



...sustainable building services solutions

camden goods yard

technical note on building a photovoltaic strategy



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INTRODUCTION

The energy strategy for the Camden Goods Yard development produced by *Energist UK* features the use of photovoltaic (PV) panels as part of the carbon saving measures and identifies building A1 as the location for a roof mounted array of panels.

This Technical Note summarises the PV system specification in order to discharge planning condition 52 for building a:

Con 52 - Photovoltaic panels

Prior to the commencement of the relevant works, details showing the location and extent of photovoltaic cells to be installed on the relevant building, in accordance with the general details hereby approved, shall be submitted to and approved in writing by the Local Planning Authority. The measures shall include the installation of a meter to monitor the energy output from the approved renewable energy systems. The cells shall be installed in full accordance with the details approved by the Local Planning Authority and permanently retained and maintained thereafter. Reason: To ensure the development provides adequate on-site renewable energy facilities in accordance with the requirements of Policies CC1 and CC2 of the Camden Local Plan 2017.

SPECIFICATION

GENERAL

PV systems are a Contractor Designed Portion (CDP) package requiring a specialist designer to complete the detailed system design. On Camden Goods Yard the mechanical and electrical contractor Watkins has appointed Prowired as their sub-contractor to complete the package.

The technical specification of the PV system was identified in the **MTT** Infrastructure Specification and supporting electrical schematics and layout drawings.

The system specification is as follows:

PHOTOVOLTAIC SYSTEMS

Roof mounted PVs are to be located as indicated on the architectural layouts and roof services drawings. The system provided shall aim to achieve the maximum yield for the area available. Refer to energy strategy information for yield requirements.

The array shall be located at roof level utilising horizontally based arrays elevated to provide maximum yield.

The PV arrays shall be provided with inverter units locally at roof level incorporated within IP rated enclosures and shall generate electrical power supplied back into the landlord distribution arrangement from the local distribution board connections.



Utility operated import and export meters shall be provided so that any excess energy not utilised by the landlord electrical systems shall be exported back to the electricity utility supplier for potential landlord financial gain.

A system of arrays is required to generate electricity using photovoltaic panels which may be used to reduce the amount of electricity imported from the electricity utility provider and export any excess electricity generated. The system arrangements shall be provided complete with all import and export metering arrangements.

The electrical sub-contractor shall appoint a PV specialist sub-contractor to carry out the design, procurement, fabrication, installation, test, clean and commission of a roof mounted PV (photovoltaic) system as described in this performance specification and in accordance generally documents and drawings.

The PV specialist is to carry out all the design and drawing production based on the contract documentation.

The system is to be a grid tied system with no battery storage. The system shall generate electricity synchronised with the electricity supply.

The system shall be complete and provide metering to enable the quantity of electricity imported, exported and generated to be measured and monitored.

SYSTEM DESCRIPTION

The system shall be provided to ensure the maximum yield for the available area of PV cells as indicated on the drawings and shall be sized in accordance with the energy statement.

The photovoltaic panels shall be mounted on a framework system attached directly to the roof, as indicated on the drawings.

All fixing details proposed by the PV specialist shall be agreed between the PV specialist, the main contractor, and the roofing sub-contractor. The framework is to be designed, supplied and installed by the PV specialist subcontractor. Items such as inverter, meters, fuse disconnectors are to be housed in appropriate IP rated enclosures locally.

The electrical subcontractor shall supply and install all AC low voltage power cabling between the PV installation and the main electrical distribution system as indicated on the drawings.

The electrical sub-contractor shall supply and install all necessary internal and external electrical containment in connection with the PV installation AC and DC cabling.

The electrical subcontractor shall install all necessary safety signage and notification at the main incoming electrical distribution board and local point of connection distribution board to warn of a second electrical supply which requires isolating.

The electrical subcontractor shall provide clear and unambiguous instruction within the O&M manuals for the safe operation and isolation of each system.

