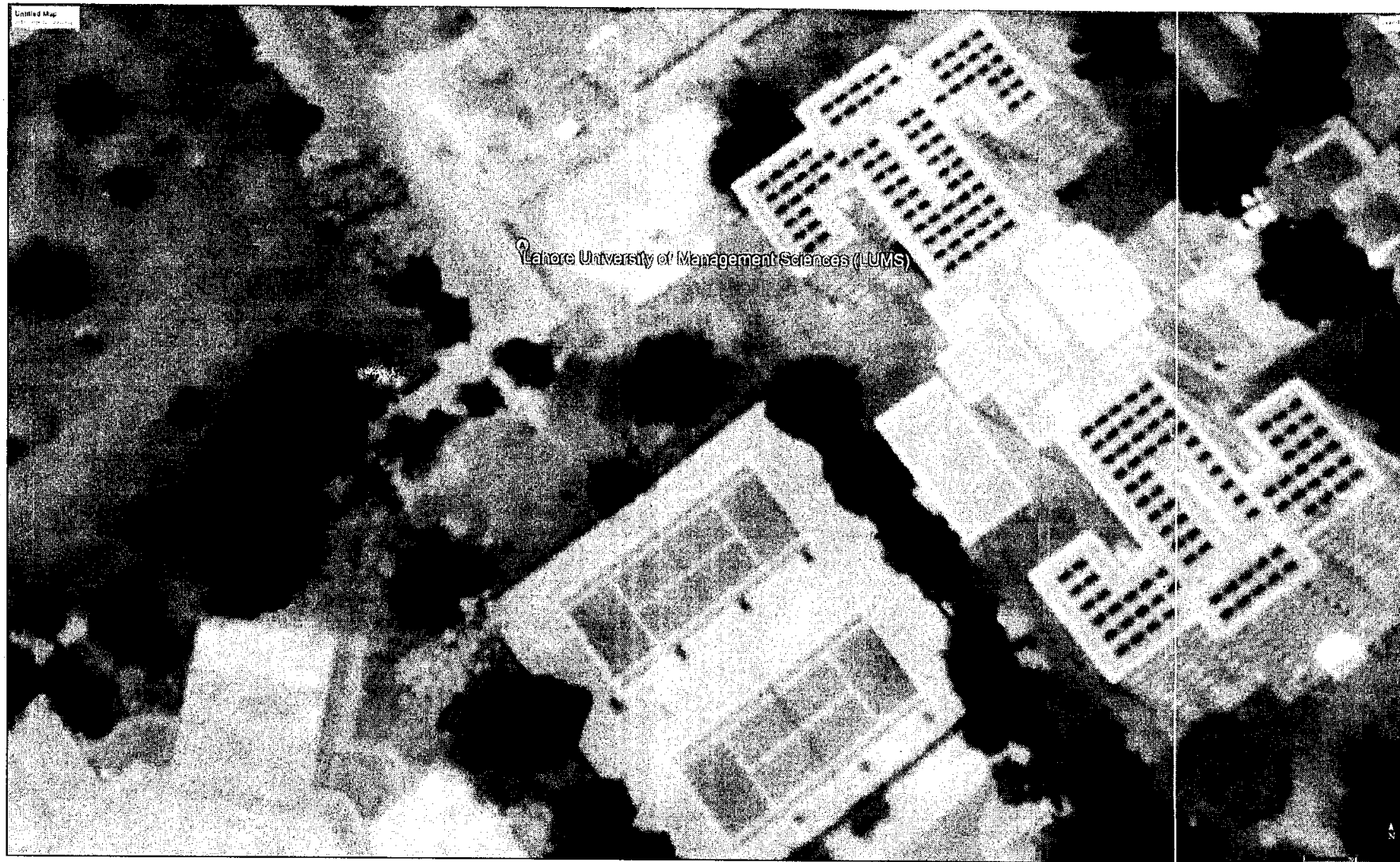
Nizam Energy Pvt. Ltd.

PV Placement Layout

63.5 KWp at Males Hostel 7 LUMS-LAHORE, Pakistan.



Site Coordinates :31°28'11.68"N 74°24'41.94"E



Project 400 KWp Grid Tie Project at
LUMS-LAHORE, Pakistan.

