

Unit 1 & 2, Hotspur Industrial Estate, N17 ORP

Sustainability Review – As Built

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RECORD OF REVISIONS

Date.	Revision.	Author.	Reviewer.	Description of change.
23/01/2026	P01	HM	SP	First Issue

1. EXECUTIVE SUMMARY

Cudd Bentley Consulting has been commissioned to prepare a report demonstrating how the as-constructed development at Hotspur Industrial Estate complies with the sustainability review requirement set out within the Section 106 Agreement.

Table 1 below shows the regulated carbon performance based on the As Built SBEM calculations undertaken by Melin Consultants.

Overall Carbon Reduction			
	Regulated CO2 emissions (Tonnes Per Annum)	Regulated CO2 Savings (Tonnes Per Annum)	Regulated CO2 emissions (%)
Baseline	8.2		
Be Lean	6.7	1.5	19%
Be Green	-2.1	8.8	107%
Cumulative on site savings		10.3	126%

Table 1 Total Carbon Reduction

It can be seen in table 1 above, that a total side wide carbon reduction of **126%** has been achieved. This is in exceedance of carbon reduction target of 122% set at design stage.

2. THE DEVELOPMENT

The Site is made up of two plots within close proximity in the Hotspur Industrial Estate; one at 18 West Road and one at Unit 4 West Mews.

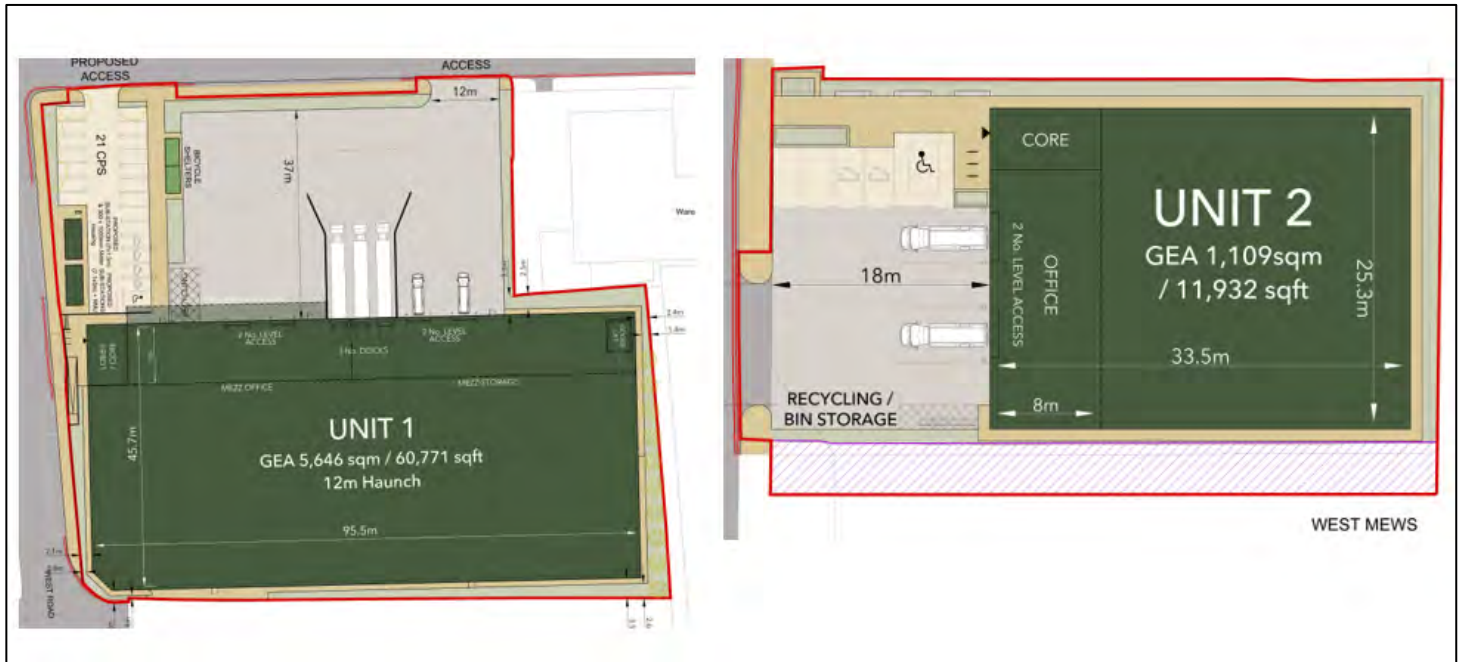


Figure 2 Site Plan

3. CARBON ASSESSMENT

The approach used to calculate the potential CO₂ savings for this development followed the Energy Hierarchy set out in the London Plan: *Be Lean, Be Clean, Be Green, and Be Seen*.

The energy assessment for the proposed scheme has been carried out in line with the Simplified Building Energy Model (SBEM) for the non-domestic buildings.

All elements of the development have been designed to achieve performance standards that surpass the requirements of Building Regulations (Part L Volume 2). Though use of passive design measures and LZC technology, the scheme has delivered a significant reduction in regulated carbon emissions. In addition, the assessment demonstrates the scheme's alignment with the London Plan Energy Hierarchy and its contribution towards long-term sustainability objectives, ensuring that the development not only meets but exceeds statutory compliance thresholds while promoting best practice in energy performance.

3.1. CALCULATING BASELINE CARBON

The first step is to calculate baseline carbon emissions of the development using building regulations Part L2 compliant building specifications. The As Built SBEM undertaken for the baseline resulted in total annual emissions of 8.20 Tonnes.

3.2. CALCULATING BE LEAN CARBON

In line with the Energy Hierarchy, the next step was to calculate the carbon emissions of the development after passive measures were incorporated. The SBEM undertaken for the be lean stage resulted in total annual emissions of 7.60 Tonnes.

The U values achieved are shown in figure 3. This has been taken from Melin Consultants As Built SBEM report.

Building Fabric		
Element	Construction	U value (W/m ² K)
Floor	U value as supplied in specification	0.18
Exposed First Floor	U value as supplied in specification	0.18
External wall	Metal Cladding. U value as supplied in specification	0.23
Wall between heated and unheated space	Default U value used	0.23
Floor between office and warehouse	Default U value used	0.18
Roof	Metal Cladding. U value as supplied in specification	0.15
Windows	U value as supplied in specification. G value of 0.34 and LT value of 65%. Blinds used on all windows.	1.40
Rooflight	U value as supplied in specification. G value of 0.34 and LT value of 58%	1.40
Solid personnel doors	U value as supplied in specification	1.60

Figure 3.1 – U values achieved

3.3. CALCULATING BE GREEN CARBON

The planning Energy Statement produced by Cudd Bentley Consulting, identified Air Source Heat Pump (ASHP) and Photovoltaic (PV) panels as being the most appropriate renewable technologies for this development. As the development is now at As Built Stage, this section of the report will detail the as-constructed details of these technologies and show the resulting performance of the development. The As Built BRUKLs can be found in Appendix A.

HOTSPUR INDUSTRIAL ESTATE SUSTAINABILITY REVIEW ISSUED

3.3.1. AIR SOURCE HEAT PUMP

A Daikin VRV air conditioning system has been installed within the first-floor open-plan office area. All units are controlled by a single wall controller, with a central controller located in the ground floor reception area. These installations are detailed in the mechanical drawings. In summary, ducted fan coil units have been installed in the first-floor office, with swirl grilles situated in the ceiling grid. Pipework runs at high level on cable trays across the warehouse to a condenser mounted at floor level at the rear of the units.

Daikin VRV with a Seasonal Coefficient of Performance of 4.49 has been installed. The product details can be seen in table 3 below.

System Type	Condenser Model	Efficiency /SCOP	Efficiency /SEER
VRV	Daikin RXM42A Daikin REYA14A	4.49	7.21

Table 3.1 ASHP Details

3.3.2. MECHANICAL VENTILATION (MVHR)

Daikin heat recovery MVHR units have been installed above the ceiling in the first-floor open-plan office area. The ductwork serving this area runs within the ceiling void. New weather louvres, colour-matched to the building, have been installed at high level on the side façade. These units have local controllers but are also programmed to be operated from the central controller

System Type	Condenser Model	Specific Fan Power	Heat Recovery Efficiency
VRF	Daikin VAM 800J Daikin VAM 1000J	1.05	82%

Table 3.2 MVHR Details

The HVAC layouts can be found in Appendix B.

3.3.3. LIGHTING AND METERING

New LED Lighting has been installed throughout the office and warehouse demise, meeting the required specifications Lux levels. The lighting has been installed to meet the specifications, which includes LED lighting and emergency lighting. The office areas are controlled via PIR sensors, which include DALI dimming to the perimeter window fittings. W/C areas are controlled via PIR sensors. Store/Riser cupboards are controlled via localized switch. Emergency lighting has been provided as per the design, given that in open areas the minimum lux is 0.5lux and direct escape routes are a minimum of 1.0lux. Emergency exit signage has been provided at each escape route leading to a final exit. Emergency key switches have been installed adjacent the appropriate distribution board to allow for maintenance/testing of the emergency circuits. The installed lighting details can be seen below in figure 3.2.

Product Code*	Description	Ref	Quantity
Internal Lighting			
DP15W11MS40	PLATINUM MINI MATT 165MM 1050LM 8W 4000K STANDARD DRIVER	A1/A1E/A5/A5E	22.00
DP15W25MS41	PLATINUM MINI MATT 165MM 1050LM 20W 4000K STANDARD DRIVER	A4/A4E	4.00
BC22E40	ATLAS CIRCULAR DECORATIVE BULKHEAD 440MM 2440LM 17.5W 4000K EMERGENCY DRIVER	B1E	18.00
BX66WLS40	LUXPANEL EXTRA 600X600MM 2800LM PRE-SET 20W 4000K FIXED OUTPUT	D2/D2E	48.00
BX66W35D40	LUXPANEL EXTRA 600X600MM 3500LM 24.5W 4000K DIMMABLE	D7/D7E	0.00
FB100B140F	VISTA FLOODLIGHT IP65 RATED 15000LM 100W 4000K	F1	5.00
CL12045E40	OPUS ESSENCE SFT 5200LM 40W FIXED OUTPUT	H2E	4.00
EMDEBM3	DECORATIVE MAINTAINED EXIT BLADE 3W WITH UPWARD ARROW LEGEND	EXIT(UP)	3.00
EMDEBM3DA	DECORATIVE MAINTAINED EXIT BLADE 3W WITH DOWNWARD ARROW LEGEND	EXIT(DOWN)	2.00

Figure 3.2 – LED lights installed

New mains distribution has been designed as per the specification, this included main incoming LV panel, small power & Lighting distribution board, mechanical distribution board. The Small power & Lighting distribution

boards are to serve all lighting and small power throughout the office and warehouse demises, the boards are fitted with split metering to allow the tenant to understand the consumption from the lighting separately to the small power. The Mechanical Distribution board is to accommodate all mechanical supplies, including A/C, ventilation, heating, water heaters, overdoor heaters and external condensers, this is also separately metered. The main LV panel has been designed to allow for additional infostructure should this be required by the incoming tenant. The metering schematic can be found in Appendix C.

3.3.4. PHOTOVOLATIC PANELS

A total of 572 PV modules have been installed. PV specification can be seen in table 3.3 below. The Photovoltaic layouts can be found in Appendix D.

Unit Number	System Type	No of Panels	Output per panel	kWp
1	SOLARWATT Panel	490	455 Watts	222.95
2	SOLARWATT Panel	82	455 Watts	37.31

Table 3.3 PV Details

Use of LZC technologies has resulted in a carbon reduction of 8.80 Tonnes.

Overall, the site has achieved a carbon reduction of 126%.

4. AS BUILT GLA CARBON SPREADSHEET

The carbon emissions of the development can be seen in table 4.1 below.

	Carbon Dioxide Emissions for non-residential buildings (Tonnes CO ₂ per annum)	
	Regulated	Unregulated
Baseline: Part L 2021 of the Building Regulations Compliant Development	8.2	
After energy demand reduction (be lean)	6.7	
After heat network connection (be clean)	6.7	
After renewable energy (be green)	-2.1	

Table 4: Regulated Carbon Dioxide savings from each stage of the Energy Hierarchy for non-residential buildings

	Regulated non-residential carbon dioxide savings	
	(Tonnes CO ₂ per annum)	(%)
Be lean: savings from energy demand reduction	1.5	19%
Be clean: savings from heat network	0.0	0%
Be green: savings from renewable energy	8.8	107%
Total Cumulative Savings	10.4	126%
Annual savings from off-set payment	-2.1	-

Table 4.1 GLA carbon spreadsheet

5. CONCLUSION

The as-constructed development has been delivered in accordance with the approved Stage 3/4 design and associated sustainability commitments. The installed VRV system, internal lighting strategy, and photovoltaic (PV) array align with the specifications and performance parameters set out at design stage, with no material deviations that would adversely affect energy or carbon performance.