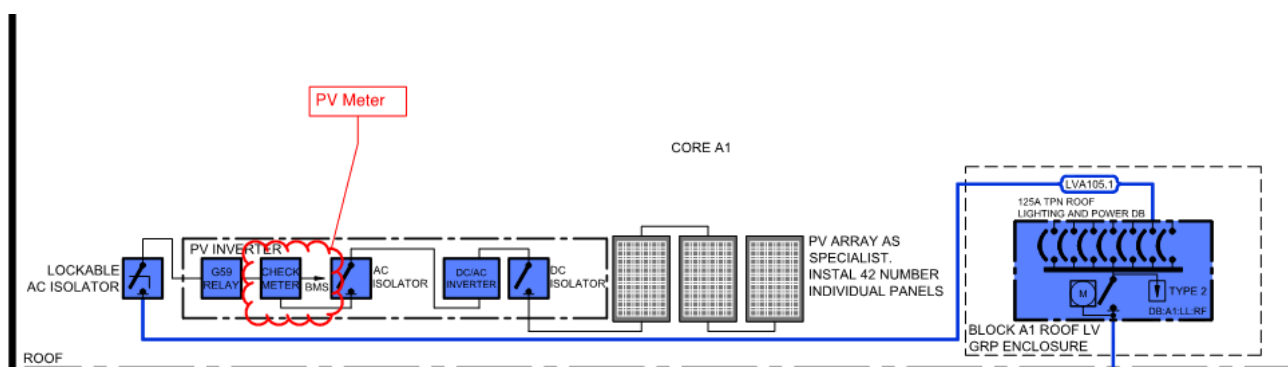
G/99 relays shall be used to allow for the inverters to parallel with the mains.

METERING

GENERAL

The metering of any renewable system is a building regulations requirement and specifics have been requested through the planning requirements of the metering system.

The schematic arrangement of the meter can be found detailed on Watkins LV schematic for building A an extract of which is shown below:



The full schematic drawing can be found in Appendix A.

Meter specification is detailed in Prowired's technical submission for the PV system an extract of which is shown below:



The emlite EMP1 Three phase metering range offers high quality accurate meters that are suitable for direct connected domestic, commercial, Solar PV and light industrial applications.

Features -

- Fully MID approved
- 4 quadrant power measurement (Import and Export, Active and Reactive Energy)
- Optional Power Quality Information - Volts, Current, Power etc.
- Optional pulsed outputs
- Optical communications port
- Solid brass terminals



PANEL ARRAY

GENERAL

The proposed PV array layout to the roof of building A1 is detailed on **MTT** drawing CGYA0-MTT-ZZZ-15-DR-E-2100. This drawing can be found in Appendix B.

Prowired's model for the scheme showing the PV array is as shown below:



MAINTENANCE

St George has provided a statement of assurance on the continued maintenance of the PV array which can be found in Appendix C.

APPENDICES

Appendix A: Watkins Building A LV Schematic

Appendix B: **MTT** Building A1 Roof Layout

Appendix C: St George Statement of Assurance

NOTES

1. REFER TO WATKINS CAMDEN GOOD YARD INSTALLATION SPECIFICATION FOR QUALITY MEASURES TO BE INCORPORATED.
2. DRAWINGS TO BE READ IN LINE WITH THE MTT SPECIFICATION AND STGNL QUALITY STANDARDS.
3. REFER TO PROJECT SCHEDULES FOR CABLE SIZES.

SWITCHGEAR LEGEND

- LANDLORD'S ESSENTIAL SERVICES
- LANDLORD'S LIFE SAFETY SERVICES
- LANDLORD SERVICES
- TENANTS SERVICES
- POWER ON
- BNO SERVICES

CABLE LEGEND

- UKPN OWNED/OPERATED SUPPLY
- LANDLORD LV XLPE/SWLSF DISTRIBUTION CABLES
- LIFE SAFETY/PRIMARY SUPPLY (FTP 120)
- LIFE SAFETY/SECONDARY SUPPLY (FTP 120)
- BNO XLPE/SWLSF DISTRIBUTION CABLES
- PHASE FAILURE SENSING CIRCUIT 2.5MM²FIRE TUF ENHANCED (PH120)
- ESSENTIAL COMMS CIRCUIT 2.5MM²FIRE TUF ENHANCED (PH120)
- ALL METERS WHERE INDICATED SHALL BE FITTED WITH PULSED OUTPUT AND LINKED INTO THE BMS SYSTEM FOR FULL ENERGY MONITORING AT THE HEAD END.
- UTILITY ELECTRICAL KWH METERS TO BE REDLINK CUT OUT FOR LOCAL ISOLATION