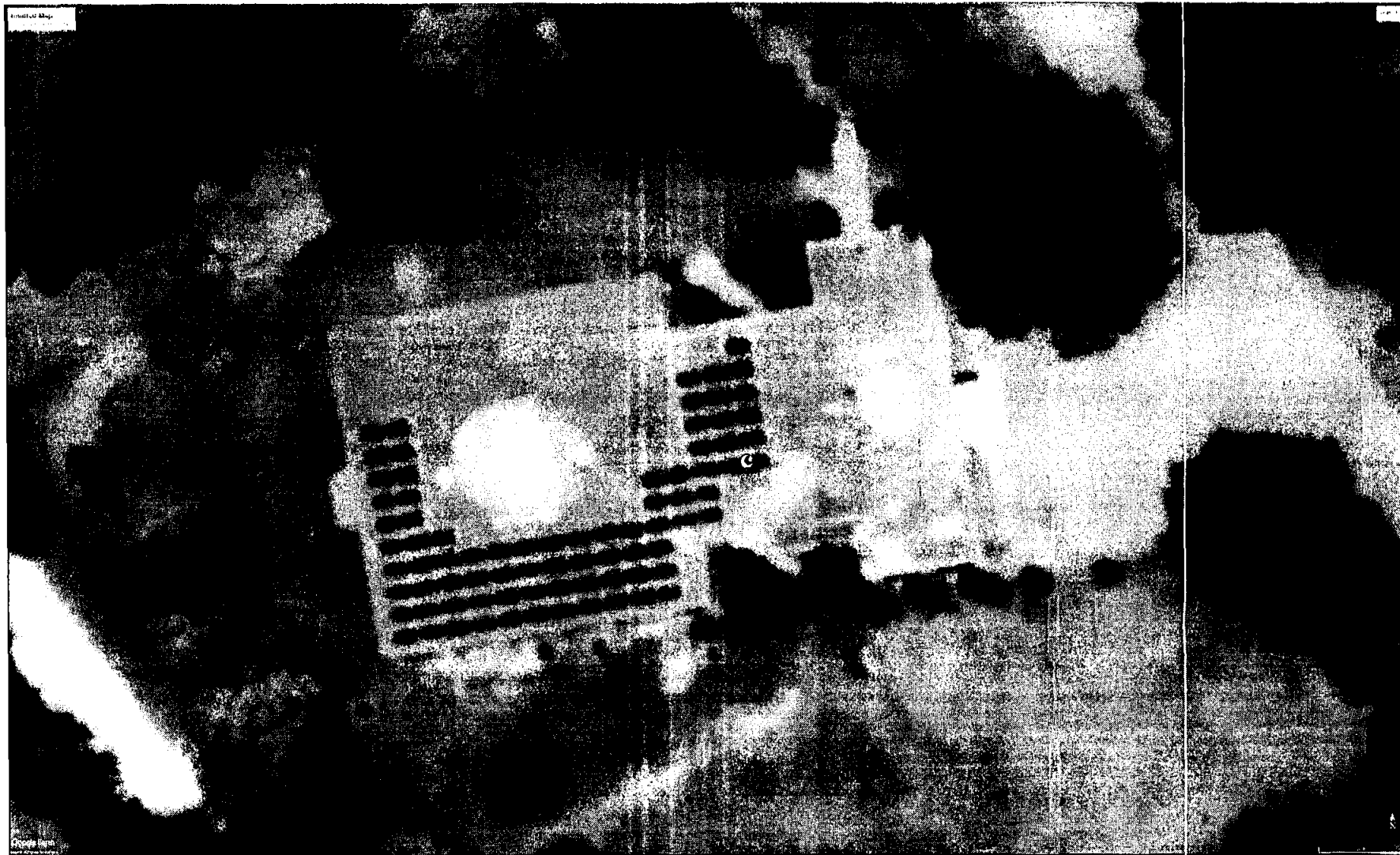
Nizam Energy Pvt. Ltd.

PV Placement Layout

27.6 KWp at Mosque LUMS-LAHORE, Pakistan.



Site Coordinates : 31°28'10.20"N 74°24'33.26"E



Project 400 KWp Grid Tie Project at
LUMS-LAHORE, Pakistan.