Post-construction assessment confirms that the implemented energy efficiency measures perform as intended. The VRV system provides efficient space conditioning, the lighting design incorporates low-energy, high-efficiency luminaires, and the installed PV system contributes on-site renewable energy generation consistent with the approved strategy.

Overall, the as-constructed development has achieved a level of carbon performance that exceeds the carbon reduction target established at Stage 2 design. Overall a carbon reduction of 126% has been achieved. As such, the development fully complies with the sustainability review requirements secured through the Section 106 Agreement and aligns with the relevant London Plan and Haringey Local Plan sustainability objectives.

APPENDIX A AS BUILT SBEM

BRUKL Output Document



Compliance with England Building Regulations Part L 2021

Project name

607682 - Unit 1 - With Blinds

As designed

Date: Fri Sep 12 11:23:47 2025

Administrative information

Building Details

Address: Unit 1, Hotspur Industrial Estate, Tottenham, London, N17 0RP

Certifier details

Name: Darren Baker

Telephone number: 07932561815

Address: Melin Consultants, Unit 14, Axis Court, Swansea, SA7 0AJ

Certification tool

Calculation engine: SBEM

Calculation engine version: v6.1.e.2

Interface to calculation engine: Virtual Environment

Interface to calculation engine version: v7.0.28

BRUKL compliance module version: v6.1.e.1

Foundation area [m²]: 246.5

The CO₂ emission and primary energy rates of the building must not exceed the targets

Target CO ₂ emission rate (TER), kgCO ₂ /m ² annum	1.16
Building CO ₂ emission rate (BER), kgCO ₂ /m ² annum	-2.28
Target primary energy rate (TPER), kWh _{PE} /m ² annum	12.17
Building primary energy rate (BPER), kWh _{PE} /m ² annum	-27.61
Do the building's emission and primary energy rates exceed the targets?	BER ≤ TER BPER ≤ TPER

The performance of the building fabric and fixed building services should achieve reasonable overall standards of energy efficiency

Fabric element	U _a -Limit	U _a -Calc	U _i -Calc	First surface with maximum value
Walls*	0.26	0.2	0.23	RF000001_W0
Floors	0.18	0.18	0.18	RF000001_F
Pitched roofs	0.16	-	-	No heat loss pitched roofs
Flat roofs	0.18	0.15	0.15	RF000003_C
Windows** and roof windows	1.6	1.4	1.4	RF000001_W0_O0
Rooflights***	2.2	-	-	No external rooflights
Personnel doors^	1.6	-	-	No external personnel doors
Vehicle access & similar large doors	1.3	-	-	No external vehicle access doors
High usage entrance doors	3	-	-	No external high usage entrance doors

U_a-Limit = Limiting area-weighted average U-values [W/(m²K)]

U_i-Calc = Calculated maximum individual element U-values [W/(m²K)]

U_a-Calc = Calculated area-weighted average U-values [W/(m²K)]

* Automatic U-value check by the tool does not apply to curtain walls whose limiting standard is similar to that for windows.

** Display windows and similar glazing are excluded from the U-value check.

*** Values for rooflights refer to the horizontal position.

^ For fire doors, limiting U-value is 1.8 W/m²K

NB: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.

Air permeability	Limiting standard	This building
m ³ /(h.m ²) at 50 Pa	8	3

Building services

For details on the standard values listed below, system-specific guidance, and additional regulatory requirements, refer to the Approved Documents.

Whole building lighting automatic monitoring & targeting with alarms for out-of-range values	NO
Whole building electric power factor achieved by power factor correction	<0.9

1- GF Reception Areas

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	5.1	8.65	-	-	-
Standard value	2.5*	5	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO
* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps.					

2- Panel heaters

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	-	-	-
Standard value	N/A	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

3- Unit 1 FF

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	4.49	7.21	-	-	-
Standard value	2.5*	5	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO
* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps.					

1- SYST0000-DHW

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	1	-
Standard value	1	N/A

Zone-level mechanical ventilation, exhaust, and terminal units

ID	System type in the Approved Documents
A	Local supply or extract ventilation units
B	Zonal supply system where the fan is remote from the zone
C	Zonal extract system where the fan is remote from the zone
D	Zonal balanced supply and extract ventilation system
E	Local balanced supply and extract ventilation units
F	Other local ventilation units
G	Fan assisted terminal variable air volume units
H	Fan coil units
I	Kitchen extract with the fan remote from the zone and a grease filter
NB: Limiting SFP may be increased by the amounts specified in the Approved Documents if the installation includes particular components.	

Zone name	SFP [W/(l/s)]										HR efficiency	
ID of system type	A	B	C	D	E	F	G	H	I		Zone	Standard
Standard value	0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1			
WC	0.3	-	-	-	-	-	-	-	-	-	-	N/A

Zone name	SFP [W/(l/s)]									HR efficiency	
ID of system type	A	B	C	D	E	F	G	H	I		
Standard value	0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1	Zone	Standard
Office	-	-	-	-	1.1	-	-	-	-	0.82	N/A

General lighting and display lighting		General luminaire	Display light source	
Zone name		Efficacy [lm/W]	Efficacy [lm/W]	Power density [W/m²]
Standard value	95	80	0.3	
Reception	100	125	1.08	
Warehouse	125	-	-	
Mezanine	125	-	-	
Stairs	138	-	-	
WC	138	-	-	
Cleaners Store	138	-	-	
Riser	138	-	-	
Roof Access	138	-	-	
Office	143	-	-	

The spaces in the building should have appropriate passive control measures to limit solar gains in summer

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
Reception	NO (-31%)	YES
Warehouse	NO (-1.2%)	NO
Mezanine	NO (-73.5%)	YES
Office	NO (-43.1%)	YES

Regulation 25A: Consideration of high efficiency alternative energy systems

Were alternative energy systems considered and analysed as part of the design process?	YES
Is evidence of such assessment available as a separate submission?	NO
Are any such measures included in the proposed design?	YES

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Floor area [m ²]	5287.9	5287.9
External area [m ²]	14557.8	14557.8
Weather	LON	LON
Infiltration [m ³ /hm ² @ 50Pa]	3	5
Average conductance [W/K]	3666.16	4399.12
Average U-value [W/m ² K]	0.25	0.3
Alpha value* [%]	81.43	20.21

* Percentage of the building's average heat transfer coefficient which is due to thermal bridging

Building Use

% Area Building Type

Retail/Financial and Professional Services
 Restaurants and Cafes/Drinking Establishments/Takeaways
 Offices and Workshop Businesses
 General Industrial and Special Industrial Groups

100 Storage or Distribution

Hotels
 Residential Institutions: Hospitals and Care Homes
 Residential Institutions: Residential Schools
 Residential Institutions: Universities and Colleges
 Secure Residential Institutions
 Residential Spaces
 Non-residential Institutions: Community/Day Centre
 Non-residential Institutions: Libraries, Museums, and Galleries
 Non-residential Institutions: Education
 Non-residential Institutions: Primary Health Care Building
 Non-residential Institutions: Crown and County Courts
 General Assembly and Leisure, Night Clubs, and Theatres
 Others: Passenger Terminals
 Others: Emergency Services
 Others: Miscellaneous 24hr Activities
 Others: Car Parks 24 hrs
 Others: Stand Alone Utility Block

Energy Consumption by End Use [kWh/m²]

	Actual	Notional
Heating	1.98	1.48
Cooling	0.35	0.55
Auxiliary	0.3	0.26
Lighting	6.66	4.42
Hot water	4.19	4.19
Equipment*	30.6	30.6
TOTAL **	13.49	10.9

* Energy used by equipment does not count towards the total for consumption or calculating emissions.

** Total is net of any electrical energy displaced by CHP generators, if applicable.

Energy Production by Technology [kWh/m²]

	Actual	Notional
Photovoltaic systems	32.79	2.74
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
<i>Displaced electricity</i>	<i>32.79</i>	<i>2.74</i>

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	270.88	253.57
Primary energy [kWh _{PE} /m ²]	-27.61	12.17
Total emissions [kg/m ²]	-2.28	1.16

HVAC Systems Performance										
System Type	Heat dem MJ/m2	Cool dem MJ/m2	Heat con kWh/m2	Cool con kWh/m2	Aux con kWh/m2	Heat SSEFF	Cool SSEER	Heat gen SEFF	Cool gen SEER	
[ST] Split or multi-split system, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	656.2	37.3	38.4	1.7	0	4.75	6.14	5.1	8.65
	Notional	296.7	85	31.2	5.4	0	2.64	4.4	----	----
[ST] No Heating or Cooling										
	Actual	197.1	74.3	0	0	0	0	0	0	0
	Notional	180.2	76.3	0	0	0	0	0	----	----
[ST] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity										
	Actual	211.3	24.4	73.4	0	0.3	0.8	0	1	0
	Notional	175.9	50.4	36.5	0	0.4	1.34	0	----	----
[ST] Split or multi-split system, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	113.3	90	7.5	4.9	4.4	4.18	5.12	4.49	7.21
	Notional	85.6	113.9	9	7.2	3.8	2.64	4.4	----	----

Key to terms

Heat dem [MJ/m2]	= Heating energy demand
Cool dem [MJ/m2]	= Cooling energy demand
Heat con [kWh/m2]	= Heating energy consumption
Cool con [kWh/m2]	= Cooling energy consumption
Aux con [kWh/m2]	= Auxiliary energy consumption
Heat SSEFF	= Heating system seasonal efficiency (for notional building, value depends on activity glazing class)
Cool SSEER	= Cooling system seasonal energy efficiency ratio
Heat gen SSEFF	= Heating generator seasonal efficiency
Cool gen SSEER	= Cooling generator seasonal energy efficiency ratio
ST	= System type
HS	= Heat source
HFT	= Heating fuel type
CFT	= Cooling fuel type

Project name

Unit 2 - As Built**As built****Date:** Thu Dec 04 08:46:40 2025

Administrative information

Building Details

Address: 16 West Street, Tottenham, London, N17 0RP

Certifier details

Name: Darren Baker**Telephone number:** 07932561815**Address:** Melin Consultants, Unit 14, Axis Court, Swansea, SA7 0AJ

Certification tool

Calculation engine: SBEM**Calculation engine version:** v6.1.e.2**Interface to calculation engine:** Virtual Environment**Interface to calculation engine version:** v7.0.29**BRUKL compliance module version:** v6.1.e.1**Foundation area [m²]:** 137.96The CO₂ emission and primary energy rates of the building must not exceed the targets

Target CO ₂ emission rate (TER), kgCO ₂ /m ² annum	1.84
Building CO ₂ emission rate (BER), kgCO ₂ /m ² annum	-0.96
Target primary energy rate (TPER), kWh _{PE} /m ² annum	19.04
Building primary energy rate (BPER), kWh _{PE} /m ² annum	-13.44
Do the building's emission and primary energy rates exceed the targets?	BER ≤ TER BPER ≤ TPER

The performance of the building fabric and fixed building services should achieve reasonable overall standards of energy efficiency

Fabric element	U _{a-Limit}	U _{a-Calc}	U _{i-Calc}	First surface with maximum value
Walls*	0.26	0.2	0.23	ST000000_W2
Floors	0.18	0.18	0.18	ST000000_F
Pitched roofs	0.16	-	-	No heat loss pitched roofs
Flat roofs	0.18	0.15	0.15	SP000003_C_A0
Windows** and roof windows	1.6	1.4	1.4	ST000001_W0_O0
Rooflights***	2.2	-	-	No external rooflights
Personnel doors^	1.6	-	-	No external personnel doors
Vehicle access & similar large doors	1.3	-	-	No external vehicle access doors
High usage entrance doors	3	-	-	No external high usage entrance doors

U_{a-Limit} = Limiting area-weighted average U-values [W/(m²K)]U_{i-Calc} = Calculated maximum individual element U-values [W/(m²K)]U_{a-Calc} = Calculated area-weighted average U-values [W/(m²K)]

* Automatic U-value check by the tool does not apply to curtain walls whose limiting standard is similar to that for windows.