REVISIONS	
P1	06.02.2024
ISSUED FOR APPROVAL	

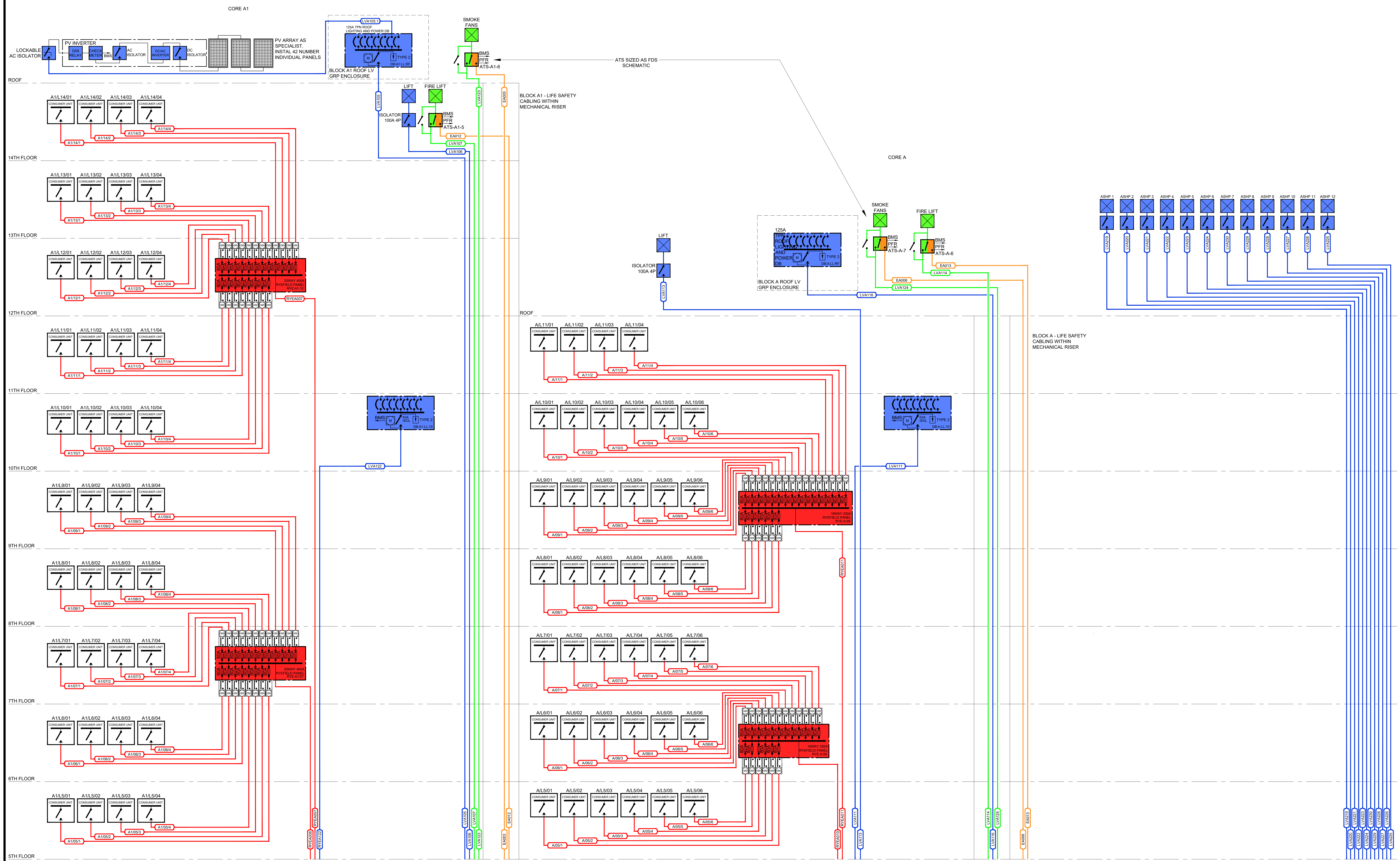
CLIENT	ST GEORGE - BERKELEY GROUP LLP
CONSULTING ENGINEER	MTT
CONTRACT	CAMDEN GOODS YARD
DRAWING TITLE	ELECTRICAL SERVICES BLOCK A LV SCHEMATIC SHEET 2 of 2

