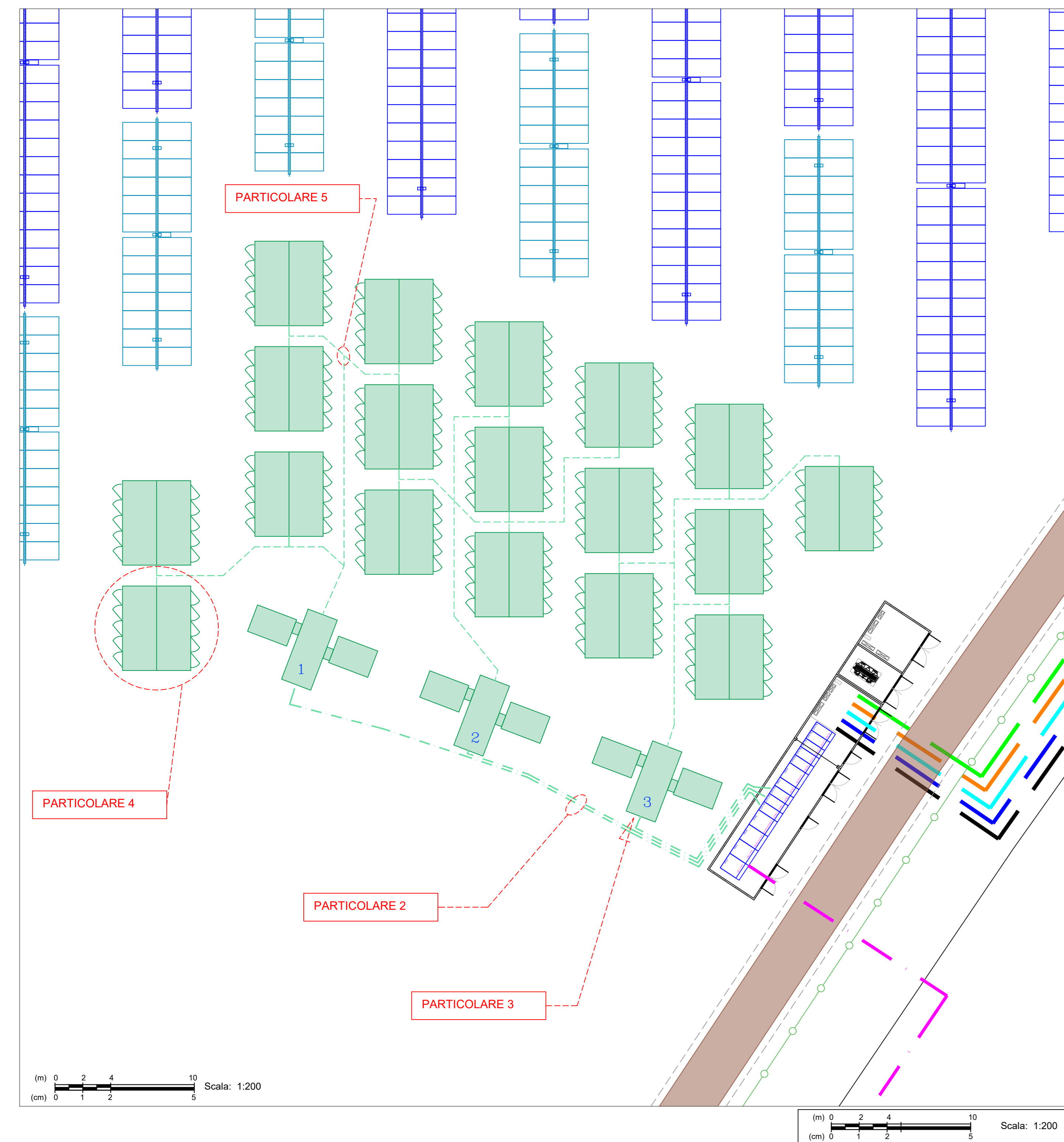
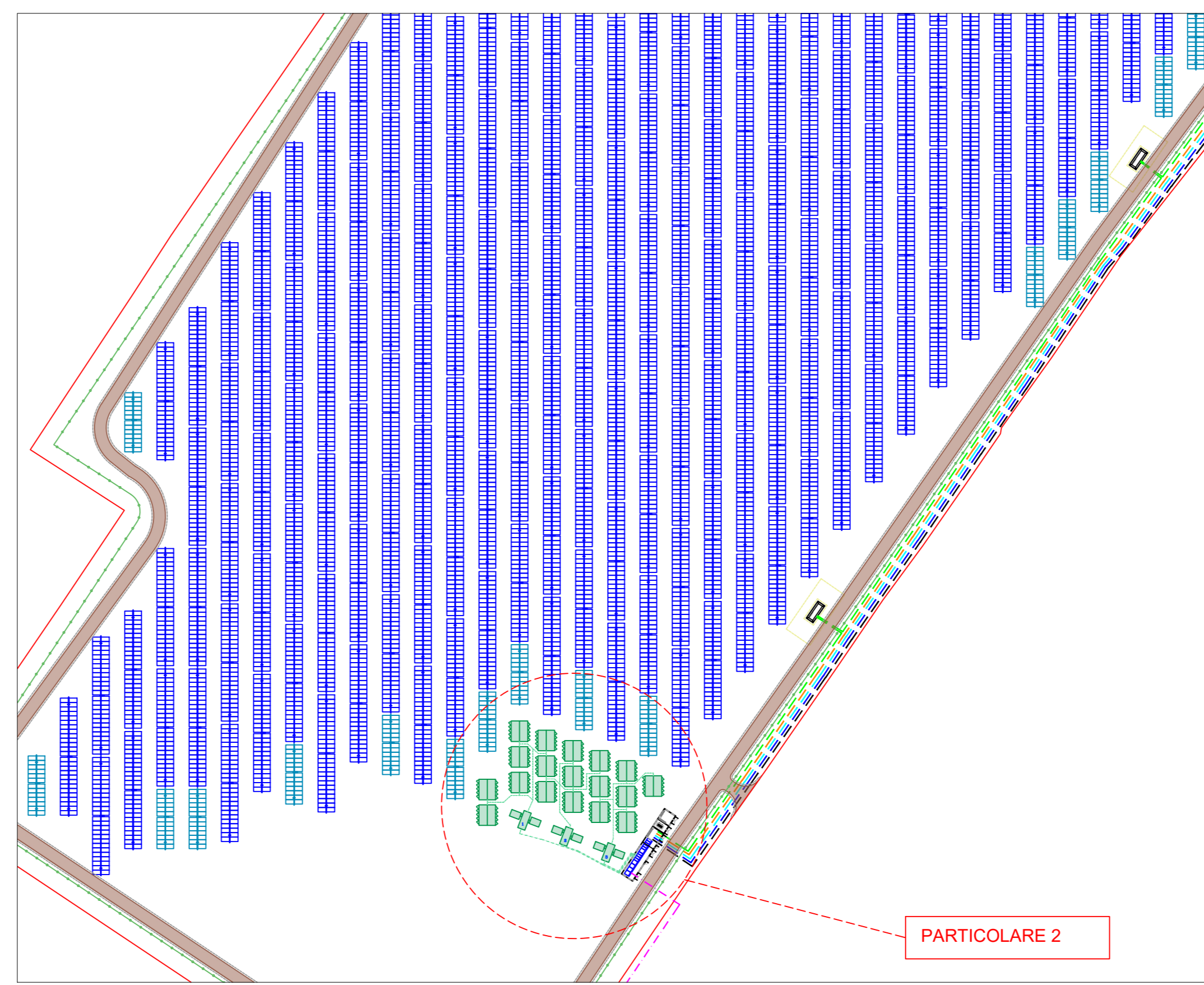