** Display windows and similar glazing are excluded from the U-value check.

*** Values for rooflights refer to the horizontal position.

^ For fire doors, limiting U-value is 1.8 W/m²K

NB: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.

Air permeability	Limiting standard	This building
m ³ /(h.m ²) at 50 Pa	8	2.91

Building services

For details on the standard values listed below, system-specific guidance, and additional regulatory requirements, refer to the Approved Documents.

Whole building lighting automatic monitoring & targeting with alarms for out-of-range values	NO
Whole building electric power factor achieved by power factor correction	<0.9

1- Panel heaters

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	-	-	-
Standard value	N/A	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

2- GF Reception Areas

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	5.1	8.65	-	-	-
Standard value	2.5*	5	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO
* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps.					

3- Unit 1 FF

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	4.49	7.21	-	-	-
Standard value	2.5*	5	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO
* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps.					

4- Unit 2 FF

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	4.26	7.1	-	-	-
Standard value	2.5*	5	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO
* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps.					

1- SYST0000-DHW

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	1	-
Standard value	1	N/A

Zone-level mechanical ventilation, exhaust, and terminal units

ID	System type in the Approved Documents
A	Local supply or extract ventilation units
B	Zonal supply system where the fan is remote from the zone
C	Zonal extract system where the fan is remote from the zone
D	Zonal balanced supply and extract ventilation system
E	Local balanced supply and extract ventilation units
F	Other local ventilation units
G	Fan assisted terminal variable air volume units
H	Fan coil units
I	Kitchen extract with the fan remote from the zone and a grease filter
NB: Limiting SFP may be increased by the amounts specified in the Approved Documents if the installation includes particular components.	

Zone name	SFP [W/(l/s)]									HR efficiency	
ID of system type	A	B	C	D	E	F	G	H	I		
Standard value	0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1	Zone	Standard
WC	0.3	-	-	-	-	-	-	-	-	-	N/A
WC	0.3	-	-	-	-	-	-	-	-	-	N/A
Meeting Room	-	-	-	-	1.1	-	-	-	-	0.82	N/A
Office	-	-	-	-	1.1	-	-	-	-	0.82	N/A

General lighting and display lighting		General luminaire	Display light source	
Zone name		Efficacy [lm/W]	Efficacy [lm/W]	Power density [W/m²]
	Standard value	95	80	0.3
WC		138	-	-
WC		125	-	-
Cleaners Store		138	-	-
Stairs		138	-	-
Reception		138	125	1.08
Warehouse		125	-	-
Meeting Room		140	-	-
Office		143	-	-

The spaces in the building should have appropriate passive control measures to limit solar gains in summer

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
Reception	NO (-50.5%)	YES
Warehouse	NO (-39.5%)	NO
Meeting Room	NO (-40.1%)	YES
Office	NO (-18.9%)	YES

Regulation 25A: Consideration of high efficiency alternative energy systems

Were alternative energy systems considered and analysed as part of the design process?	YES
Is evidence of such assessment available as a separate submission?	NO
Are any such measures included in the proposed design?	YES

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Floor area [m ²]	1137.4	1137.4
External area [m ²]	3448.2	3448.2
Weather	LON	LON
Infiltration [m ³ /hm ² @ 50Pa]	3	5
Average conductance [W/K]	897.78	1013.94
Average U-value [W/m ² K]	0.26	0.29
Alpha value* [%]	104.78	40.67

* Percentage of the building's average heat transfer coefficient which is due to thermal bridging

Building Use

% Area Building Type

Retail/Financial and Professional Services
 Restaurants and Cafes/Drinking Establishments/Takeaways
 Offices and Workshop Businesses
 General Industrial and Special Industrial Groups

100 Storage or Distribution

Hotels
 Residential Institutions: Hospitals and Care Homes
 Residential Institutions: Residential Schools
 Residential Institutions: Universities and Colleges
 Secure Residential Institutions
 Residential Spaces
 Non-residential Institutions: Community/Day Centre
 Non-residential Institutions: Libraries, Museums, and Galleries
 Non-residential Institutions: Education
 Non-residential Institutions: Primary Health Care Building
 Non-residential Institutions: Crown and County Courts
 General Assembly and Leisure, Night Clubs, and Theatres
 Others: Passenger Terminals
 Others: Emergency Services
 Others: Miscellaneous 24hr Activities
 Others: Car Parks 24 hrs
 Others: Stand Alone Utility Block

Energy Consumption by End Use [kWh/m²]

	Actual	Notional
Heating	8.46	6.64
Cooling	0.77	1.52
Auxiliary	0.64	0.55
Lighting	3.06	5.48
Hot water	3.99	3.99
Equipment*	30.52	30.52
TOTAL **	16.91	18.18

* Energy used by equipment does not count towards the total for consumption or calculating emissions.

** Total is net of any electrical energy displaced by CHP generators, if applicable.

Energy Production by Technology [kWh/m²]

	Actual	Notional
Photovoltaic systems	26.9	5.51
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
<i>Displaced electricity</i>	<i>26.9</i>	<i>5.51</i>

Energy & CO₂ Emissions Summary

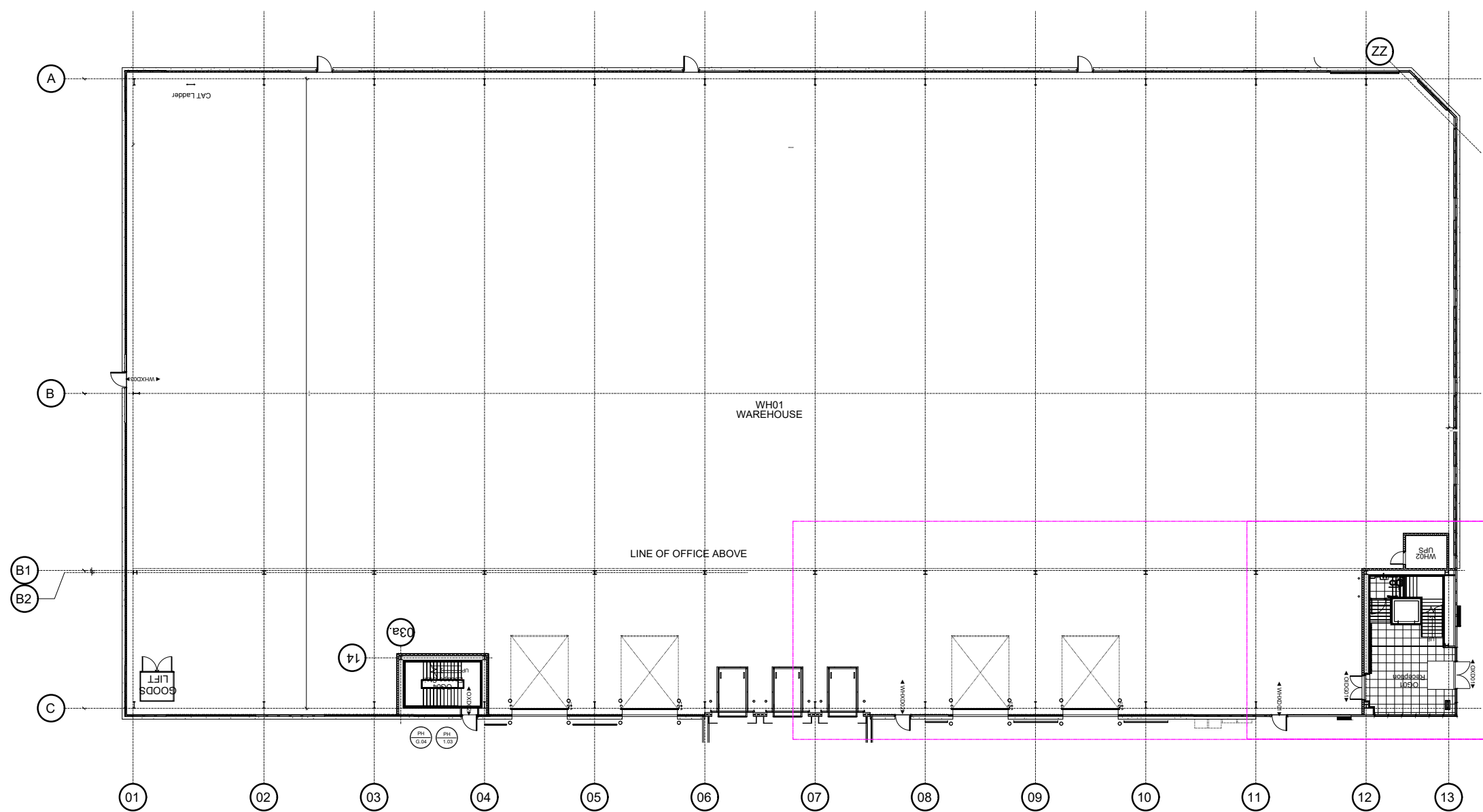
	Actual	Notional
Heating + cooling demand [MJ/m ²]	314.77	283.11
Primary energy [kWh _{PE} /m ²]	-13.44	19.04
Total emissions [kg/m ²]	-0.96	1.84

HVAC Systems Performance										
System Type	Heat dem MJ/m2	Cool dem MJ/m2	Heat con kWh/m2	Cool con kWh/m2	Aux con kWh/m2	Heat SSEFF	Cool SSEER	Heat gen SEFF	Cool gen SEER	
[ST] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity										
Actual	211.4	16.3	73.4	0	0.3	0.8	0	1	0	
Notional	215.7	28.9	44.7	0	0.4	1.34	0	----	----	
[ST] Split or multi-split system, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
Actual	466	46.7	27.2	2.1	0	4.75	6.14	5.1	8.65	
Notional	304.9	82.4	32.1	5.2	0	2.64	4.4	----	----	
[ST] No Heating or Cooling										
Actual	248.1	52.4	0	0	0	0	0	0	0	
Notional	207.5	66.1	0	0	0	0	0	----	----	
[ST] Split or multi-split system, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
Actual	768.3	119.9	51	6.5	4.4	4.18	5.12	4.49	7.21	
Notional	533.9	204.6	56.2	12.9	3.8	2.64	4.4	----	----	
[ST] Split or multi-split system, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
Actual	235.7	85	16.5	4.7	4.4	3.97	5.04	4.26	7.1	
Notional	136	141.7	14.3	8.9	3.8	2.64	4.4	----	----	