watkins

Integrated
Mechanical,
Electrical &
Plumbing
Services

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DATE	19.01.2024	DRAWN-DESIGNER	NV
SCALE	NTS@A0	APPROVER	CW
DRG No.	CGYA0-WAT-A0-ZZ-DR-E-01111	Rev	P1



FOR CONTINUATION SEE DRAWING NO. CGYA0-WAT-A0-ZZ-DR-E-01110

FOR APPROVAL

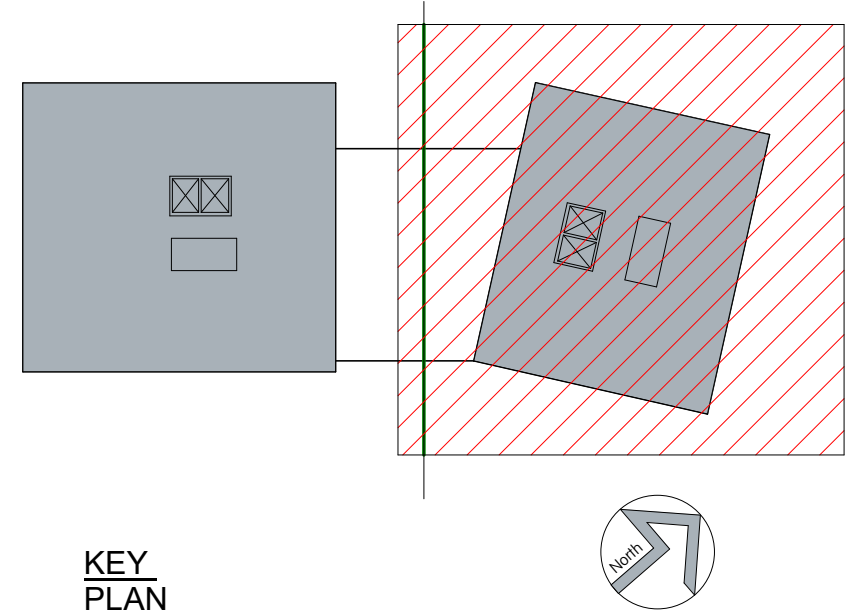
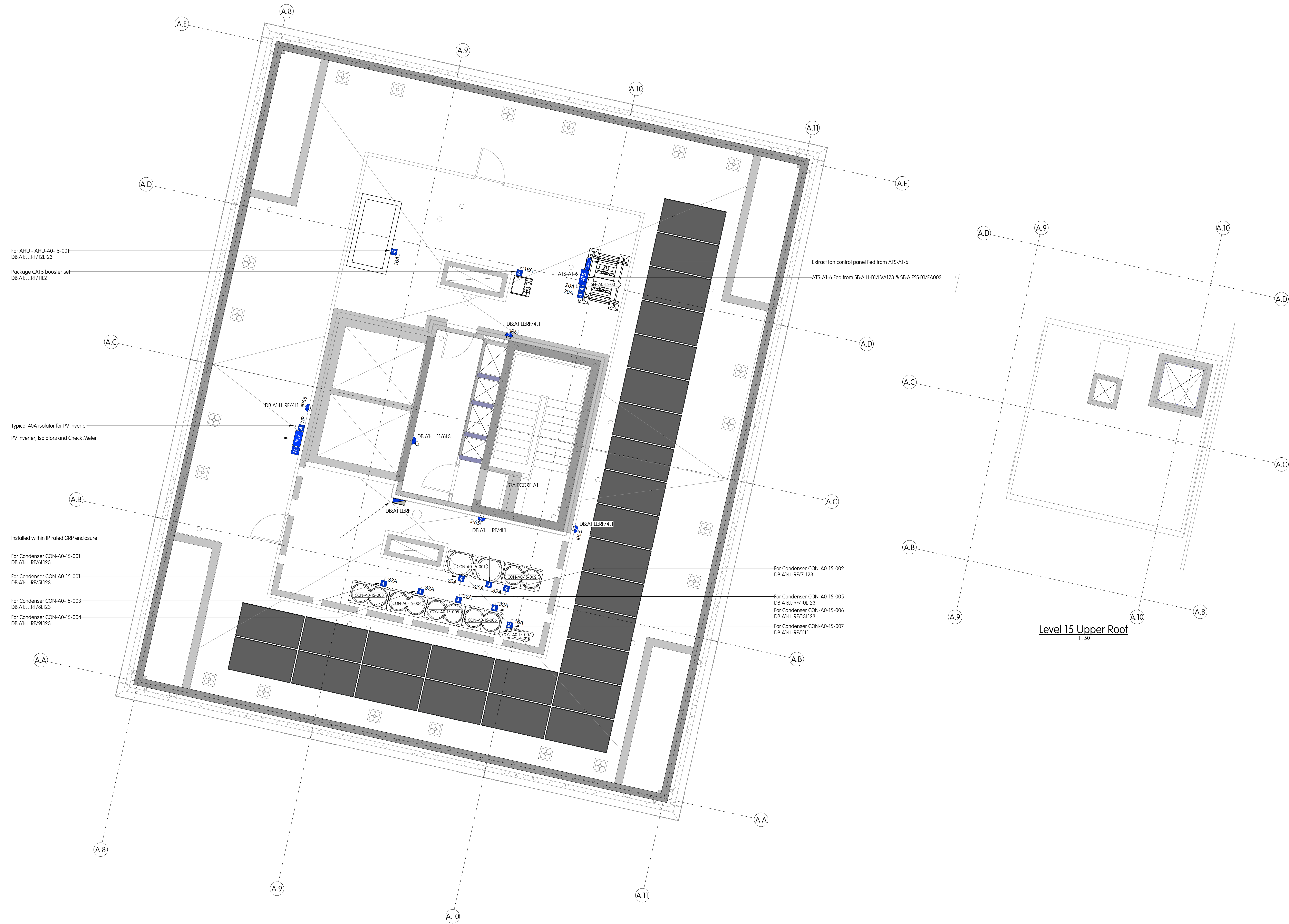
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RELATED DOCUMENTS
This drawing should be read with the appropriate Specification (s) and Schedule (s) and all other standard documentation.