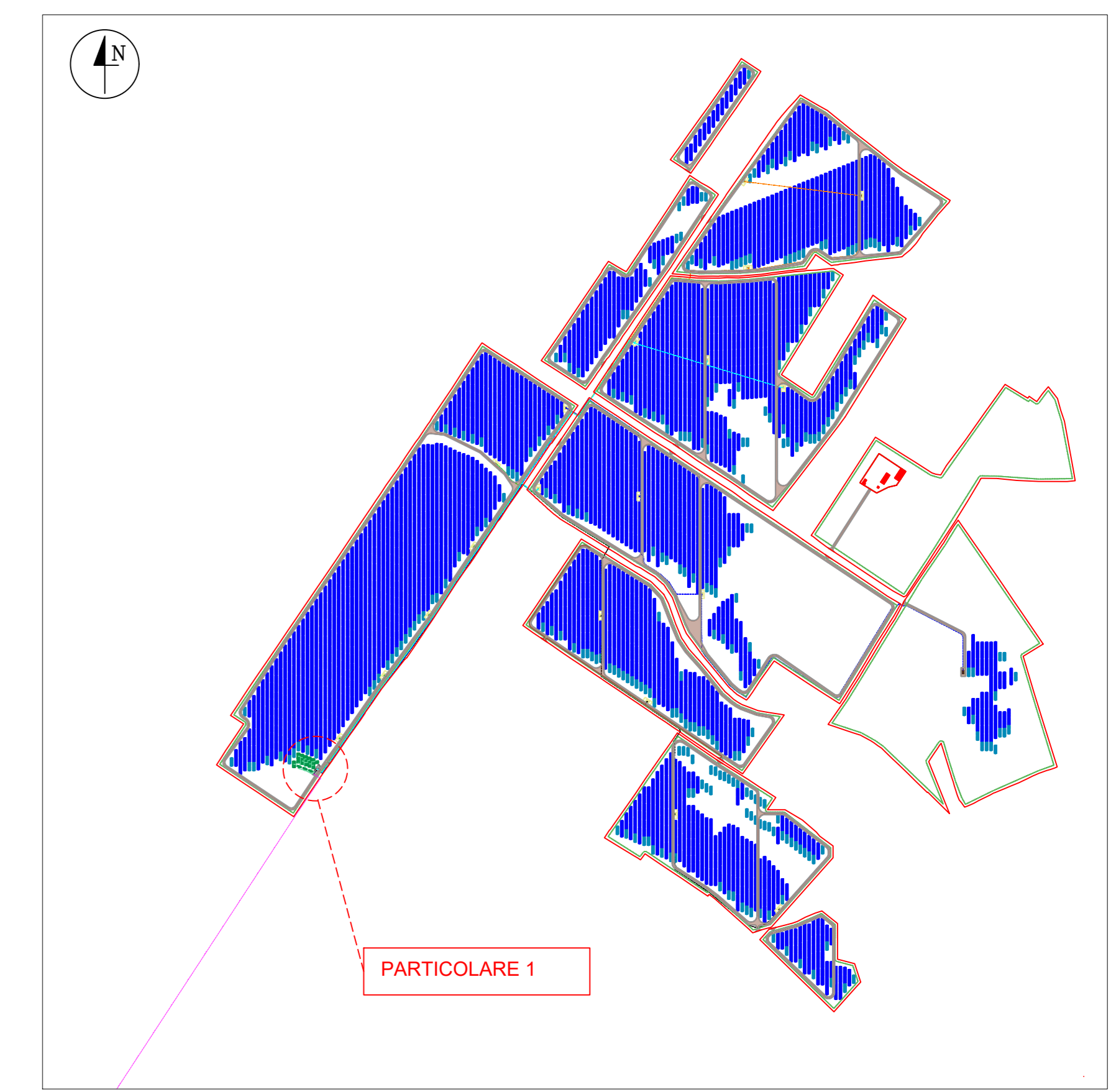
PARTICOLARE 2: DISPOSIZIONE COMPONENTI PER IMPIANTO STORAGE (BESS)