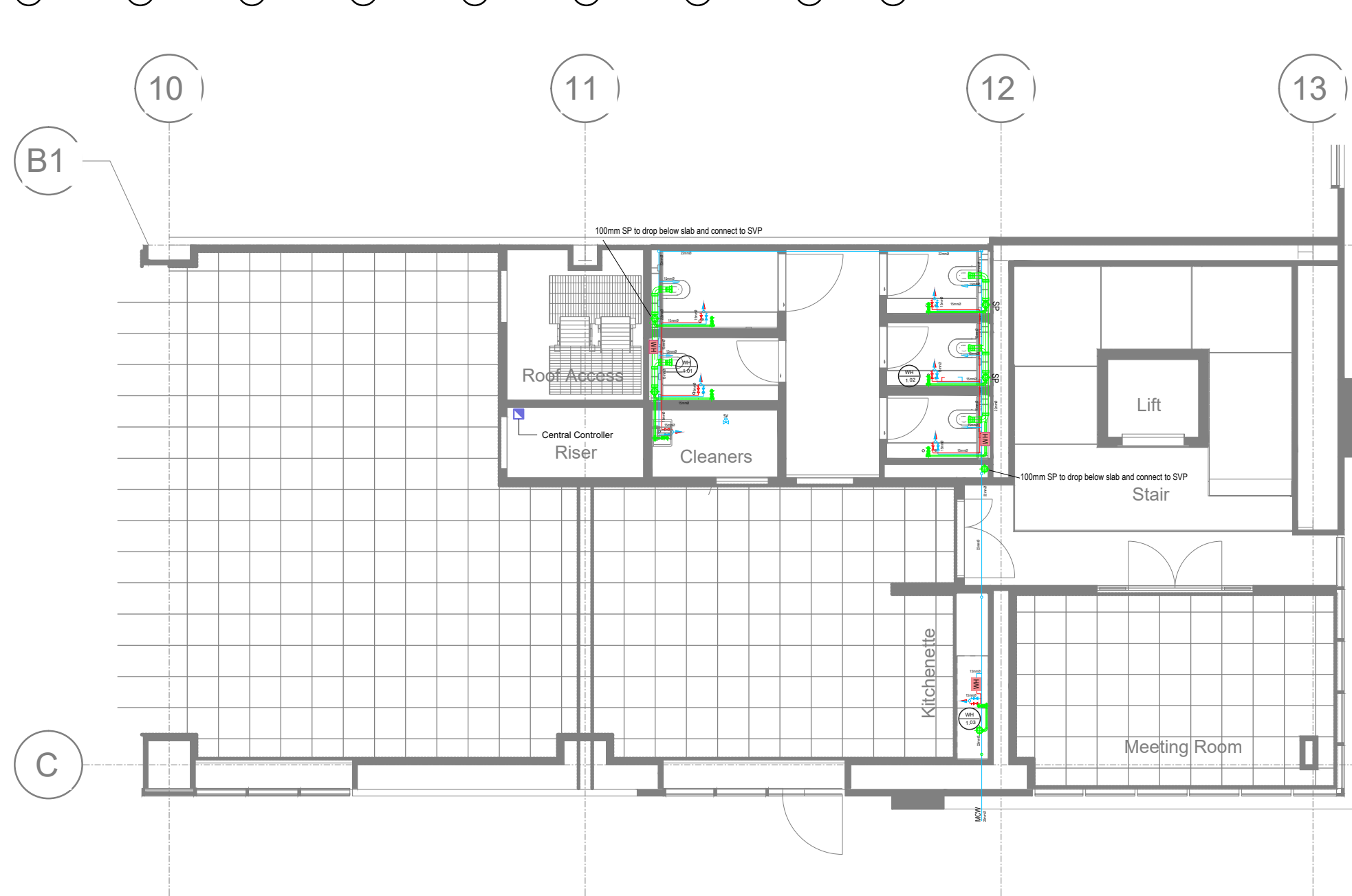
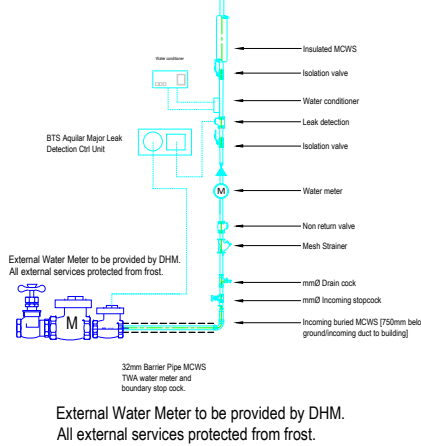
Key to terms

Heat dem [MJ/m2]	= Heating energy demand
Cool dem [MJ/m2]	= Cooling energy demand
Heat con [kWh/m2]	= Heating energy consumption
Cool con [kWh/m2]	= Cooling energy consumption
Aux con [kWh/m2]	= Auxiliary energy consumption
Heat SSEFF	= Heating system seasonal efficiency (for notional building, value depends on activity glazing class)
Cool SSEER	= Cooling system seasonal energy efficiency ratio
Heat gen SSEFF	= Heating generator seasonal efficiency
Cool gen SSEER	= Cooling generator seasonal energy efficiency ratio
ST	= System type
HS	= Heat source
HFT	= Heating fuel type
CFT	= Cooling fuel type

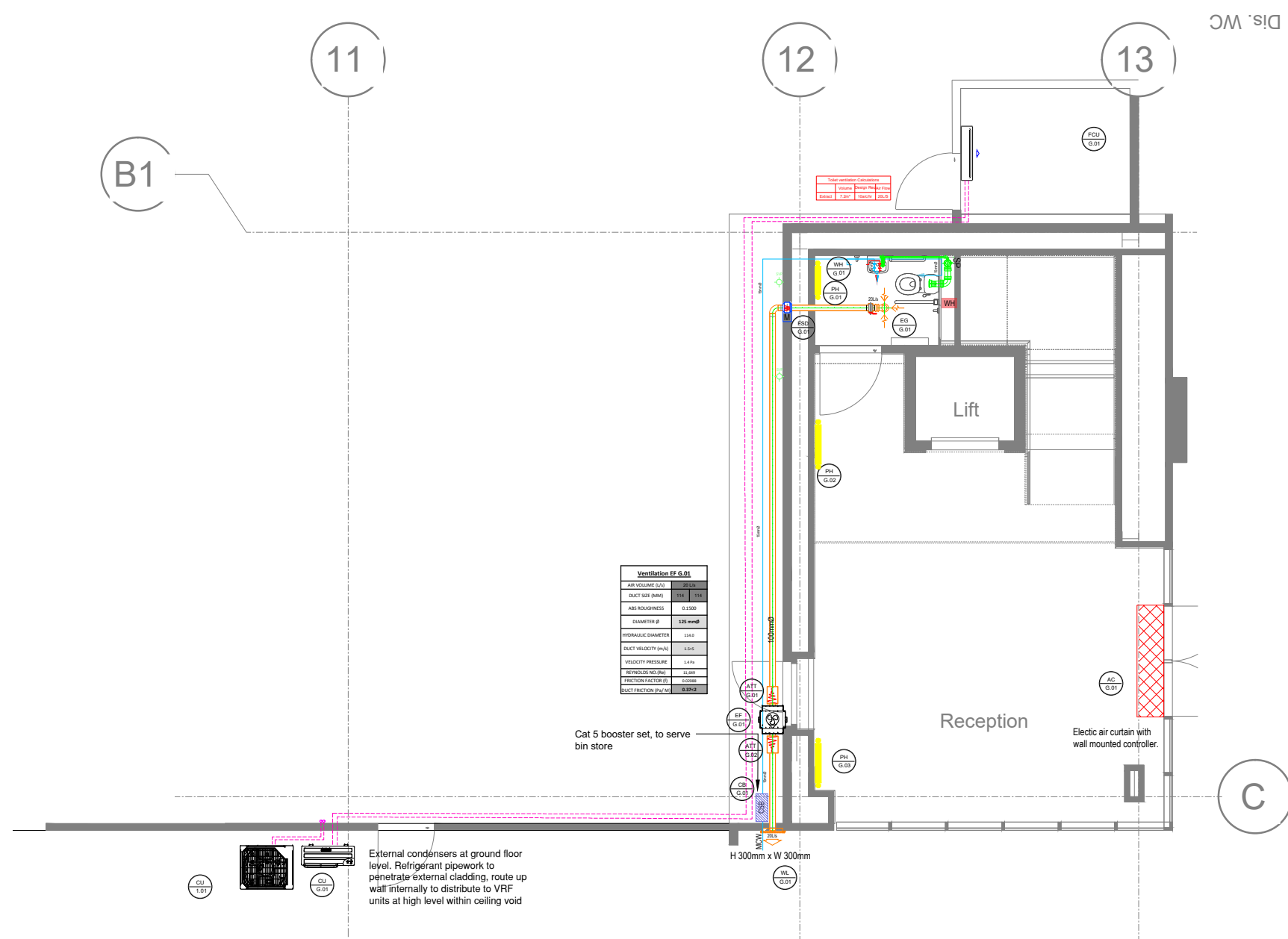
APPENDIX B HVAC SCHEMATIC



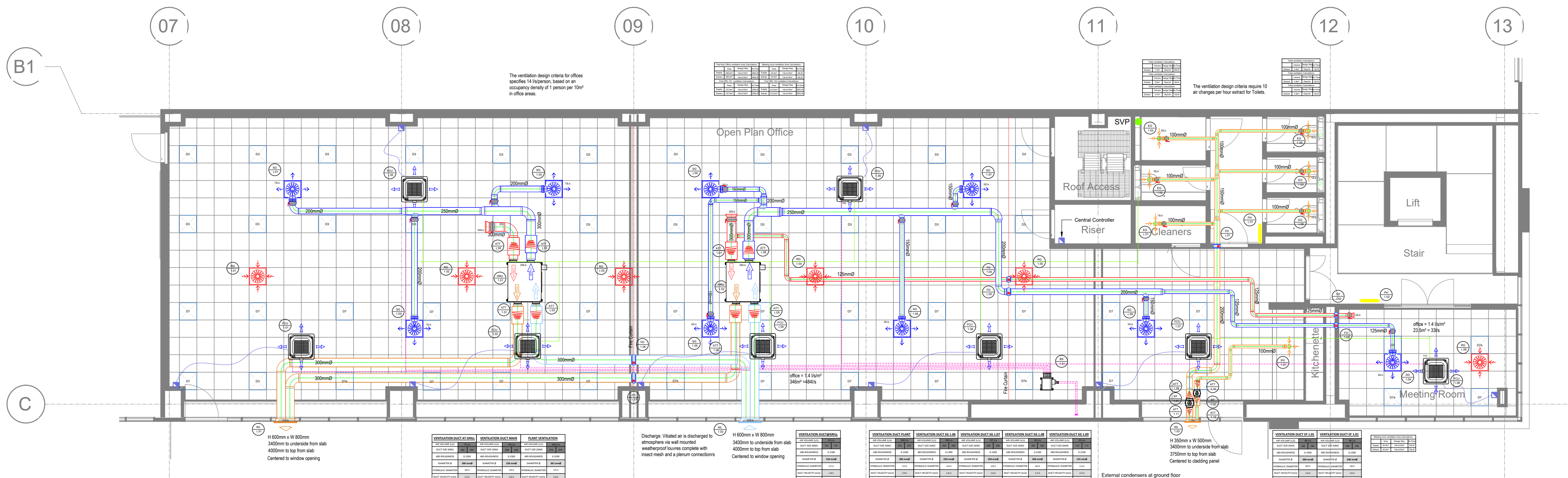
DETAIL OF INCOMING WATER MAIN TO UNIT



FIRST FLOOR DWS 1:100



GROUND FLOOR RECEPTION) 1:100



FIRST FLOOR HVAC 1:100

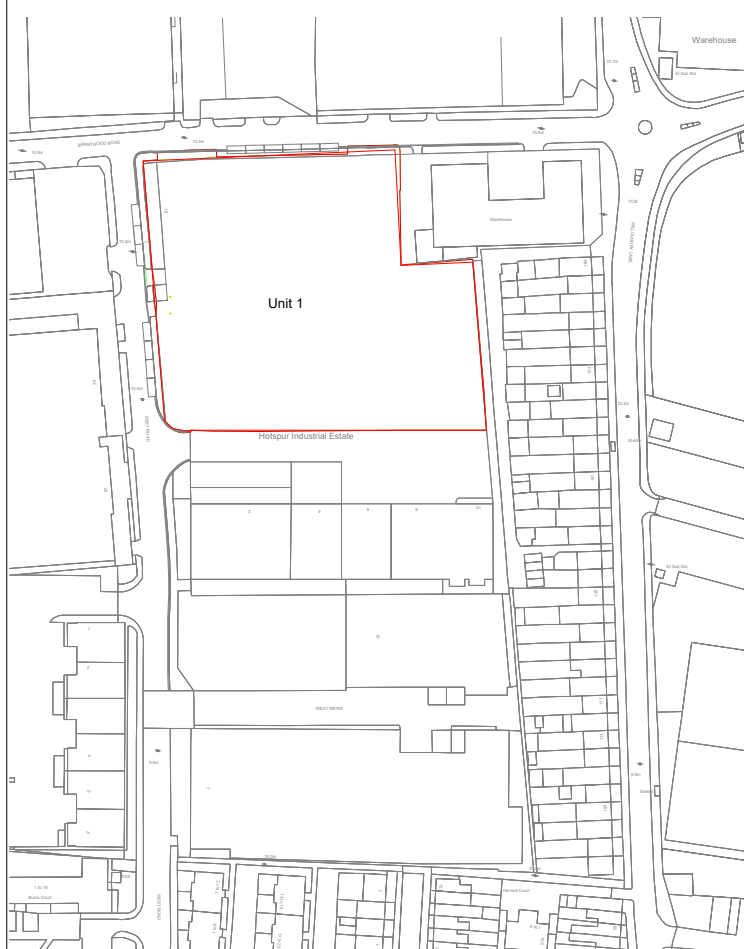
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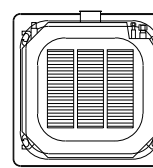
This drawing should not be used for scaling, any scaled dimensions are to be confirmed by the contract's administrator and/or architect. Unless otherwise stated all dimensions shown are in millimeters.

Materials and workmanship shall be the best of their respective kind and be in accordance with relevant British Standard Specifications and Codes of Practice.

This drawing is to be read in conjunction with other services specifications and documentation related to this project.