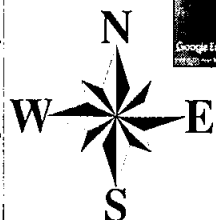
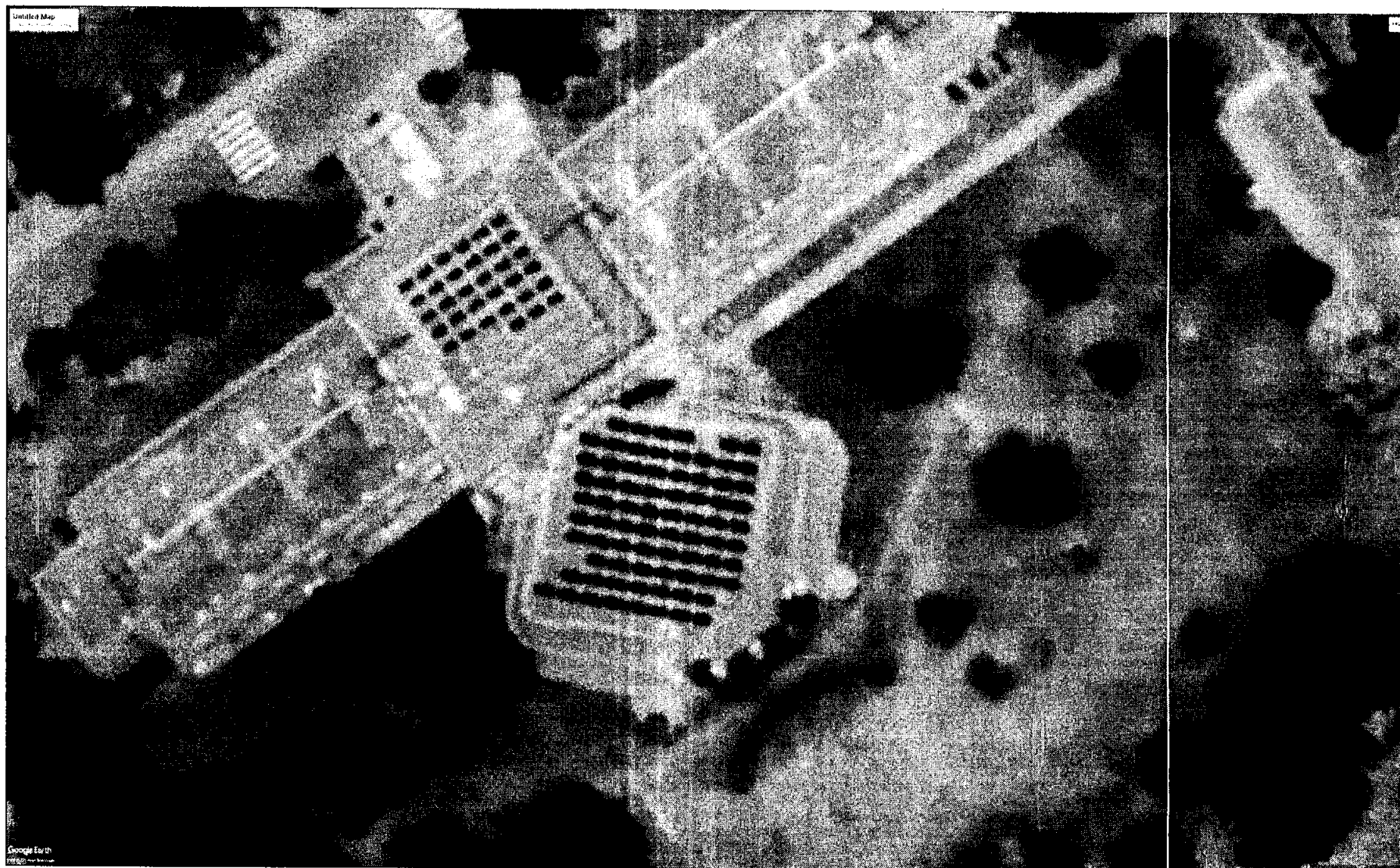
Nizam Energy Pvt. Ltd.

PV Placement Layout

35.4 KWp at REDC LUMS-LAHORE, Pakistan.



Site Coordinates : 31°28'12.10"N 74°24'36.49"E



Project 400 KWp Grid Tie Project at
LUMS-LAHORE, Pakistan.