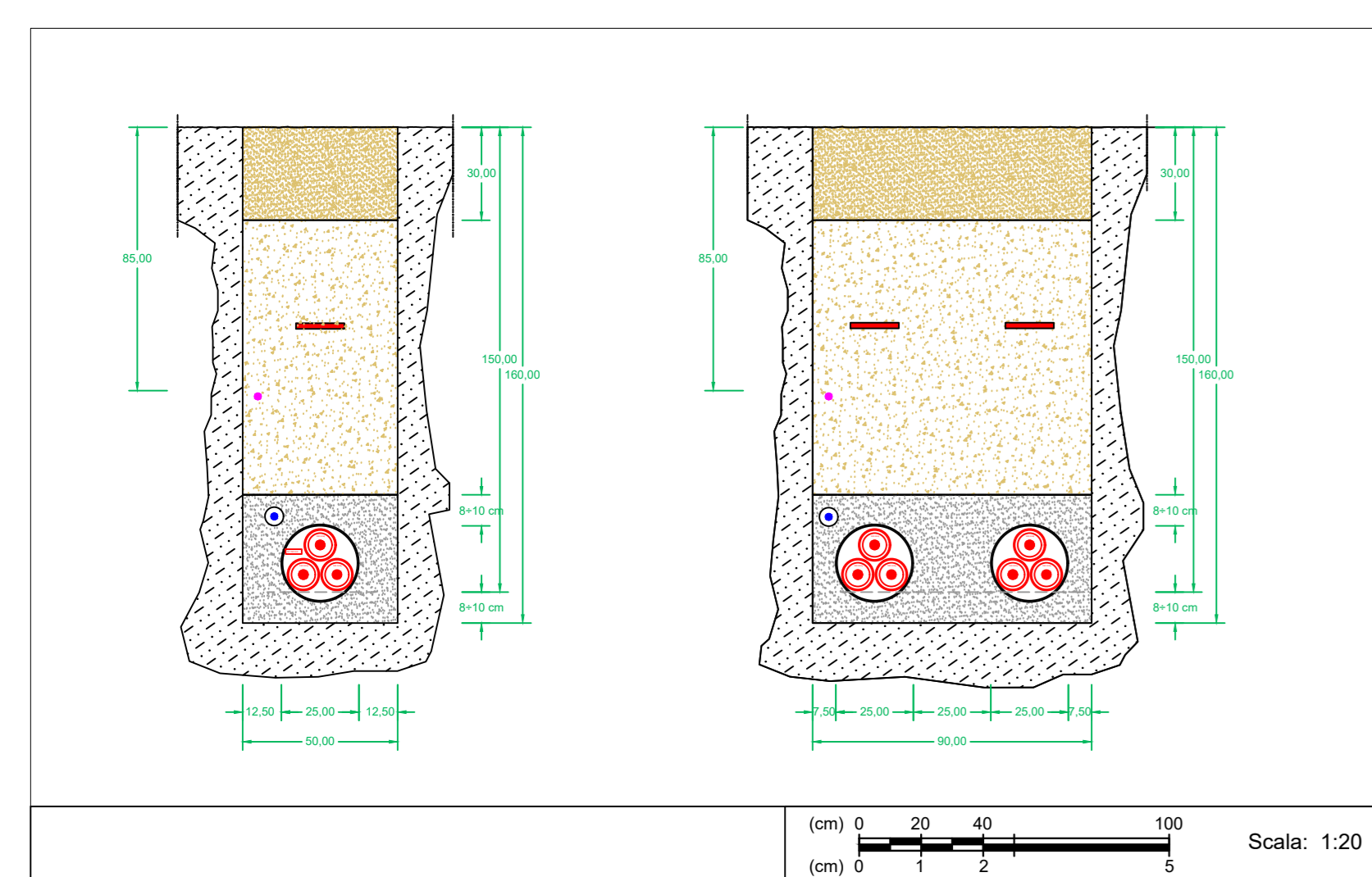
PARTICOLARE 1: AREA IMPIANTO STORAGE (BESS)