Legend



4 Way Air Cassette



Controller for Fan Coils



Fresh Air Intake



Exhaust Air Discharge



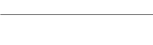
Supply Air



Extract Air



Refrigeration Pipework



Condensate Drainage



Retained Ductwork

REV	DATE	DESCRIPTION	Chkd	Drn
CR01	26/11/25	Constructed Record Issue	AP	EW
C04	22/10/25	SVP location added	RT	EW
C03	06/10/25	CAT 5 booster set added	RT	EW
C02	25/09/25	Response to comments	RT	EW
C01	06/10/25	Construction Issue	RT	EW

Drawing Status:

CONSTRUCTED RECORD



10 James Whatman Court, Turkey Mill,
Maidstone, Kent. ME14 5SS

Tel 0845 62 11 295 info@delta-house.co.uk
Fax 0845 62 11 296 www.delta-house.co.uk

Client:

Glencar

Architect:

Consultant:

Project:

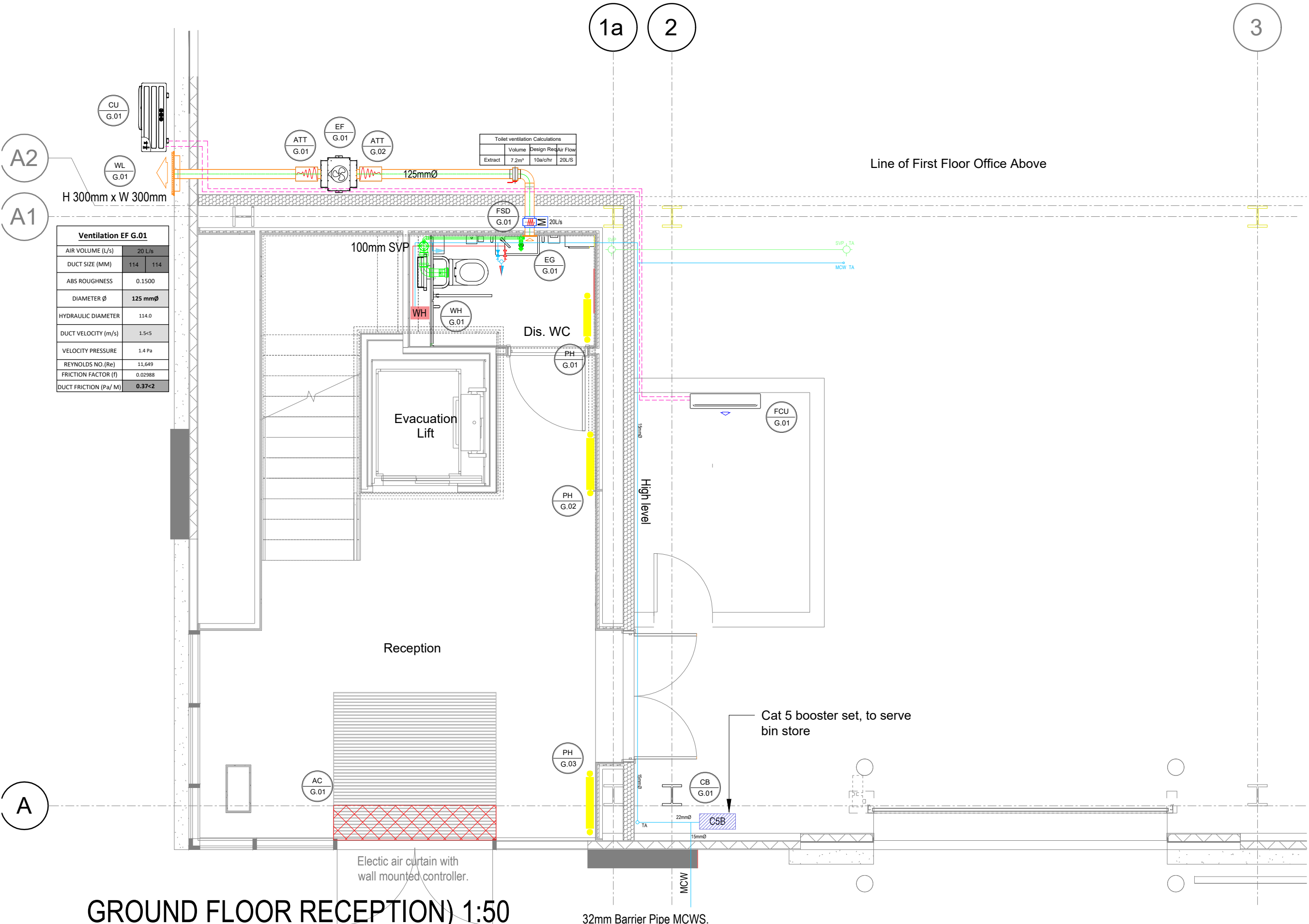
Valor Park

Title:
HVAC & DWS Layout
Unit 1

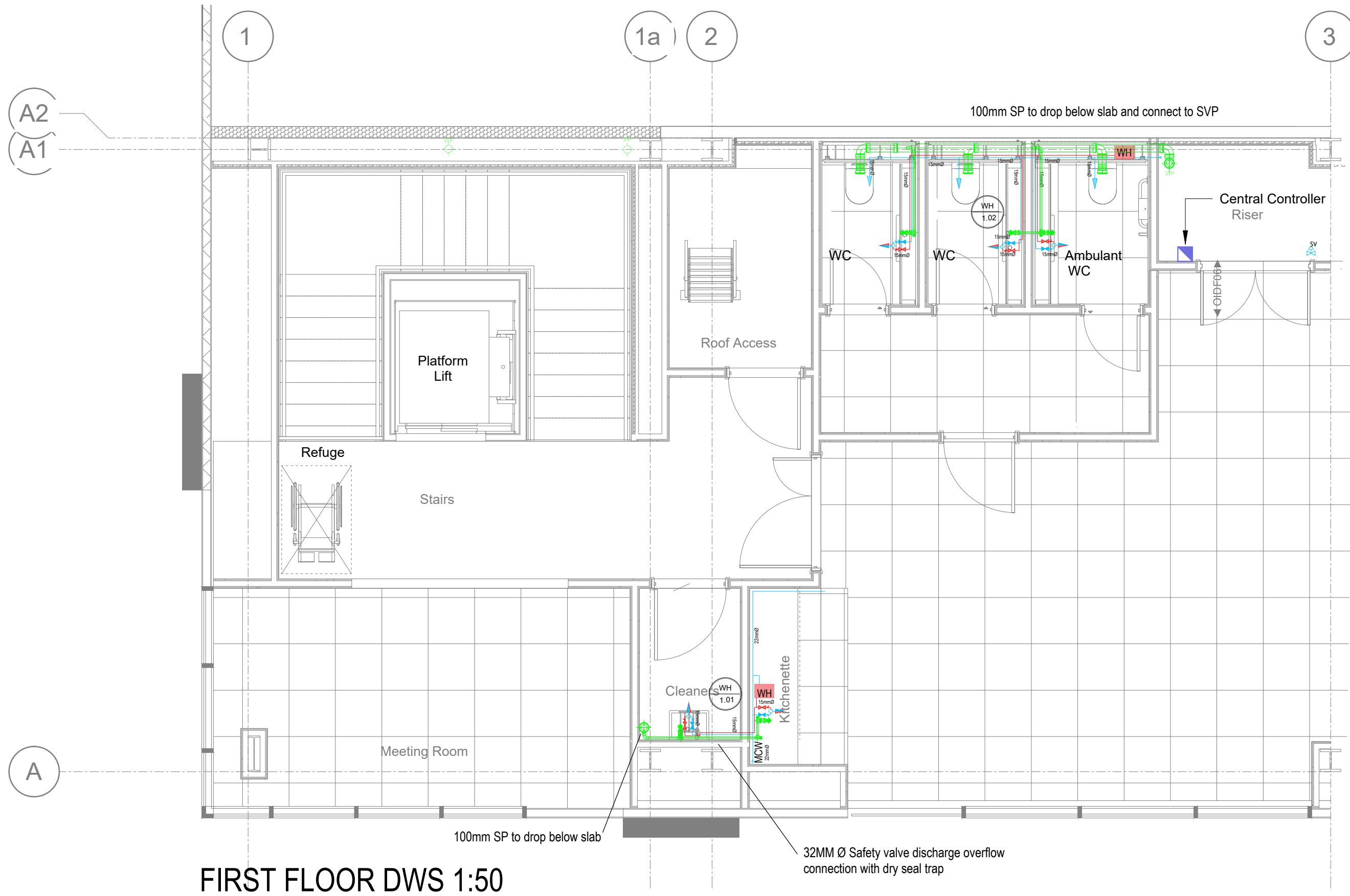
Drawn EW Checked CS Date 27-Nov-25

Contract No: 7486 Scale 1:100 @A1

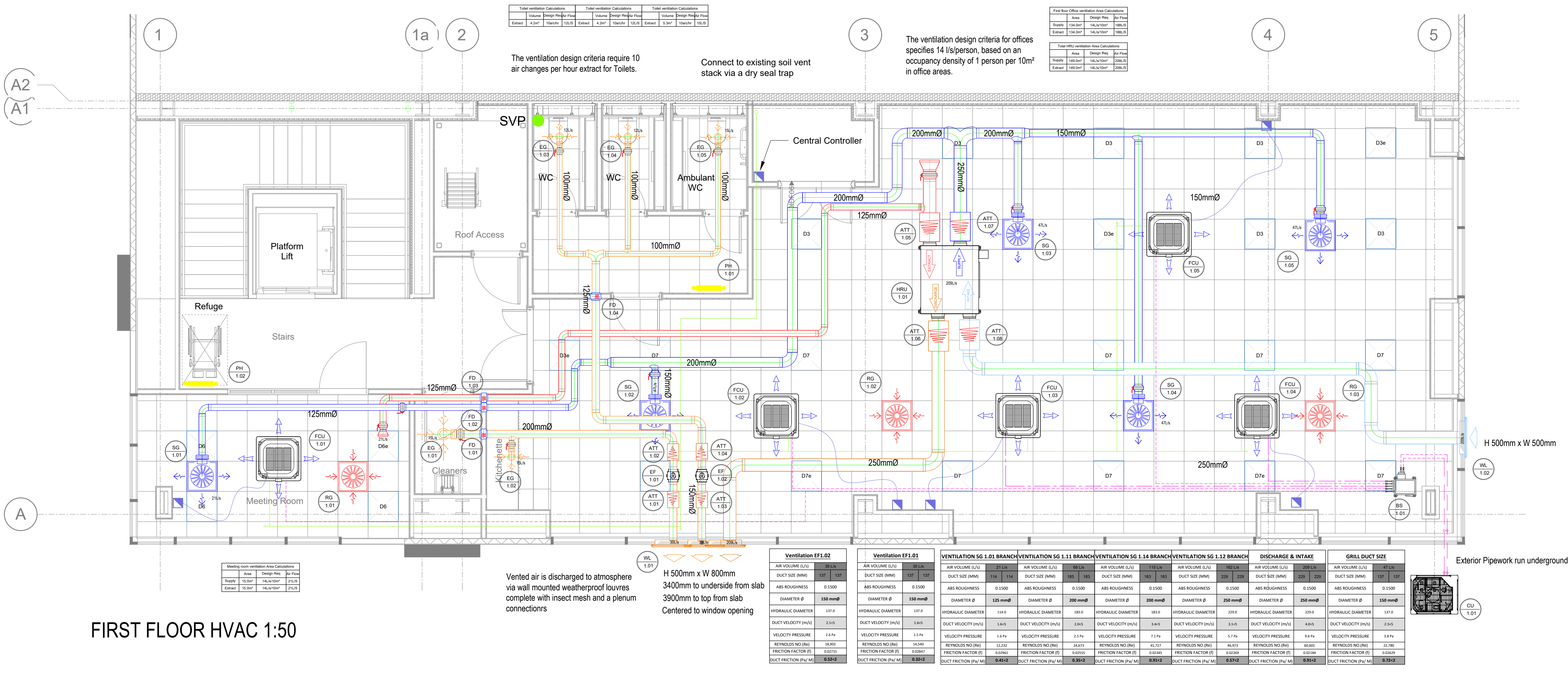
Drawing Number G1222-DEL-U1-ZZ-DR-M-00001 Revision CR01