WARNING
Do not scale from this drawing. Verify all dimensions, levels and structural details on site.

NOTES

1. This drawing is for engineering services only and is to be read in conjunction with all relevant architectural, structural, M/T drawings and the Contract specification.
2. **THIS IS NOT AN INSTALLATION DRAWING.**
3. All services routes and equipment locations are indicative, actual location and configuration to be determined by contractor following completion of contractor design and coordination.
4. This drawing will only be issued in PDF format.



Edward Hodgson

Regeneration and Planning
London Borough of Camden
Camden Town Hall
London
WC1H 8ND

02nd October 2024

Dear Sir/Madam,

**PARTIAL DISCHARGE OF CONDITION 52 (BLOCK A) FOR PLANNING PERMISSION
REF: 2022/3646/P AT MORRISONS SUPERSTORE AND PETROL FILLING STATION,
CAMDEN GOODS YARD, CHALK FARM ROAD NW1 8EH**

Statement of Assurance: Retention and Maintenance of Photovoltaic Panels

In compliance with the planning condition 52 Photovoltaic Panels, St George, hereby, assure the permanent retention and maintenance of the photovoltaic panels in accordance with the manufacturer's recommendations, the Operational Manual, and the Installer's Maintenance Manual. Regular maintenance will be conducted to ensure the system operates efficiently and remains compliant with the approved energy output requirements.

The photovoltaic system will remain a permanent fixture of the development, and all necessary actions will be taken to preserve its functionality, including any repairs or replacements in line with the original specifications and operational guidelines.

These assurances are provided to ensure that the renewable energy measures are effectively implemented, maintained, and monitored in accordance with the Local Planning Authority's requirements.

Yours sincerely

Jeffrey Collins MCI OB

MEPH Senior Project Manager