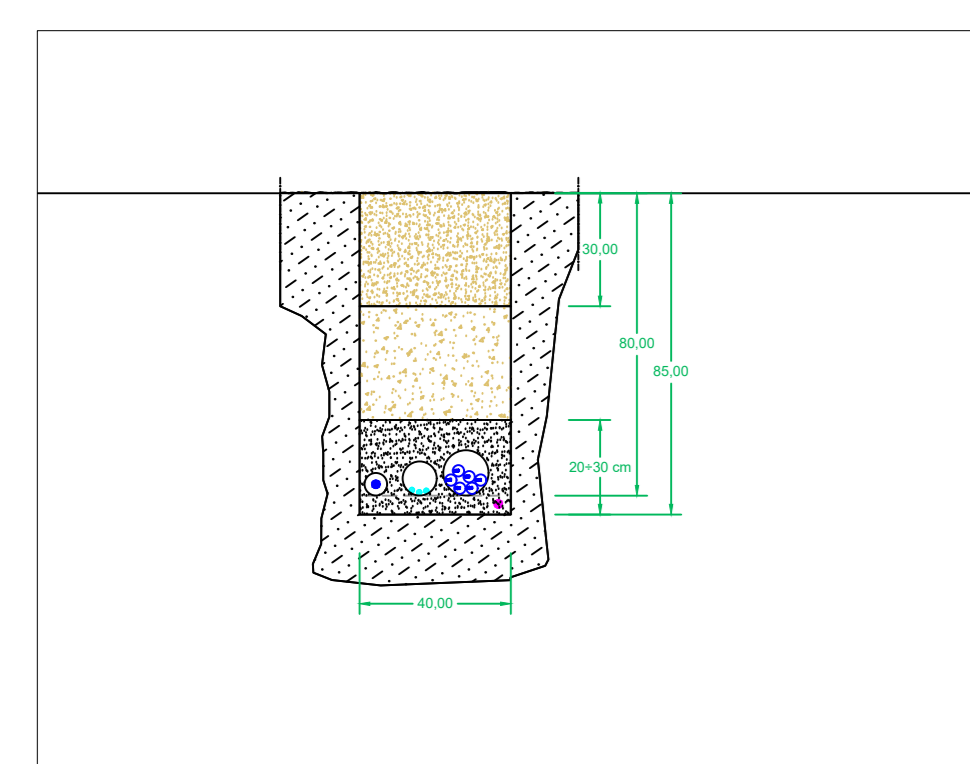
LAYOUT DELL'IMPIANTO FV



PARTICOLARE 2: SEZIONE SCAVO AT

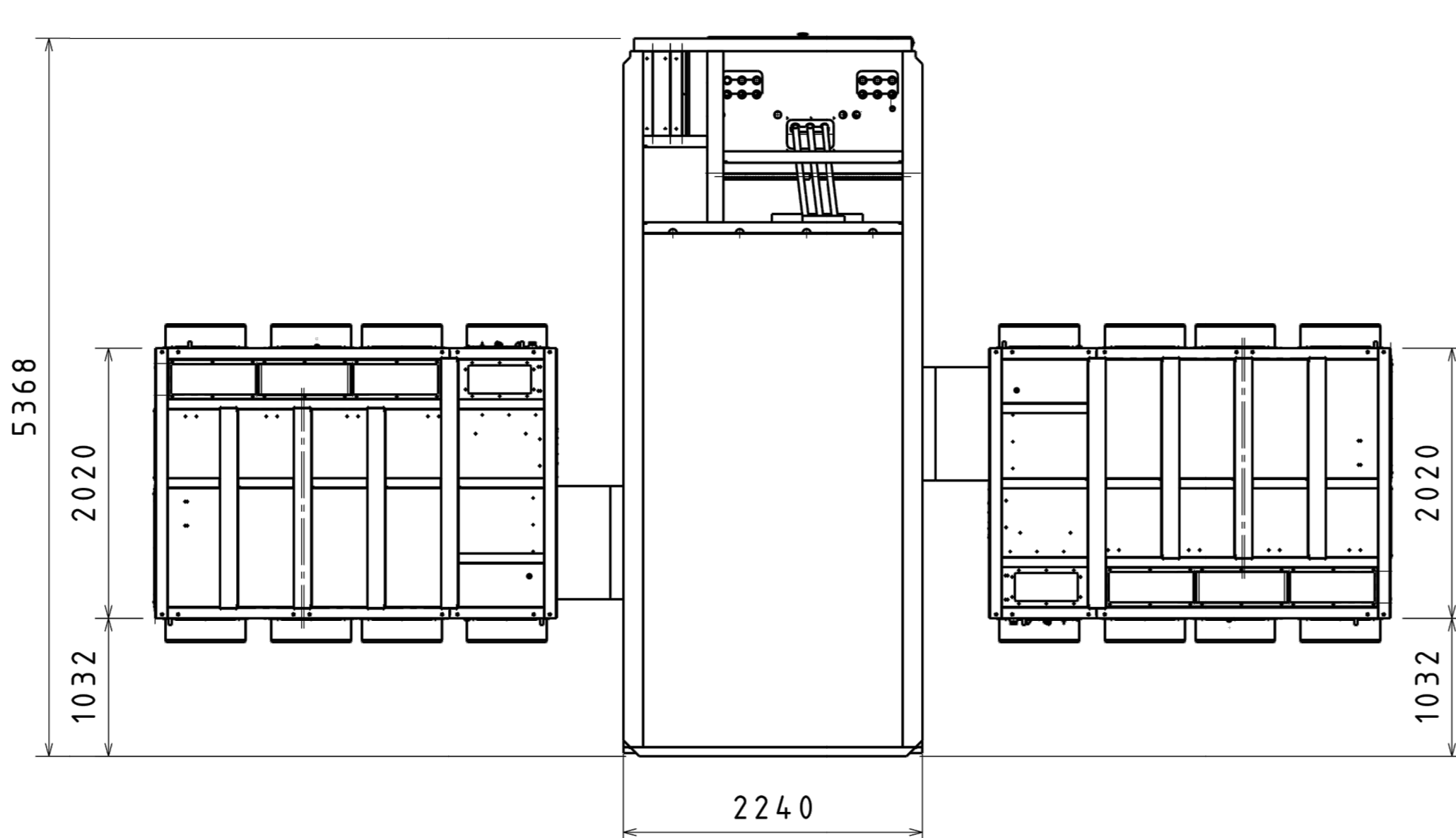


PARTICOLARE 5: SEZIONE SCAVO BT

