SPECIFICATION

CONTROL AND MONITORING SYSTEM
THE SPECIALIST PV SUPPLIER SHALL INCLUDE FOR THE SUPPLY AND INSTALLATION OF ALL NECESSARY INVERTERS/CONTROL UNITS REQUIRED FOR EACH ARRAY.

THE TECHNICAL SPECIFICATION FOR THE INVERTER UNITS IS AS FOLLOWS:

EFFICIENCY - MAXIMUM: 97.5% MINIMUM: 96%
OUTPUT POWER - TYPICAL : 330 WATTS PER PANEL
MAX DC POWER - 330W MAX AC POWER - 330W

GENERAL SPECIFICATION - MULTI UNIT CONNECTIVITY, MAXIMUM D/C VOLTAGE : 750V, INTEGRATED GRID MANAGEMENT FUNCTIONS, TRANSFORMER LESS, ACTIVE GRID SUPPORT & MONITORING, REMOTE DISPLAY SCREEN, MINIMUM POWER FACTOR : 0.99, LOCAL DIGITAL DISPLAY & PASSWORD PROTECTED CONTROLLER, PROTECTIVE DEVICES ON AC & DC INPUTS AND OUTPUTS SURGE/LIGHTNING PROTECTION, FORCED ACTIVE COOLING, REMOTE MONITORING AND DIAGNOSIS OF THE PV ARRAYS, REMOTE ALARM MONITORING FACILITY, BUILT IN COMMUNICATION CARDS, DETECTION OF OPERATIONAL FAILURES, 20 YEAR PRODUCT WARRANTY

THE CONTROL SYSTEM MUST BE CAPABLE OF PROVIDING INFORMATION ABOUT THE STATUS AND YIELD DATA OF EACH INDIVIDUAL ARRAY AND THE MAIN CONTROL PANEL SHOULD ALSO BE COMPATIBLE WITH THE FACILITIES BMS SYSTEM INSTALLED ON THE SITE SUCH THAT INFORMATION CAN BE TRANSFERRED TO THAT SYSTEM IF REQUIRED.

A DIGITAL DISPLAY UNIT SHALL BE PROVIDED AND SHALL BE MOUNTED IN THE MAIN RECEPTION AREA.

INFORMATION ON ENERGY GENERATED SHOULD BE DISPLAYED VIA THIS LED DISPLAY UNIT LOCATED IN THE MAIN RECEPTION WITH THE UNIT TYPICALLY BEING 400mm x 250mm.

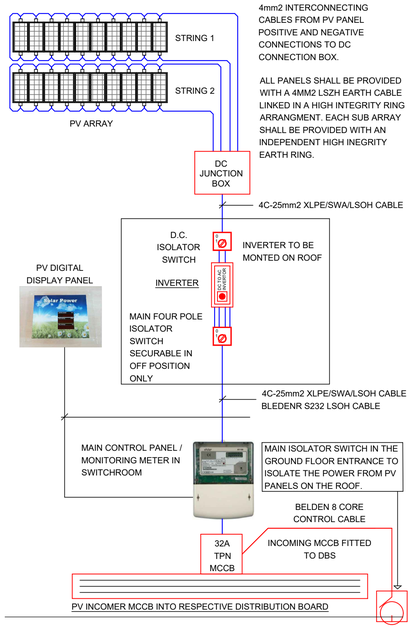
THE UNIT SHALL PROVIDE INFORMATION ON CURRENT KW PERFORMANCE, AND TOTAL ENERGY AND CO2 REDUCTION/PREVENTION.

PV MODULES

BUILDING	QUANTITY	PV MODULE SIZE	PV MODULE WEIGHT
BLOCKS 01-04	6No. PER BLOCK	1,685mm x 1,000m (LxW)	19kg

NOTE:
1. ALLOW A MINIMUM OF 1 METRE CLEARANCE FOR PHOTOVOLTAIC PANELS INSTALLATION AND MAINTENANCE FROM ROOF PARAPET WALLS.
2. PHOTOVOLTAIC PANELS MAX HEIGHT 350mm ABOVE FINISHED ROOF LEVEL.

TYPICAL PHOTOVOLTAIC INSTALLATION SCHEMATIC



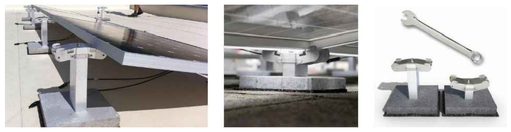
4mm2 INTERCONNECTING CABLES FROM PV PANEL POSITIVE AND NEGATIVE CONNECTIONS TO DC CONNECTION BOX.

ALL PANELS SHALL BE PROVIDED WITH A 4MM2 LSZH EARTH CABLE LINKED IN A HIGH INTEGRITY RING ARRANGMENT. EACH SUB ARRAY SHALL BE PROVIDED WITH AN INDEPENDENT HIGH INEGRITY EARTH RING.