GROUND FLOOR RECEPTION) 1:50

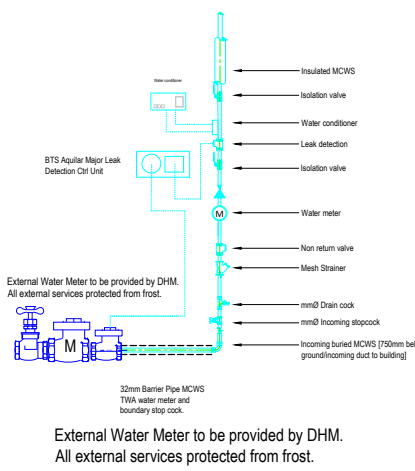


FIRST FLOOR DWS 1:50

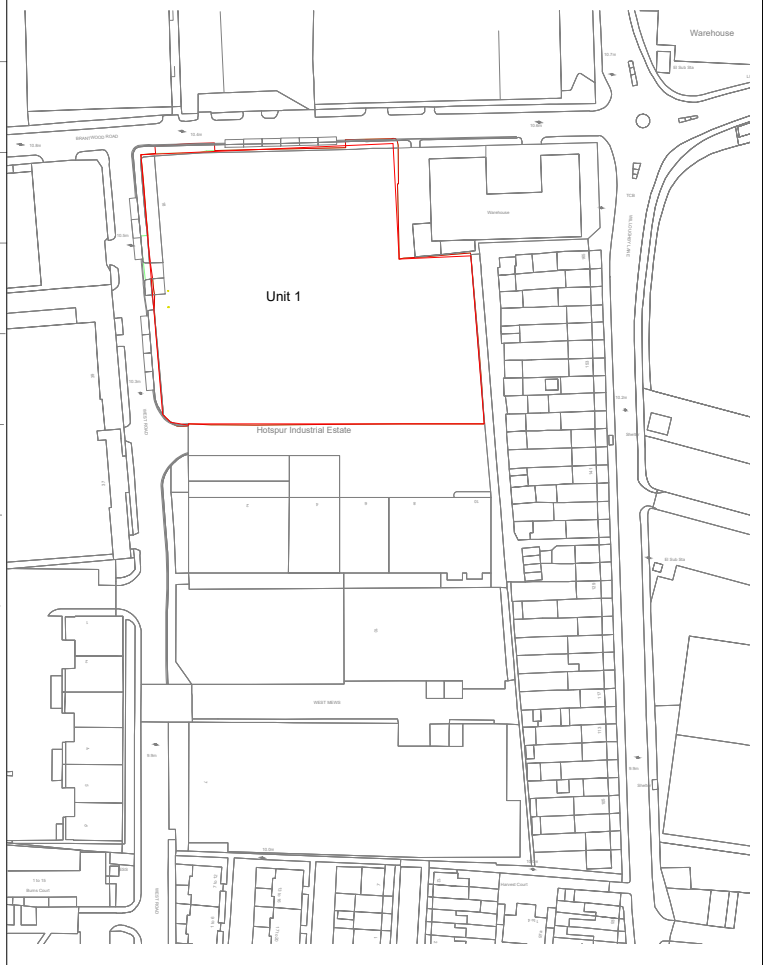


FIRST FLOOR HVAC 1:50

DETAIL OF INCOMING WATER MAIN TO UNIT



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REV	DATE	DESCRIPTION	Chkd	Drgn
CR01	26/11/25	Constructed Record Issue	AP	EW
C04	22/10/25	SVP location added	RT	EW
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C02	25/09/25	Response to comments	RT	EW
C01	28/08/25	Construction Issue	RT	EW

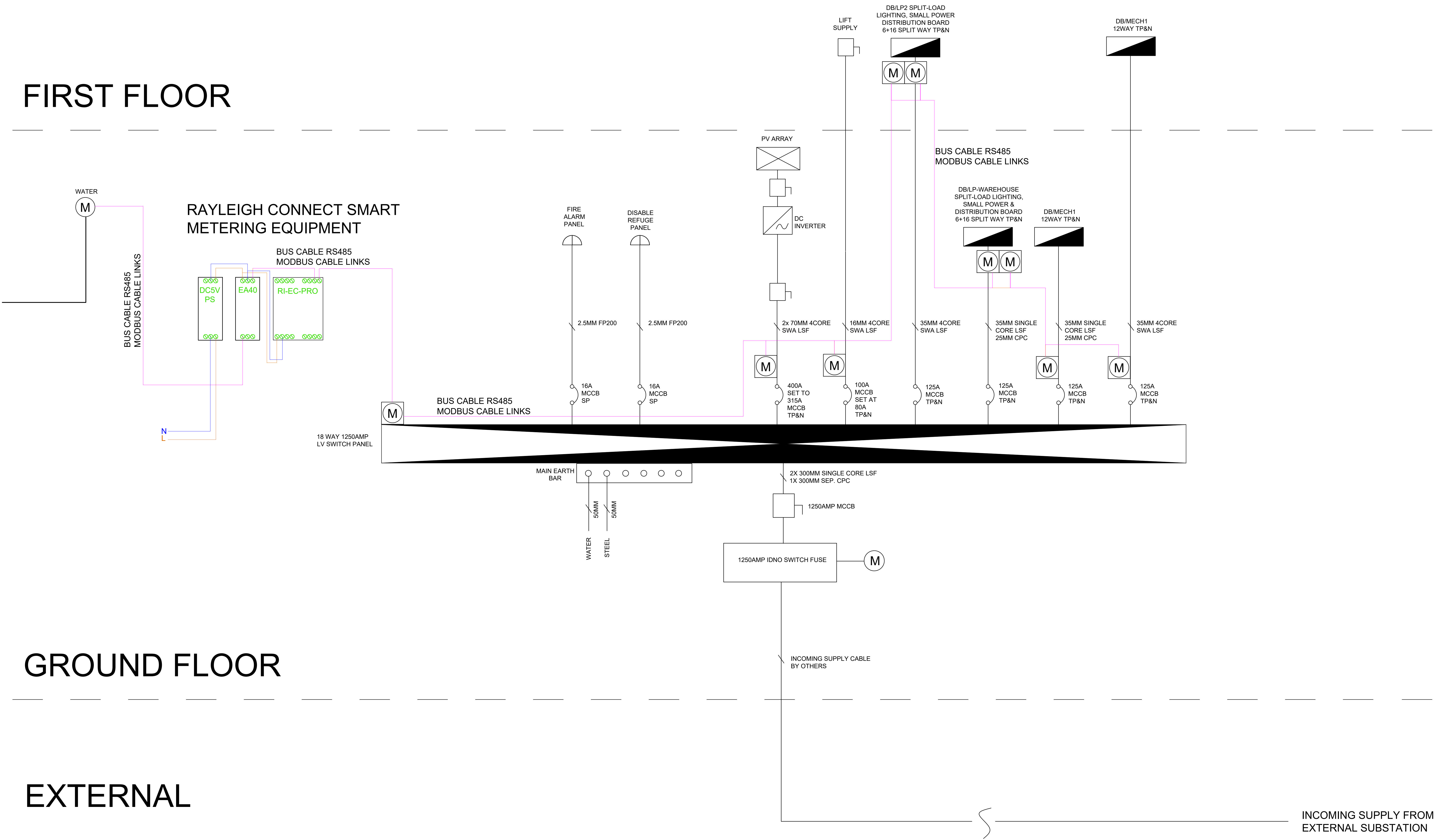
Drawing Status:
CONSTRUCTED RECORD

DELTA HOUSE group
10 James Whatman Court, Turkey Mill, Maidstone, Kent. ME14 5SS
Tel 0845 62 11 295 info@delta-house.co.uk
Fax 0845 62 11 296 www.delta-house.co.uk

Client: Glencar	Architect: ---	Consultant:
Project: Valor Park	Title: HVAC & DWS Layout Unit 2	
Drawn EW	Checked CS	Date 27-Nov-25
Contract No: 7486	Scale 1:50 @A1	Revision
Drawing Number G1222-DEL-U2-ZZ-DR-M-00001	Revision CR01	

APPENDIX C METERING SCHEMATIC

FIRST FLOOR



GROUND FLOOR

EXTERNAL

CR01	CONSTRUCTION RECORD	01-12-25	TJ	DC
rev.	description	date	drawn	approved
information	approval	tender	record	construction

CONSTRUCTION RECORD

client
Glencar

12 MARK ROAD
HEMEL HEMPSTEAD
HERTS
HP2 7BN

TEL:
01442 878325

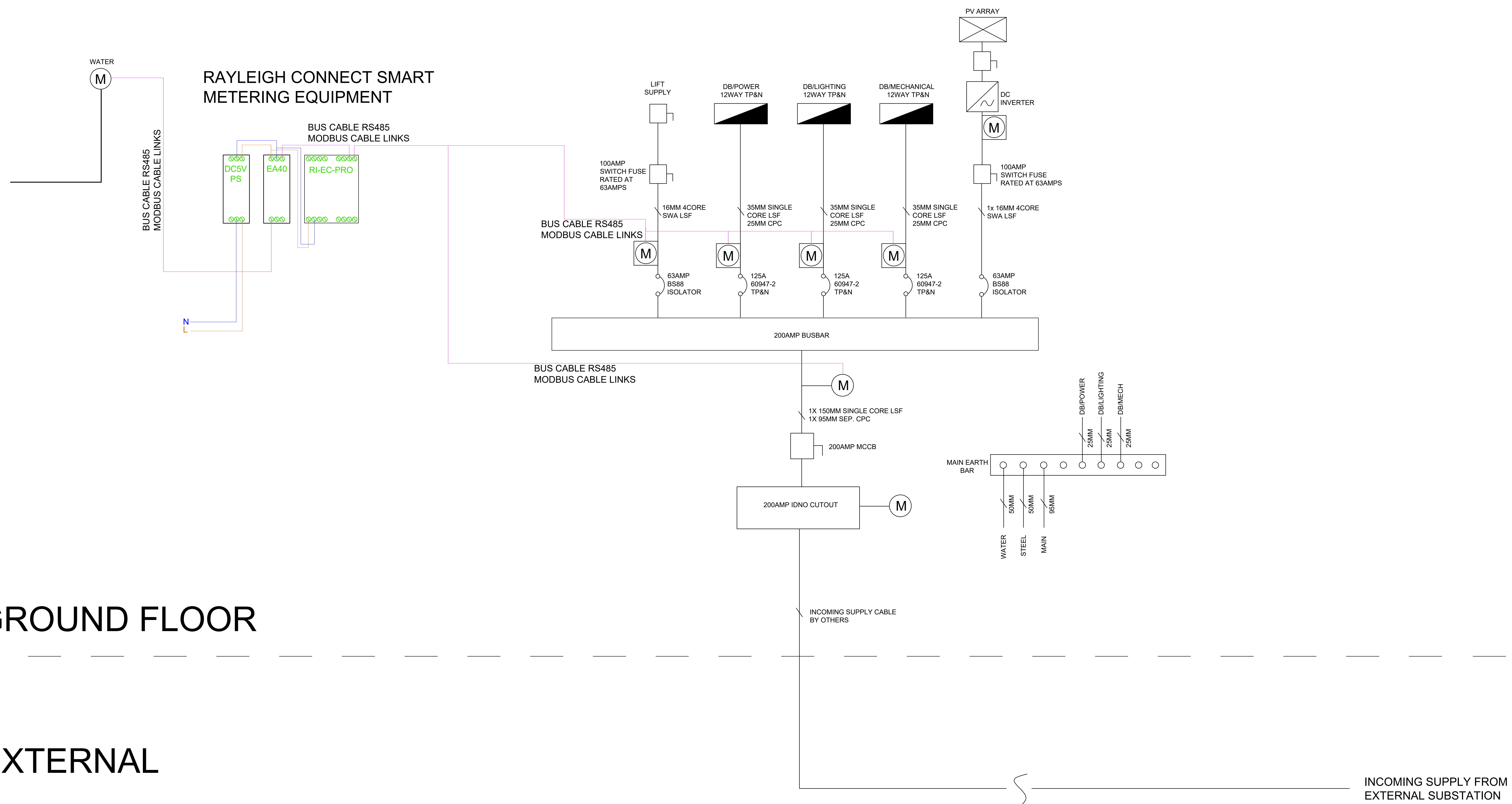


project
VALOR
TOTTNEHAM
WEST ROAD

drawing
UNIT 1
UPS SETTING OUT

drawn TJ	approved DC	date 01/12/2025	scale RTD
drawing ref. G1222-ABL-U1-XX-DR-E-00016	REVISION CR01	STATUS CR	