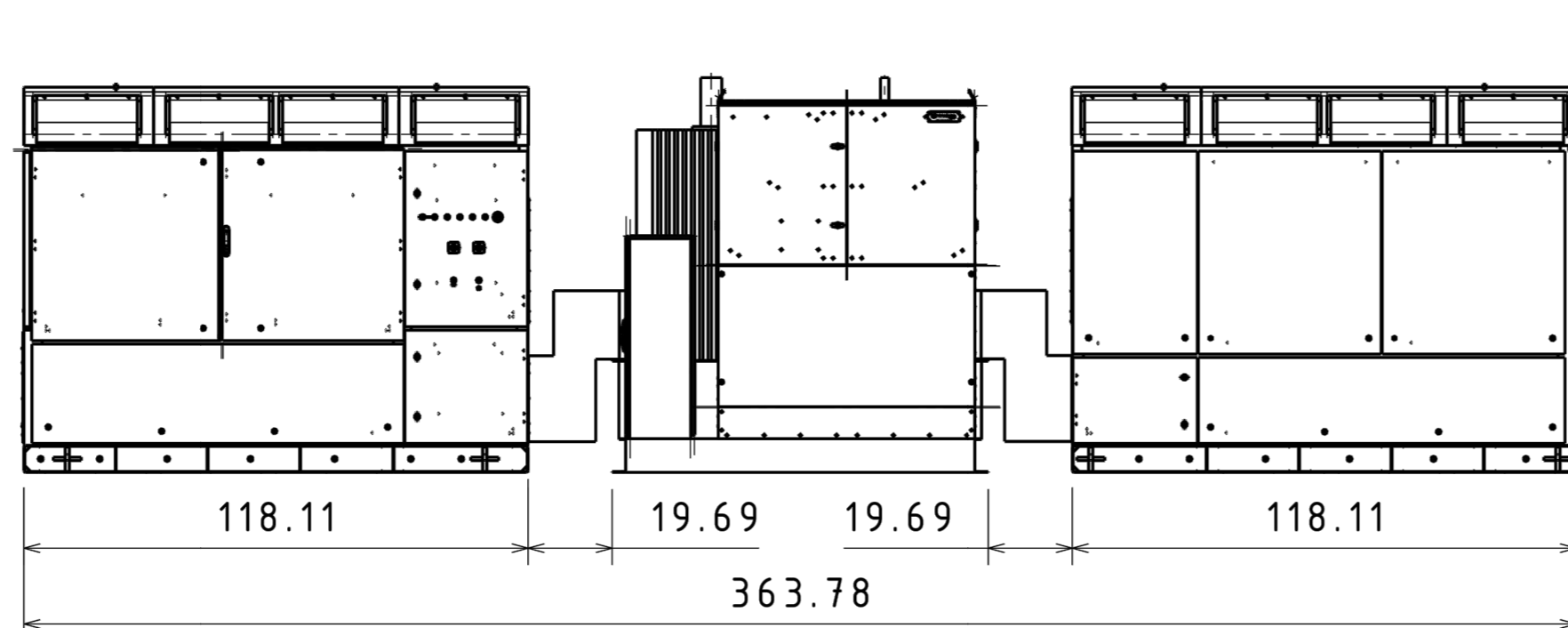


● Treccia di rame nudo da 25 mmq

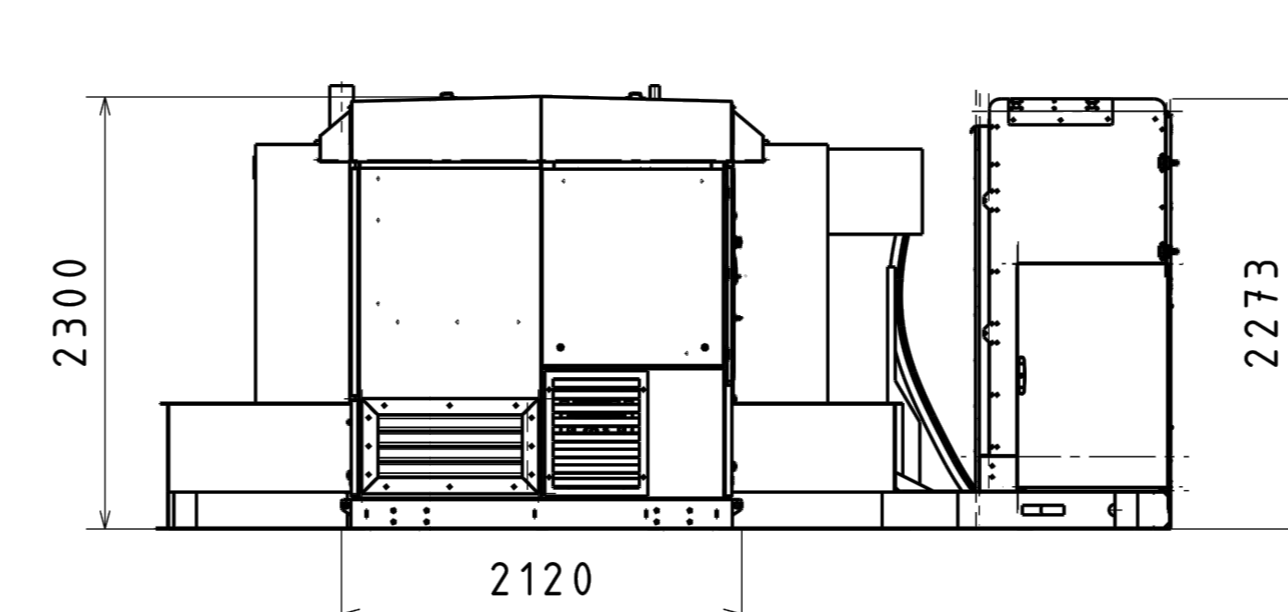
GRUPPO INVERTER + TRAFI BT/AT:
Vista dal basso