P.V INSTALLATION EQUIPMENT

- PC — PHOTO CELL.
- INTEGRATED JUNCTION BOX IN THE PV PANEL.
- SPD — SURGE PROTECTION DEVICE.
- D.C ISOLATOR SWITCH.
- MAIN DOUBLE POLE ISOLATOR SWITCH SECURABLE IN OFF POSITION ONLY.
- FRONTIS IG 30 INVERTER CONTROLLER.

P.V. FIXING DETAILS FOR BACK TO BACK P.V. MOUNTING



AS PER SPECIFICATION

LED DISPLAY MONITOR

AS PER SPECIFICATION

PHOTOVOLTAIC INVERTER

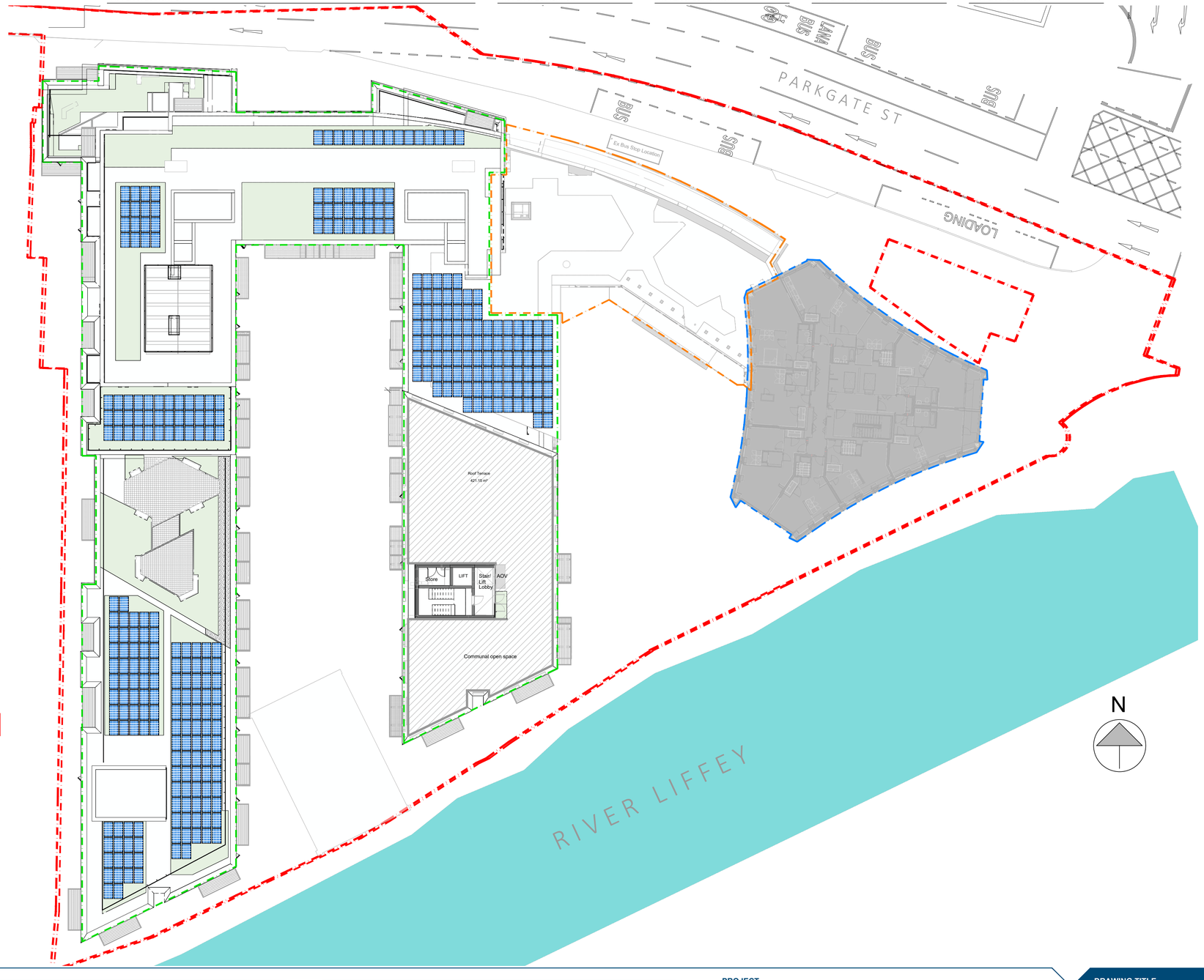
AS PER SPECIFICATION

PHOTOVOLTAIC PANEL

AS PER SPECIFICATION

GENERATOR METER

AS PER SPECIFICATION



SCOPE OF WORKS

SCOPE OF WORKS
THE SCOPE OF WORKS INCLUDES FOR THE INSTALLATION OF ROOF MOUNTED PHOTOVOLTAIC PANELS FOR THIS FACILITY AS INDICATED ON THIS DRAWING.