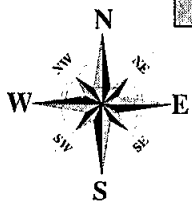
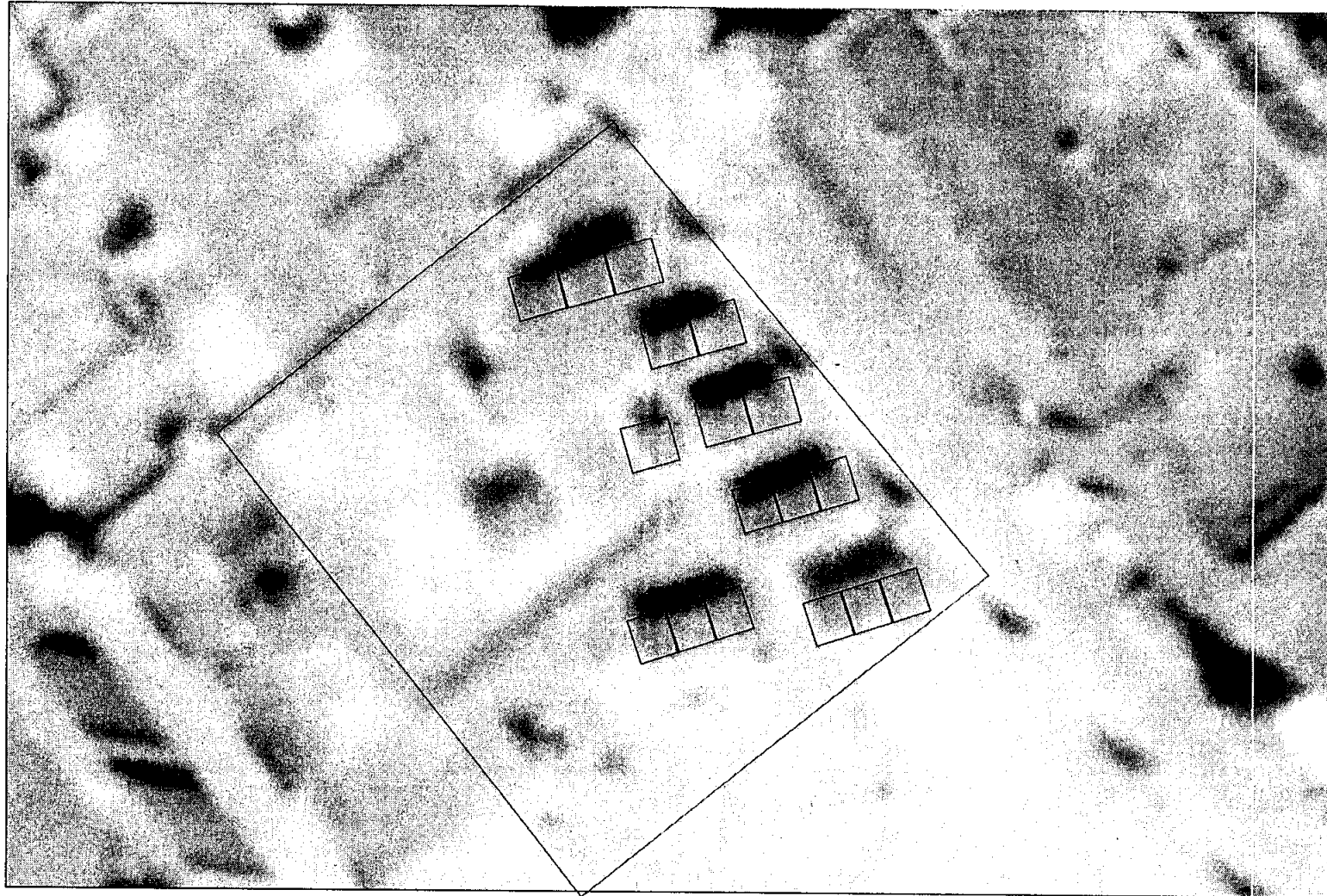
Nizam Energy Pvt. Ltd.

PV Placement Layout

10.33 KWp at SBASSE LUMS-LAHORE, Pakistan.



Site Coordinates : 31°28'18.80"N 74°24'41.95"E



Project 400 KWp Grid Tie Project at
LUMS-LAHORE, Pakistan.