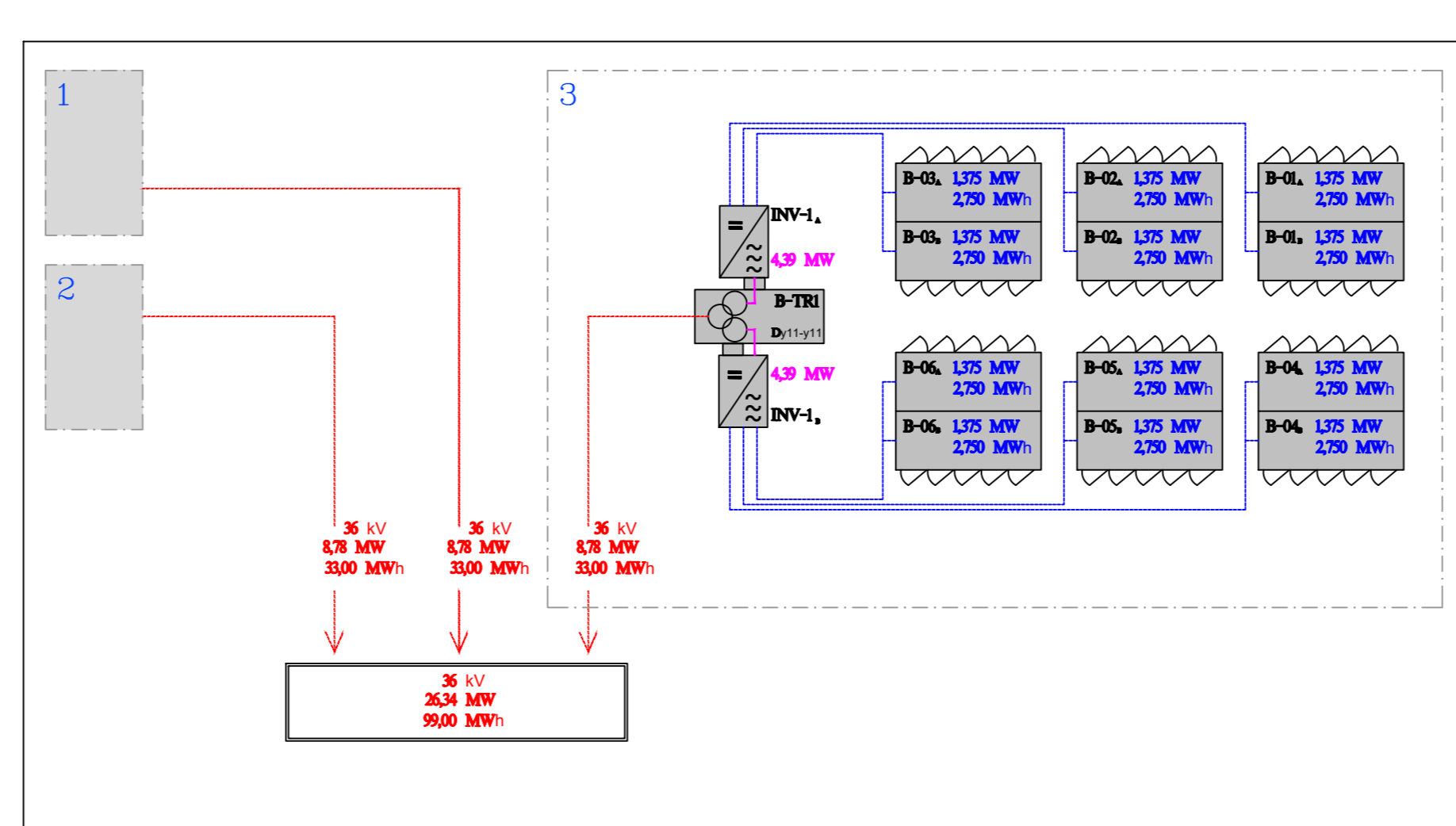
Vista frontale



Vista laterale



SCHEMA DI COLLEGAMENTO DEL SISTEMA DI ACCUMULO (x 3)



PARTICOLARE 3: GRUPPO INVERTER + TRAFI BT/AT

TECHNICAL CHARACTERISTICS		FREEMAQ MULTI PCSK 690V	
REFERENCES	FRAME 2	FRAME 4	FRAME 6
AC Output Power (max/AVG) @40°C	2100	4100	6100
AC Output Power (max/AVG) @50°C	2000	4000	6000
Max. AC Output Current (I _{AC}) @40°C	1800	3600	5400
Operating DC Voltage (V _{DC})	690V ±5%		
Operating DC Frequency (Hz)	50/60 Hz		
Current Harmonic Distortion (THD)	≤ 5% @ 0.9 PF		
Power Factor (cosφ) @50°C	0.99 leading, 0.99 lagging		
Regulation speed compensation	Fixed speed operation		
DC Voltage Range	570V - 1500V		
Maximum DC Voltage	1500V		
DC Voltage Rise Rate	1%		
Number of separate DC inputs	2	1	4
Battery Technology	All type of batteries (BMS required)		
Efficiency @ 100% load	99.45%	99.45%	99.45%
Efficiency @ 50% load	99.45%	99.45%	99.45%
Min. Power Consumption (Watt) (preminim)	0		
Dimensions (mm) (H x W x D)	1910 x 610 x 710		
Weight (kg) (preminim)	1140	1210	1210
Weight (kg) (preminim)	5200	5500	5500
IP	IP20 (front cooling)		
Environment	Indoor use		
Relative Humidity	30% to 95% (non-condensing)		
Max. Altitude (above sea level)	2000m / +2000m power derating (Max. +4000m)		
Vibration level	≤ 2.5 G		
Control Interface	Communication protocol	Modbus TCP	
Power Panel Controller	Optional	Third party SCADA systems supported	
Key-Off Switch	Optional	Safety	
Control Panel Protection	Inverter monitoring, Safety		
Humidity Control	Active-heating		
General AC Protection & Diagnostics	Circuit Breaker		
General AC Protection & Diagnostics	DC Switcher		
Overvoltage Protection	AC and DC protection (Type 2)		
Safety	UL 1741, IEC 62109-1, IEC 62109-2, IEC 62109-3, IEC 62109-4, IEC 62109-5, IEC 62109-6, IEC 62109-7, IEC 62109-8, IEC 62109-9, IEC 62109-10, IEC 62109-11, IEC 62109-12, IEC 62109-13, IEC 62109-14, IEC 62109-15, IEC 62109-16, IEC 62109-17, IEC 62109-18, IEC 62109-19, IEC 62109-20, IEC 62109-21, IEC 62109-22, IEC 62109-23, IEC 62109-24, IEC 62109-25, IEC 62109-26, IEC 62109-27, IEC 62109-28, IEC 62109-29, IEC 62109-30, IEC 62109-31, IEC 62109-32, IEC 62109-33, IEC 62109-34, IEC 62109-35, IEC 62109-36, IEC 62109-37, IEC 62109-38, IEC 62109-39, IEC 62109-40, IEC 62109-41, IEC 62109-42, IEC 62109-43, IEC 62109-44, IEC 62109-45, IEC 62109-46, IEC 62109-47, IEC 62109-48, IEC 62109-49, IEC 62109-50, IEC 62109-51, IEC 62109-52, IEC 62109-53, IEC 62109-54, IEC 62109-55, IEC 62109-56, IEC 62109-57, IEC 62109-58, IEC 62109-59, IEC 62109-60, IEC 62109-61, IEC 62109-62, IEC 62109-63, IEC 62109-64, IEC 62109-65, IEC 62109-66, IEC 62109-67, IEC 62109-68, IEC 62109-69, IEC 62109-70, IEC 62109-71, IEC 62109-72, IEC 62109-73, IEC 62109-74, IEC 62109-75, IEC 62109-76, IEC 62109-77, IEC 62109-78, IEC 62109-79, IEC 62109-80, IEC 62109-81, IEC 62109-82, IEC 62109-83, IEC 62109-84, IEC 62109-85, IEC 62109-86, IEC 62109-87, IEC 62109-88, IEC 62109-89, IEC 62109-90, IEC 62109-91, IEC 62109-92, IEC 62109-93, IEC 62109-94, IEC 62109-95, IEC 62109-96, IEC 62109-97, IEC 62109-98, IEC 62109-99, IEC 62109-100		
CERTIFICATIONS	UL 1741, IEC 62109-1, IEC 62109-2, IEC 62109-3, IEC 62109-4, IEC 62109-5, IEC 62109-6, IEC 62109-7, IEC 62109-8, IEC 62109-9, IEC 62109-10, IEC 62109-11, IEC 62109-12, IEC 62109-13, IEC 62109-14, IEC 62109-15, IEC 62109-16, IEC 62109-17, IEC 62109-18, IEC 62109-19, IEC 62109-20, IEC 62109-21, IEC 62109-22, IEC 62109-23, IEC 62109-24, IEC 62109-25, IEC 62109-26, IEC 62109-27, IEC 62109-28, IEC 62109-29, IEC 62109-30, IEC 62109-31, IEC 62109-32, IEC 62109-33, IEC 62109-34, IEC 62109-35, IEC 62109-36, IEC 62109-37, IEC 62109-38, IEC 62109-39, IEC 62109-40, IEC 62109-41, IEC 62109-42, IEC 62109-43, IEC 62109-44, IEC 62109-45, IEC 62109-46, IEC 62109-47, IEC 62109-48, IEC 62109-49, IEC 62109-50, IEC 62109-51, IEC 62109-52, IEC 62109-53, IEC 62109-54, IEC 62109-55, IEC 62109-56, IEC 62109-57, IEC 62109-58, IEC 62109-59, IEC 62109-60, IEC 62109-61, IEC 62109-62, IEC 62109-63, IEC 62109-64, IEC 62109-65, IEC 62109-66, IEC 62109-67, IEC 62109-68, IEC 62109-69, IEC 62109-70, IEC 62109-71, IEC 62109-72, IEC 62109-73, IEC 62109-74, IEC 62109-75, IEC 62109-76, IEC 62109-77, IEC 62109-78, IEC 62109-79, IEC 62109-80, IEC 62109-81, IEC 62109-82, IEC 62109-83, IEC 62109-84, IEC 62109-85, IEC 62109-86, IEC 62109-87, IEC 62109-88, IEC 62109-89, IEC 62109-90, IEC 62109-91, IEC 62109-92, IEC 62109-93, IEC 62109-94, IEC 62109-95, IEC 62109-96, IEC 62109-97, IEC 62109-98, IEC 62109-99, IEC 62109-100		