FIRST FLOOR



GROUND FLOOR

EXTERNAL

CR01	CONSTRUCTION RECORD	01-12-25	TJ	DC
rev.	description	date	drawn	approved
information ☐	approval ☐	tender ☐	record ☒	construction ☐

CONSTRUCTION RECORD

client



12 MARK ROAD
HEMEL HEMPSTEAD
HERTS
HP2 7BN

TEL:
01442 878325



project
VALOR
TOTTNEHAM
WEST ROAD

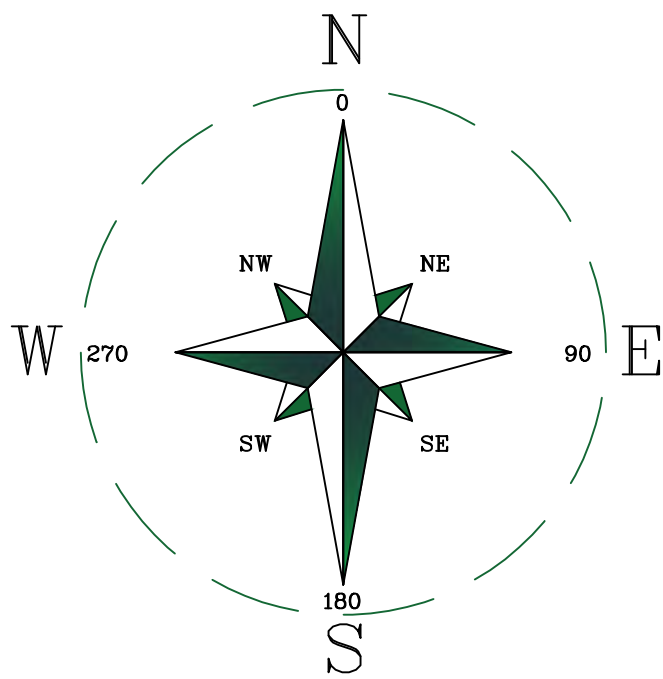
drawing

UNIT 2
UPS SETTING OUT

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drawing ref. G1222-ABL-U2-XX-DR-E-00017			REVISION CR01
			STATUS CR

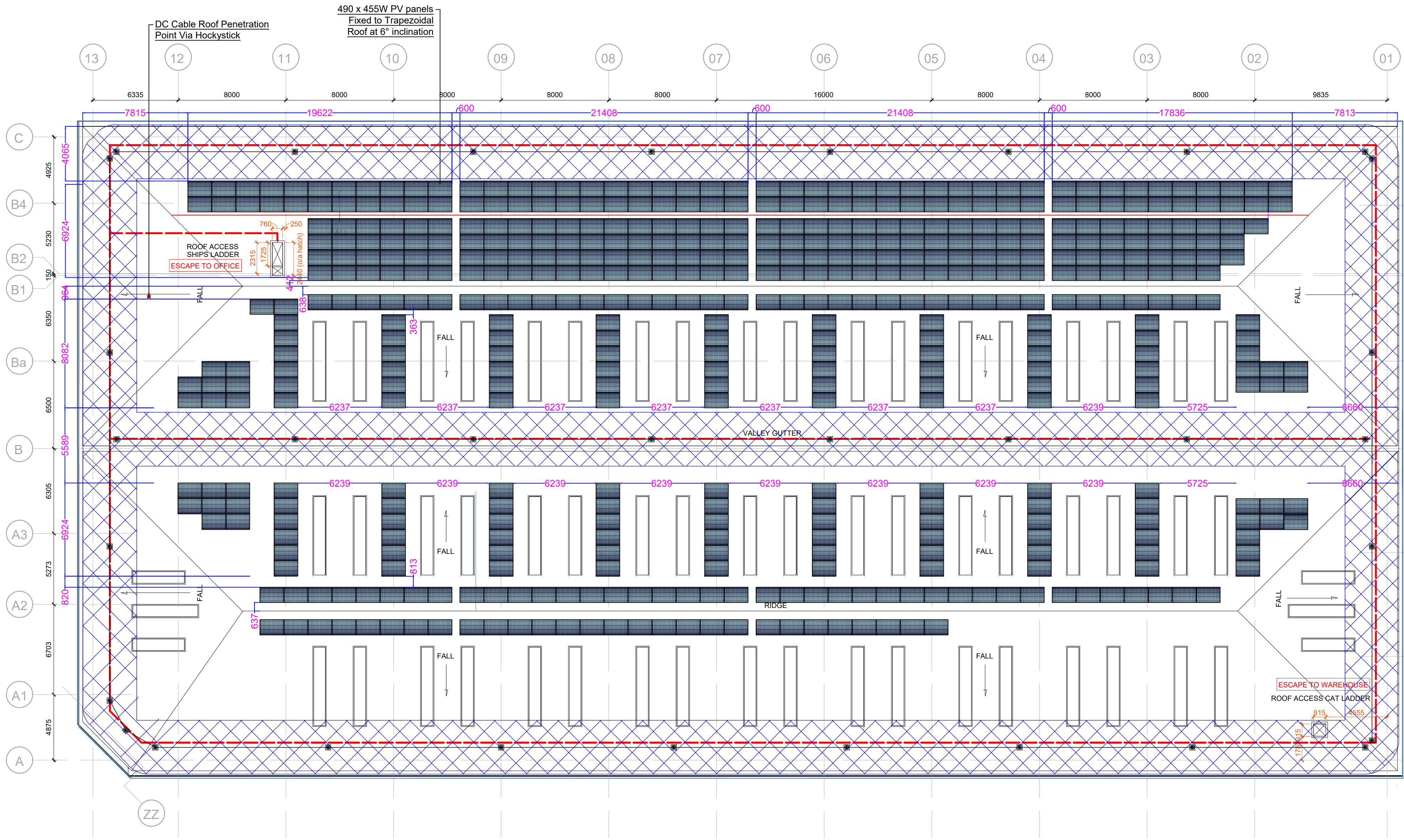
drawing ref.	REVISION	STATUS
G1222-ABL-U2-XX-DR-E-00017	CR01	CR

APPENDIX D PV LAYOUTS



envirolec smart energy solutions

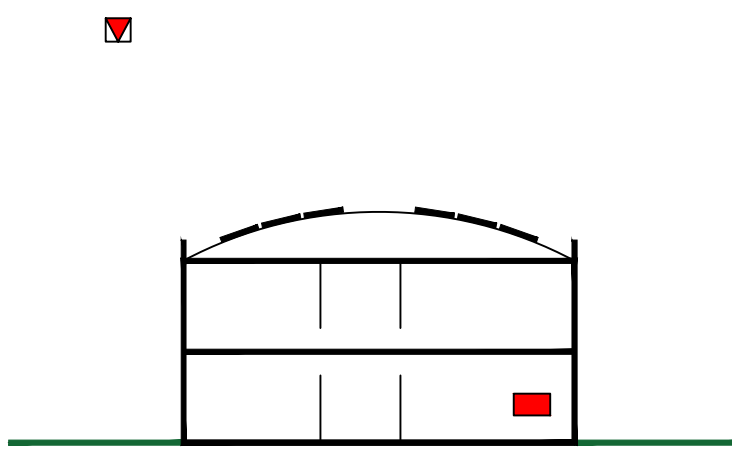
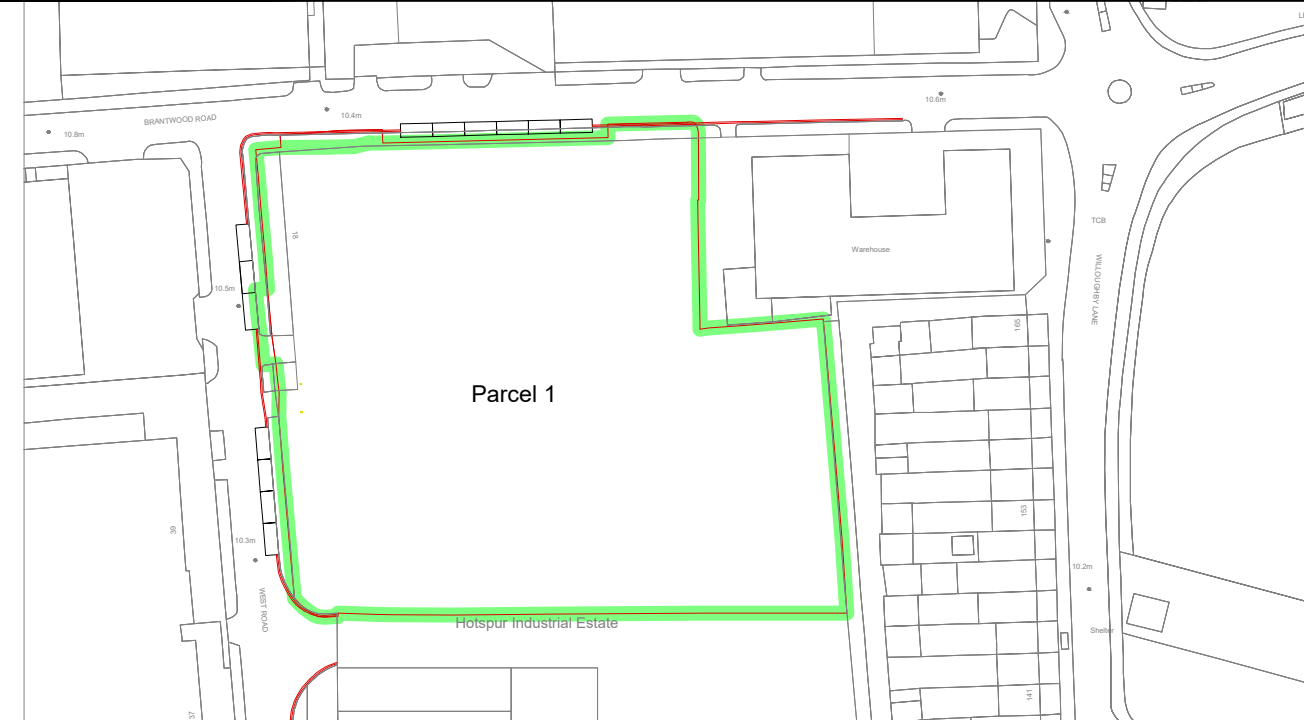
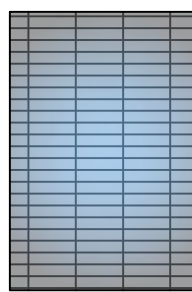
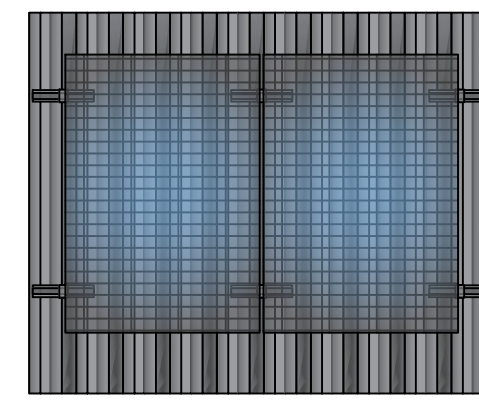
envirolec smart energy solutions