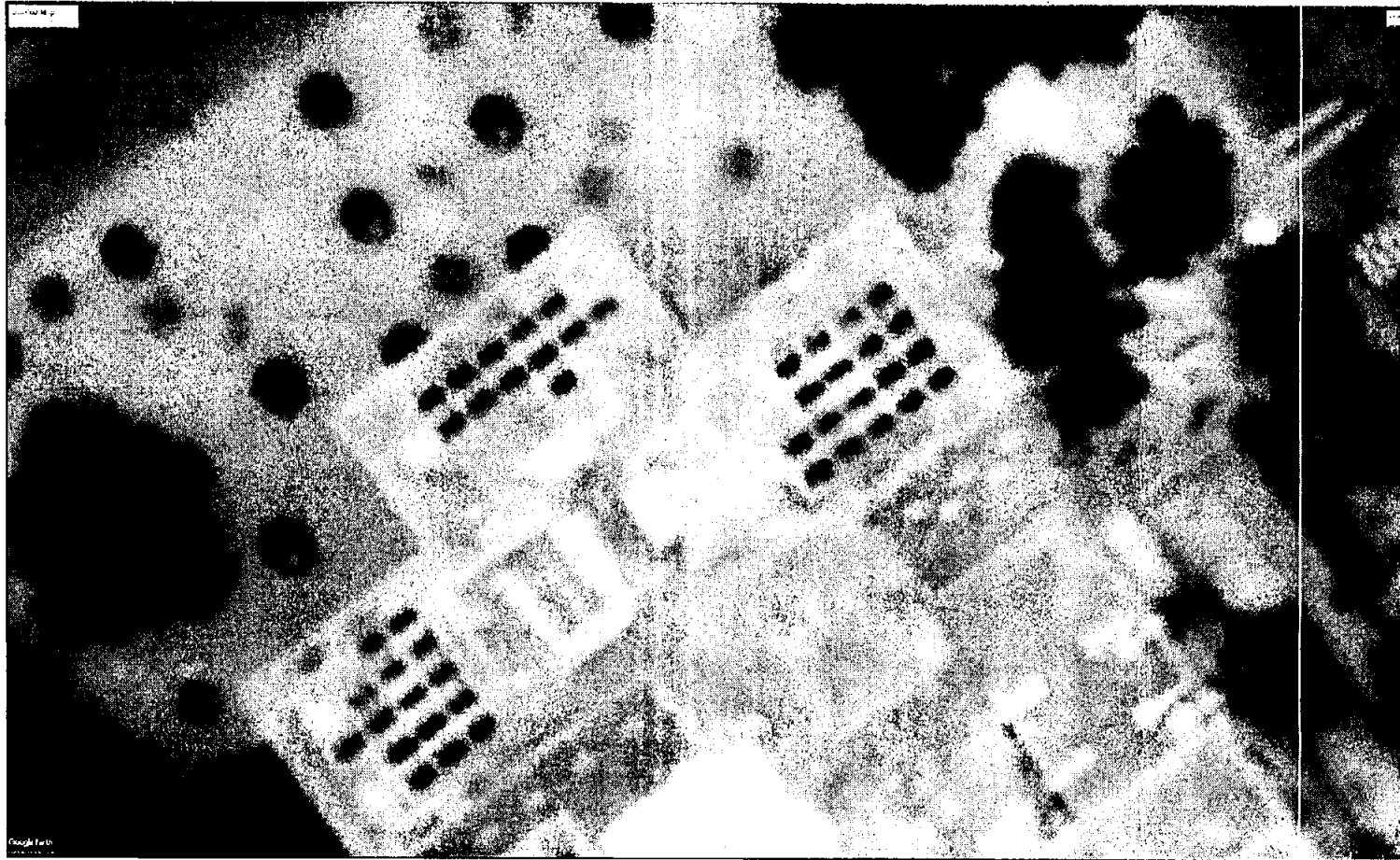
Nizam Energy Pvt. Ltd.

PV Placement Layout

14.625 KWp at Super Store building LUMS-LAHORE, Pakistan.



Site Coordinates : 31°28'18.00"N 74°24'36.33"E



Project 400 KWp Grid Tie Project at
LUMS-LAHORE, Pakistan.

Nizam Energy Pvt. Ltd.

APPLICATION FOR MODIFICATION IN GENERATION
LICENSE NO. SGC150/2020 FOR 9.5MW SOLAR
POWER PLANTS BY NIZAM POWER (PVT) LIMITED.



ANNEXURE-6

NEW added Site LUMS (SCHEDULE-II)

SCHEDULE-II

The Total Installed Gross ISO Capacity of the Generation Facility/Power Plant/Solar Plant (MW), Total Annual Full Load (Hours), Average Sun Availability, Total Gross Generation of the Generation Facility/Solar Farm (in kWh), Annual Energy Generation (10 years Equivalent Net Annual Production-AEP) KWh and Net Capacity Factor of the Generation Facility/Solar Farm of Licensee are given in this Schedule.

SCHEDULE-II

(1).	Total Installed Capacity of the Generation Facility/Solar Power Plant/Solar Farm	397 kWp
(2).	Average Sun Hour Availability/Day (Irradiation on Inclined Surface)	8 to 8.5 Hours
(3).	No. of days per year	365
(4).	Annual generating capacity of Generation Facility/Solar Power Plant/Solar Farm (As Per Simulation)	535.799 MWH
(5).	Total expected generation of the Generation Facility/Solar Power Plant/Solar Farm during the ten (10) years term of this license	5682.217 MWH
(6).	Annual generation of Generation Facility/Solar Power Plant/Solar Farm based on 24 hours working	1.467MWH/Day
(7).	Net Capacity Factor of Generation Facility/Solar Power Plant/Solar Farm	15.41%

Note

All the above figures are indicative as provided by the Licensee. The Net Delivered Energy available to Power Purchaser for dispatch will be determined through procedures contained in the Power Purchase Agreement (PPA) or the Applicable Document(s).