PARTICOLARE 4: CONTAINER BATTERIE

TECHNICAL CHARACTERISTICS		TWIN SKID COMPACT	
STATUS	Power range @ 40°C	3800 kVA - 8700 kVA	
STATUS	Power range @ 50°C	3500 kVA - 8100 kVA	
MAXIMUM VOLTAGE EQUIPMENT	Max. AC Voltage	6.9 kV / 11 kV / 13.2 kV / 15 kV / 17 kV / 19 kV / 21 kV / 23 kV / 25 kV / 27 kV / 29 kV / 31 kV / 33 kV / 35 kV	
MAXIMUM VOLTAGE EQUIPMENT	DC Voltage range	600 V / 815 V / 850 V / 900 V / 950 V / 1000 V	
MAXIMUM VOLTAGE EQUIPMENT	Transformer cooling	ONAN	
MAXIMUM VOLTAGE EQUIPMENT	Transformer oil	Castrol	
MAXIMUM VOLTAGE EQUIPMENT	Transformer protection	Protection relay for overvoltage, temperature, low level and gasing.	
MAXIMUM VOLTAGE EQUIPMENT	Transformer oil level	PT 100 sensor.	
MAXIMUM VOLTAGE EQUIPMENT	Transformer oil level	IEC standard or IEC Tier 2.	
MAXIMUM VOLTAGE EQUIPMENT	Oil detection level	Calibrated level, integrated with hydrocarbon filter. Optional.	
MAXIMUM VOLTAGE EQUIPMENT	Switchgear configuration	CSM6 (Type 1)	
MAXIMUM VOLTAGE EQUIPMENT	Switchgear protection	Circuit breaker (V)	
MAXIMUM VOLTAGE EQUIPMENT	Switchgear control	CSM6	
MAXIMUM VOLTAGE EQUIPMENT	Switchgear IEC 78	AFL 18A 1.6	
MAXIMUM VOLTAGE EQUIPMENT	LV/MV connections	Close coupled (cable, plug & play)	
MAXIMUM VOLTAGE EQUIPMENT	IP protection	Minimum circuit breaker protection in the inverter	
MAXIMUM VOLTAGE EQUIPMENT	IP AC rating	IP20 (front cooling)	
MAXIMUM VOLTAGE EQUIPMENT	Maximum temperature range	IP20 (front cooling)	
MAXIMUM VOLTAGE EQUIPMENT	Maximum altitude (above sea level)	Up to 1000 m	
MAXIMUM VOLTAGE EQUIPMENT	Relative humidity	30% to 95% non-condensing	
MAXIMUM VOLTAGE EQUIPMENT	Overpower ready option	5 kVA / 10 kVA / 15 kVA / 20 kVA / 25 kVA / 30 kVA / 35 kVA / 40 kVA / 45 kVA / 50 kVA (integrated in the inverter)	
MAXIMUM VOLTAGE EQUIPMENT	Size cabinet	Integrated in the inverter (by default). Optional: LV cabinet in the skid.	
MAXIMUM VOLTAGE EQUIPMENT	Cooling	Front cooling	
MAXIMUM VOLTAGE EQUIPMENT	Fire communication	External (fire optic or RS485)	
MAXIMUM VOLTAGE EQUIPMENT	GPS system	1 kVA/3.8 kVA (10 minutes), optional	
MAXIMUM VOLTAGE EQUIPMENT	Battery monitoring	Battery monitoring system	
MAXIMUM VOLTAGE EQUIPMENT	Pre-empting system	Transformer oil tank refilling, battery, optional	
MAXIMUM VOLTAGE EQUIPMENT	Compliance	IEC 62109-1, IEC 62109-2, IEC 62109-3, IEC 62109-4, IEC 62109-5, IEC 62109-6, IEC 62109-7, IEC 62109-8, IEC 62109-9, IEC 62109-10, IEC 62109-11, IEC 62109-12, IEC 62109-13, IEC 62109-14, IEC 62109-15, IEC 62109-16, IEC 62109-17, IEC 62109-18, IEC 62109-19, IEC 62109-20, IEC 62109-21, IEC 62109-22, IEC 62109-23, IEC 62109-24, IEC 62109-25, IEC 62109-26, IEC 62109-27, IEC 62109-28, IEC 62109-29, IEC 62109-30, IEC 62109-31, IEC 62109-32, IEC 62109-33, IEC 62109-34, IEC 62109-35, IEC 62109-36, IEC 62109-37, IEC 62109-38, IEC 62109-39, IEC 62109-40, IEC 62109-41, IEC 62109-42, IEC 62109-43, IEC 62109-44, IEC 62109-45, IEC 62109-46, IEC 62109-47, IEC 62109-48, IEC 62109-49, IEC 62109-50, IEC 62109-51, IEC 62109-52, IEC 62109-53, IEC 62109-54, IEC 62109-55, IEC 62109-56, IEC 62109-57, IEC 62109-58, IEC 62109-59, IEC 62109-60, IEC 62109-61, IEC 62109-62, IEC 62109-63, IEC 62109-64, IEC 62109-65, IEC 62109-66, IEC 62109-67, IEC 62109-68, IEC 62109-69, IEC 62109-70, IEC 62109-71, IEC 62109-72, IEC 62109-73, IEC 62109-74, IEC 62109-75, IEC 62109-76, IEC 62109-77, IEC 62109-78, IEC 62109-79, IEC 62109-80, IEC 62109-81, IEC 62109-82, IEC 62109-83, IEC 62109-84, IEC 62109-85, IEC 62109-86, IEC 62109-87, IEC 62109-88, IEC 62109-89, IEC 62109-90, IEC 62109-91, IEC 62109-92, IEC 62109-93, IEC 62109-94, IEC 62109-95, IEC 62109-96, IEC 62109-97, IEC 62109-98, IEC 62109-99, IEC 62109-100	