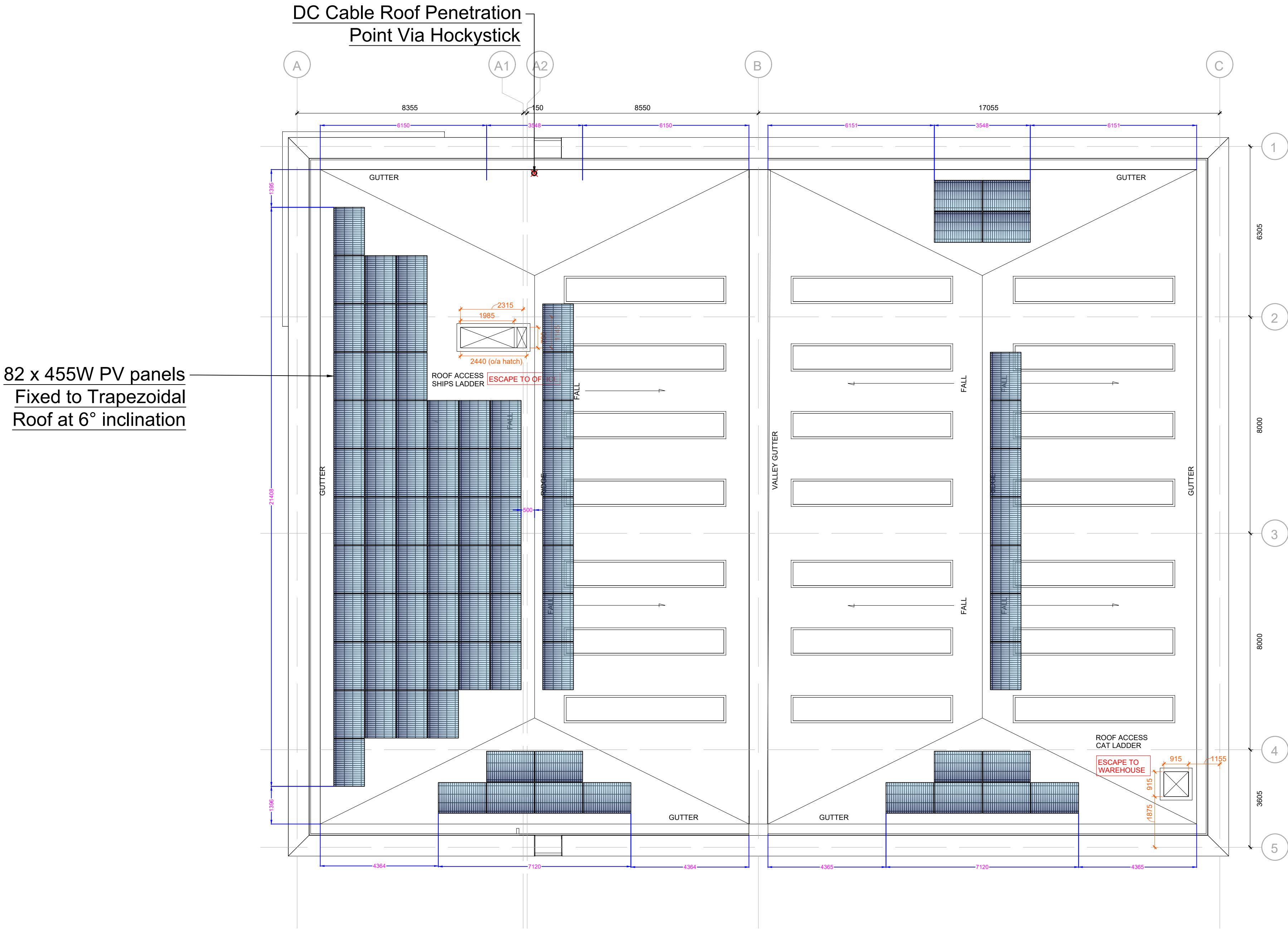
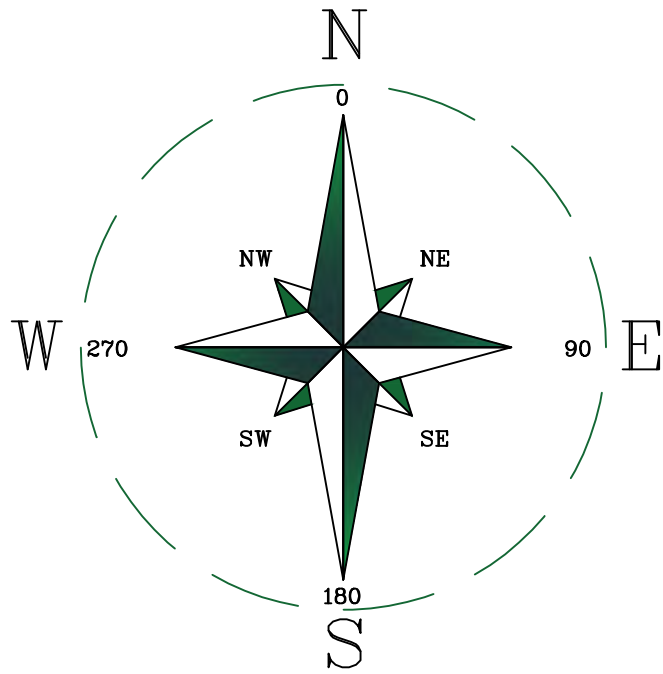


- AB - updated as built
- C04 - adjusted cable entry location
- C03 - panel quantity increase to meet 260kWp total target
- C02 - panel model updated to 455W and qty reduced
- C01 - no changes - issued for construction
- P02 - revised drawing based on new access hatches

AB	27/11/25	OL	AS BUILT
C04	23/10/25	OL	CONSTRUCTION ISSUE
C03	01/10/25	VD	CONSTRUCTION ISSUE
C02	22/09/25	OL	CONSTRUCTION ISSUE
C01	17/09/25	OL	CONSTRUCTION ISSUE
P02	12/09/25	OL	CONSTRUCTION ISSUE
P01	03/09/25	OL	CONSTRUCTION ISSUE
REV	DATE	DRAWN BY	DESCRIPTION

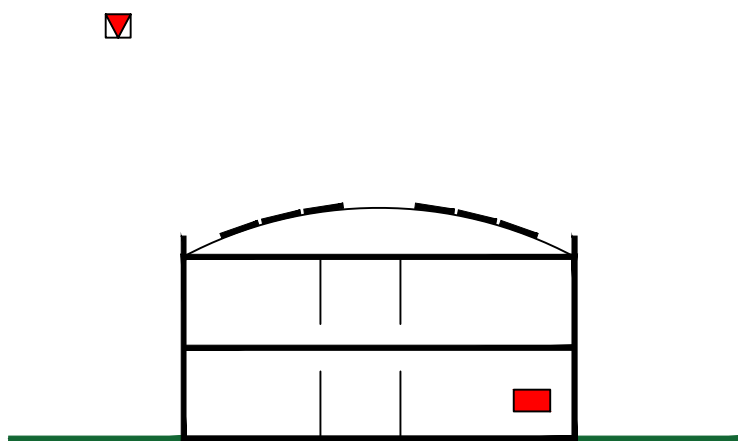
ProjectUNIT 1 VALOR PARK TOTTENHAM			
TitleG1222-ESE-U1-RF-DR-X-00001			
DescriptionSOLAR PV ROOF LAYOUT			
ScaleA1 - 1:200	Designed ByOL	Checked ByVD	DATE07/08/25
 envirolec smart energy solutions  VALOR REAL ESTATE PARTNERS Envirolec Smart Energy Solutions Unit 6, Murray Business Centre, Murray Road, Orpington BR5 3RE @envirolec-ses.co.uk			
VPT	A	Unit 1	AB
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INVERTER POSITION	SITE PLAN - NTS	ROOF TYPE & HEIGHT	THREE PHASE - PV INVERTERS	PV MODULES & MOUNTING TYPE	
 GROUND FLOOR PLANT		HEIGHT FFL: 13.5m ROOF TYPE: TRAPEZOIDAL	1 x SolarEdge SE100K 1 x SolarEdge SE50K 247 x P850 (2:1)	490 PV PANELS	30 ARCBOXES
			Inverter Installed : In Plant room on Ground floor	 SOLARWATT (1762 X 1134 X 35) 24.8KG 455W	 MOUNTING SYSTEM RENUSOL TRAPEZOIDAL



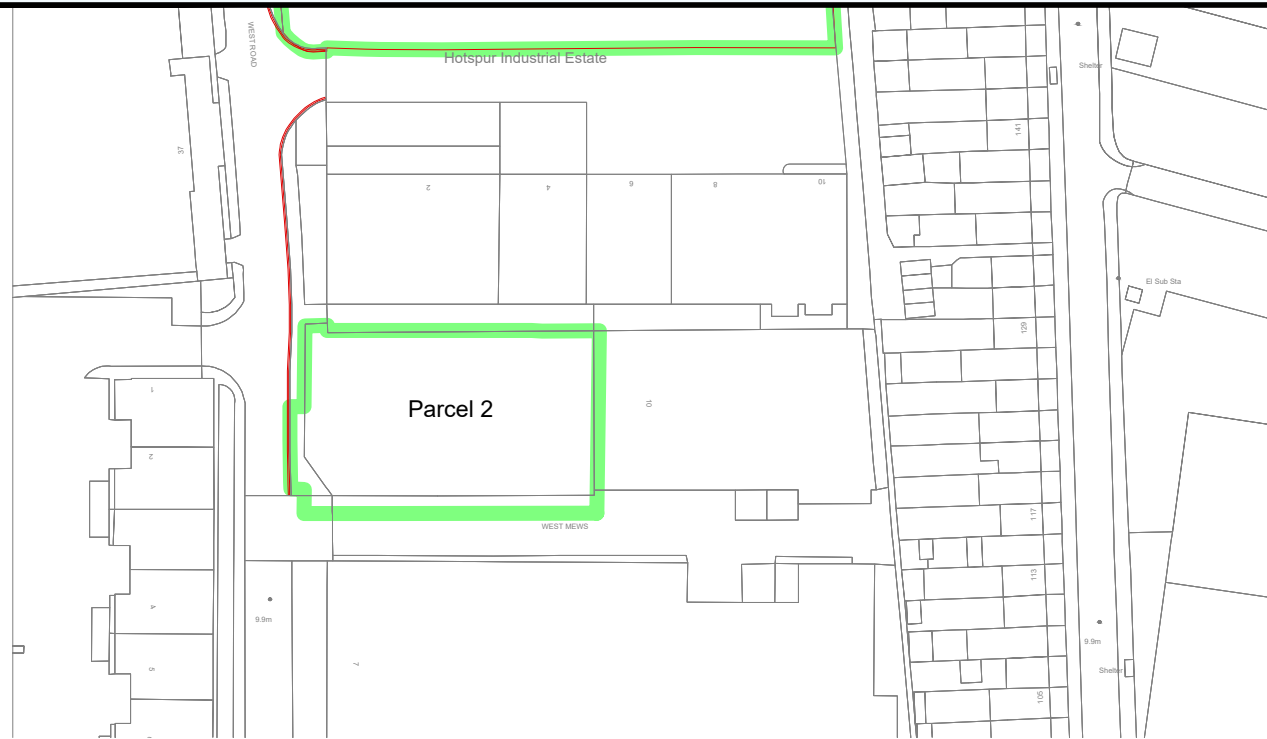
- CR - updated as built
C03 - adjusted cable entry position
C02 - panel model updated to 455W and qty reduced
C01 - no changes - issued for construction
P02 - revised drawing based on new access hatches

INVERTER POSITION



GROUND
FLOOR PLANT

SITE PLAN - NTS



ROOF TYPE & HEIGHT

HEIGHT FFL: 11.5m
ROOF TYPE: TRAPEZOIDAL

THREE PHASE - PV INVERTERS

1 x SolarEdge SE30K
42 x S1000 (2:1)

Inverter Installed : In Plant
room on Ground floor

PV MODULES & MOUNTING TYPE

82 PV PANELS

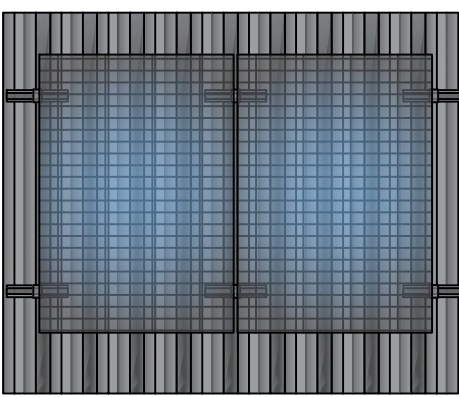


SOLARWATT
(1762 X 1134 X 35)
24.8KG
455W

4 ARCBOWES



MOUNTING SYSTEM
RENUSOL TRAPEZOIDAL



CR	27/11/25	OL	AS BUILT
C03	23/10/25	OL	CONSTRUCTION ISSUE
C02	22/09/25	OL	CONSTRUCTION ISSUE
C01	17/09/25	OL	CONSTRUCTION ISSUE
P02	12/09/25	OL	CONSTRUCTION ISSUE
P01	03/09/25	OL	CONSTRUCTION ISSUE
REV	DATE	DRAWN BY	DESCRIPTION

Project UNIT 2 VALOR PARK TOTTENHAM			
Title G1222-ESE-U2-RF-DR-X-00001			
Description SOLAR PV ROOF LAYOUT			
Scale A1 - 1:100	Designed By OL	Checked By VD	DATE 03/09/25
 envirolec smart energy solutions  REAL ESTATE PARTNERS Envirolec Smart Energy Solutions Unit 6, Murray Business Centre, Murray Road, Orpington BR5 3RE @envirolec-ses.co.uk			
VPT	A	Unit 2	CR
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