A SUMMARY OF THE WORKS REQUIRED FOR THIS BUILDING IS AS FOLLOWS:
1. INSTALLATION OF ROOF MOUNTED PHOTOVOLTAIC PANELS OF THE RATING INDICATED ON EACH DRAWING.
2. INSTALLATION OF INVERTER CONTROLS FOR THE PV PANELS.
3. SUB MAINS DISTRIBUTION INSTALLATION TO MAIN SWITCHBOARD OR SUB MAIN BOARD AS APPROPRIATE.
4. INSTALLATION OF DISPLAY UNIT AT MAIN RECEPTION INCLUDING APPROPRIATE NETWORK CABLING.
5. NEW CONTAINMENT INSTALLATION FOR SUB MAINS AND CONTROL CABLING.
6. ALL NECESSARY ASSOCIATED BUILDERS WORK IN CONNECTION.
7. ANY OTHER ITEM REQUIRED TO PROVIDE A FULLY OPERATIONAL PV SYSTEM FOR THIS PARTICULAR SITE.

GENERAL

ALL THE WORKS ASSOCIATED WITH THIS PROJECT SHALL COMPLY WITH THE FOLLOWING STANDARDS :-
A. RELEVANT BRITISH STANDARD SPECIFICATIONS
B. THE IRISH BUILDING REGULATIONS
C. HEALTH AND SAFETY REGULATIONS AND ORDERS
D. THE 17TH IEE WIRING REGULATIONS FOR ELECTRICAL INSTALLATIONS (INCLUDING LATEST AMENDMENTS)
E. ELECTRICITY AT WORK REGULATIONS
F. BRITISH PHOTOVOLTAIC ASSOCIATION CODES OF PRACTICE
G. ALL STATUTORY AUTHORITY AND ESBN REQUIREMENTS
H. ETCI REGULATIONS ET 101:2008

PHOTOVOLTAIC PANEL SYSTEM INSTALLATION
THE WORKS INCLUDE FOR THE SUPPLY AND INSTALLATION OF PHOTOVOLTAIC PANEL ARRAYS TO THE APPROPRIATE ROOF OF THE BUILDING AS INDICATED ON THIS DRAWING.

THE INSTALLATION MUST ALSO BE INSTALLED IN ACCORDANCE WITH THE 'GUIDE TO THE INSTALLATION OF PHOTOVOLTAIC SYSTEMS' JOINTLY PUBLISHED BY THE ECA

THIS INCLUDES THE SPECIFIC REQUIREMENT THAT NO INSTALLATION SHALL PROTRUDE MORE THAN 20 CENTIMETRES BEYOND THE PLAN OF THE EXISTING ROOF SLOPE THAT FACES ONTO AND IS VISIBLE FROM A ROAD AND THAT EQUIPMENT MUST BE SO FAR AS IS PRACTICABLE BE SITED SO AS TO MINIMISE ITS EFFECT ON THE EXTERNAL APPEARANCE OF THE BUILDING.

IT IS ANTICIPATED THAT PANEL ARRAYS WILL GENERALLY BE INSTALLED PARALLEL TO THE ROOF INDICATED.

THE ARRANGEMENT OF ARRAYS ON EACH ROOF HAS BEEN CAREFULLY CO-ORDINATED WITH OTHER SERVICES AND DISCUSSED IN PRINCIPLE WITH A STRUCTURAL ENGINEER. OTHER ARRANGEMENTS WILL NOT BE CONSIDERED.

PHOTOVOLTAIC INSTALLATION SPECIFICATION

PHOTOVOLTAIC PANEL SYSTEM INSTALLATION
THE PHOTOVOLTAIC SPECIALIST SUPPLIER SHALL BE RESPONSIBLE FOR ALL FIXINGS REQUIRED THROUGH EACH ROOF TYPE AND FOR ALL FRAMING REQUIRED BOTH ON THE ROOF AND WITHIN ROOF VOIDS TO ALLOW THE ARRAYS TO BE ADEQUATELY SECURED AND TO BE SET AT THE OPTIMUM PERFORMANCE ANGLE. ALL ROOF MOUNTING SYSTEMS MUST BE APPROVED AND

THE SUPPLY AND INSTALLATION OF ALL THE CONTROL AND POWER CABLING ASSOCIATED WITH THE INSTALLATION OF THE PHOTOVOLTAIC ARRAYS SHALL BE INCLUDED UNDER THE INSTRUCTION OF THE PHOTOVOLTAIC SPECIALIST SUCH THAT ALL WIRING WILL BE COMPLETED PRIOR TO TESTING AND COMMISSIONING TO ALLOW THE WORKS TO BE FULLY COMPLETED. THE PHOTOVOLTAIC PANEL SUPPLIER/INSTALLER SHALL INCLUDE FOR THE PROVISION OF A LAMINATED SCHEMATIC DIAGRAM, SIZED A2, TO BE INSTALLED ADJACENT TO THE INVERTER UNIT WHICH WILL PROVIDE AN ACCURATE REPRESENTATION OF THE INSTALLATION