DATI RIASSUNTIVI DELL'IMPIANTO DI STORAGE

Potenza Totale installata:	72063,68 kWp
Potenza di Immissione in Rete (POI)	64450 kW
Storage: Potenza / Energia:	26.34 MW / 99.00 MWh
Modulo base di Accumulo:	SolBank (Canadian Solar) # 1.375 MW / 2.75 MWh Dimensioni: 6'05x8'2'438x2'896h mm - 30 t Batterie LFP - 280 Ah / 3.2 V - Config. 8x1P4145
Gruppo Inverter/Trafo:	Twin Skid Compact - 3*820 / 8780 kVA ONAN 600-690V / 6.6-36.3kV - 50/60Hz / 3F-DY11Y1
Numero di container batterie:	18 x (2x1)
Numero di gruppi Inverter/Trafo:	3

REGIONE AUTONOMA DELLA SARDEGNA
COMUNE DI VILLASOR
Provincia del Sud Sardegna (SU)

PROGETTO DEFINITIVO PER LA REALIZZAZIONE DI UN IMPIANTO AGRO-FOTOVOLTAICO DENOMINATO VILLASOR
Loc. "Su Pranu", Villasor (SU) - 09034, Sardegna, Italia
Potenza Nominale 72'063 kWp + Sistema di accumulo Potenza Nominale 26'340 kW

Coordinamento Progettisti INNOVA SERVICE S.r.l. Via Santa Margherita n. 4 - 09124 Cagliari (CA) P.IVA 03379640921, PEC: innovaservice@pec.it	Gruppo di lavoro VIA (S.I.G.E.A. S.r.l.) Dott. Geol. Luigi Macconi - Coordinamento VIA Ing. Manuela Macconi - Passaggio Dott. Arch. Roberto Capani - Fagnola Flora Vegetazione Dott. ssa Cristina Cella - Archeologia Dott. Geol. Stefano Demurtas - Geotecnica Dott. Geol. Valterio Demurtas - Georisorse
Coordinamento gruppo di lavoro VIA S.I.G.E.A. S.r.l. Via Cavallotti n. 1 - 09047 Selargius (CA) P.IVA 02099020926, PEC: sigeamacconi@pec.it	Progettazione Agronomica Agr. Stefano Azzini - Agronomo Progettazione Elettrica Ing. Silvio Matta - Ing. Elettrico
Committente - Sviluppo progetto FV: ALFA ARIETE S.r.l. Via Mercato n. 3/5 - 20121 Milano (MI) P.IVA 1185080960, PEC: alfaarietes@lammacpec.it	Altri Progettisti Ing. Luca Marmocchi - Ing. Civile - Strutture Arch. Giorgio Roberto Peroglio - Progettista Geom. Aurora Melis - Progettista
Sviluppo progetto Agricolo: Azienda Agricola Lotta Marco Michele Via Ponti sa Murta n. 21 - 09097 San Nicolò D'Arcisano (OR) P.IVA 01134970951, PEC: direzione.lotta@pec.it	Rilievo Piano-altimetrico - La SIA S.p.a. Viale Luigi Schiavonetti n. 296 - Roma (RM) P.IVA 08207411003, PEC: direzione.lasia@pec.it

Elaborato

Codice elaborato	Scala	Formato		
TAV_EL_08-STORAGE	1:200	A0		
REV.	DATA	ESEGUITO	VERIFICATO	APPROVATO
00	Luglio 2023	Ing. Silvio Matta		ALFA ARIETE S.r.l.

Note