TECHNICAL SPECIFICATION FOR PHOTOVOLTAIC PANELS

EACH PHOTOVOLTAIC PANEL SHALL BE FORMED USING A TENSION-PROOF ENCLOSED ALUMINIUM FRAME AND PANELS SHOULD BE APPROXIMATELY 1650mm x 1000mm x 35mm TO ALLOW THE ARRAYS TO BE CONSTRUCTED AS INDICATED ON THE PLANS. OTHER PANEL ARRANGEMENTS WILL BE CONSIDERED, PROVIDED THEY FIT WITHIN THE DIMENSIONS OF THE APPROXIMATE ROOF AREA SHOWN ON EACH PLAN. OVERALL ARRAYS SHOULD BE FORMED SUCH THAT THERE ARE NO GAPS BETWEEN INDIVIDUAL PANELS.

THE OVERALL TECHNICAL PERFORMANCE SPECIFICATION FOR THE PANEL TYPE IS AS FOLLOWS:

TYPE: MULTI EDYSTALLINE OR POLYCRYSTALLINE SILICON - COLOURED LIGHT BLUE OR BLACK THERMALLY PR-STRESSED SELF-CLEANING TEMPERED GLASS ANTI-REFLECTIVE COATING.

STANDARDS:
QUALITY/ENVIRONMENTAL/HEALTH & SAFETY: ISO9001:2015, ISO14001:2015, ISO45001:2018

PRODUCT CERTIFICATIONS; IEC61215:2005, IEC61730-1/-2, MCS, CEC, UL, IEC61701:2000, AMMONIA RESISTANCE TEST AND TUV 2 PFG1169:2007.
PANEL OUTPUT - MINIMUM STC 188.9 WATTS/m2 AND 901.4kwh/kwp
DIMENSIONS - 1,685mm x 1,000mm x 35mm TYPICAL
EFFICIENCY - MINIMUM: 15.3% AT 200W/m2 IRRADIANCE,
MINIMUM: 15.6% AT 400/m2 IRRADIANCE,
MINIMUM: 15.5% AT 800W/m2 IRRADIANCE
WIND LOAD - 2400Pa : CALCULATION DERIVED FROM MCS012
SNOW LOAD - 5400Pa: CALCULATION DERIVED FROM MCS012
ELECTRICAL CONNECTIONS: IP67 RATED JUNCTION BOXES WITH LOW RESISTANCE CONNECTORS
WARRANTY & PERFORMANCE: 10 YEARS : 90% OF RATED KWp
20 YEARS : 85% OF RATED KWp
25 YEARS : 80% OF RATED KWp
PRODUCT WARRANTY: 10 YEARS MINIMUM MANUFACTURERS MATERIALS AND WORKMANSHIP WARRANTY TO BE FROM DATE OF INSTALLATION.
ARRAYS & LAMINATES: TYPE TESTED AS IEC61215 & IEC61730 SPECIFICATIONS.
FRAMES & FIXINGS: STAINLESS STEEL MODULAR FRAME SUPPORT SYSTEM AND FIXINGS, MINIMUM 25mm AIR GAP TO REAR OF PANELS, FIXING TYPE TO BE ACCREDITED TO MCS012. ON FLAT ROOFS ANY BALLAST REQUIRED FOR THE EAST-WEST SUPPORT SYSTEM SHALL BE INTEGRAL TO THE SYSTEM OR FIXED IN SUCH A MANNER AS TO PREVENT REMOVAL BY AN UNAUTHORISED THIRD PARTY.

PLANNING APPLICATION

This application
ABP-306569-20-Original Scheme

Not included in this application
LRD6042/23-S3A-Link (Block A)
ABP-310567-21-Tower (Block A)

0 5m 10m

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STATUS	DATE	DESCRIPTION	DRN	ENG	APP	REV
P3-S	25.11.2024	PLANNING ISSUE	DS	DG	GP	P01

PROJECT
PARKGATE STREET

CLIENT
RUIRSIDE DEVELOPMENTS LTD

DRAWING TITLE
ELECTRICAL SERVICES INSTALLATION
ROOF LEVEL
POWER GENERATION PV LAYOUT LAYOUT

IN2

STATUS P3-S
REVISION P01

IN2 REF:	DRAWING No.	SCALE	SIZE
D2453	PGATE-02-RF-ZZZ-DR-IN2-E-7301	1:250	A1