

## EMAIL TRANSMITTAL

**REF:** 34484-5-24360-03  
**TO:** RAMBOLL AUSTRALIA Pty Ltd  
**ATTENTION:** Marc Barendrecht  
**ADDRESS:** [MBarendrecht@ramboll.com](mailto:MBarendrecht@ramboll.com)  
**FROM:** Tim Reynolds  
**DATE:** 26 May 2025  
**SUBJECT:** **KWINANA POWER STATION 2 : LOT 13 BURTON PLACE, KWINANA**  
**ACOUSTIC REVIEW FOR DESIGN**

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Marc,

As requested, we have undertaken revised noise modelling based on the design data provided by Siemens. This modelling was undertaken for following plant / exhaust configurations :

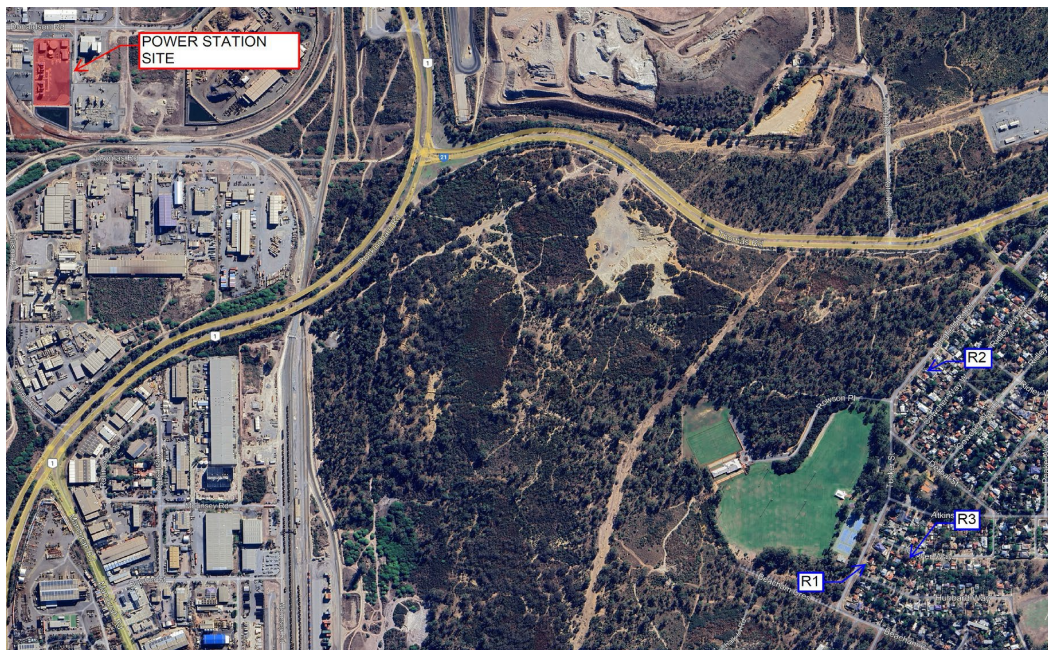
Attenuated plant and unattenuated 18.3m high exhaust stack (i.e without any silencer); and

Attenuated plant and attenuated 26.4m high exhaust stack (with silencer).

The revised noise modelling was based on the acoustic data, as per attached. For information we also attach the relevant drawings for the power station.

### ENVIRONMENTAL PROTECTION (NOISE) REGULATIONS 1997

For this development, the closest residential premises are located, as shown on Figure 1 below.



**FIGURE 1 – RECEIVER POINTS**

It is noted that Residence R1 is within 100 metres of the Kwinana United Soccer Club. Thus, for these residences within 100 metres of the lot / land on which the club is located, the Influencing Factor would be increased by an addition to the influencing Factor of +2 dB.

Given the location of the Kwinana Policy Area, those residences within approximately 220 metres of the boundary of Area B, the Influence Factor for this land being considered as commercial would be +1 dB. Outside that distance the Influencing Factor would be rounded down to 0 dB.

A plan of the Kwinana Policy Air Buffer Zone is attached in Appendix B. Based on the above, the Influencing Factors would be :

R1 - +3 dB(A).

R2 - +1 dB(A).

R3 - 0 dB(A).

Based on the above, the assigned noise levels for the periods of concern relating to this report would as listed in Tables 1 to 3.

**TABLE 1 - ASSIGNED OUTDOOR NOISE LEVEL RESIDENTIAL LOCATION R1**

Premises Receiving Noise	Time of Day	Assigned Level (dB)		
		L <sub>A</sub> 10	L <sub>A</sub> 1	L <sub>A</sub> max
Noise sensitive premises : Highly sensitive area	0700 - 1900 hours Monday to Saturday	48	58	68
	0900 - 1900 hours Sunday and Public Holidays	43	53	68
	1900 - 2200 hours all days	43	53	58
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays	38	48	58
Note: L <sub>A10</sub> is the noise level exceeded for 10% of the time. L <sub>A1</sub> is the noise level exceeded or 1% of the time. L <sub>Amax</sub> is the maximum noise level.				

**TABLE 2 - ASSIGNED OUTDOOR NOISE LEVEL RESIDENTIAL LOCATION R2**

Premises Receiving Noise	Time of Day	Assigned Level (dB)		
		L <sub>A</sub> 10	L <sub>A</sub> 1	L <sub>A</sub> max
Noise sensitive premises : Highly sensitive area	0700 - 1900 hours Monday to Saturday	46	56	66
	0900 - 1900 hours Sunday and Public Holidays	41	51	66
	1900 - 2200 hours all days	41	51	56
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays	36	46	56
Note: L <sub>A10</sub> is the noise level exceeded for 10% of the time. L <sub>A1</sub> is the noise level exceeded for 1% of the time. L <sub>Amax</sub> is the maximum noise level.				

**TABLE 3 - ASSIGNED OUTDOOR NOISE LEVEL RESIDENTIAL LOCATION R3**

Premises Receiving Noise	Time of Day	Assigned Level (dB)		
		L <sub>A</sub> 10	L <sub>A</sub> 1	L <sub>A</sub> max
Noise sensitive premises : Highly sensitive area	0700 - 1900 hours Monday to Saturday	45	55	65
	0900 - 1900 hours Sunday and Public Holidays	40	50	65
	1900 - 2200 hours all days	40	50	55
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays	35	45	55
Note: L <sub>A10</sub> is the noise level exceeded for 10% of the time. L <sub>A1</sub> is the noise level exceeded for 1% of the time. L <sub>Amax</sub> is the maximum noise level.				

Finally, the Regulations also stipulate that noise emitted from a site must not cause, or significantly contribute to, a level of noise which exceeds the assigned level in respect of noise received at any premises.

The noise emissions from the site are considered not to significantly contribute to the overall noise level at the nearest noise sensitive premises provided noise received at that premise are 5dB(A) less than the Assigned Noise Levels. The proposed power station will be one of many noise sources in the “Kwinana Strip” and could contribute to exceedances. As such, 5 dB(A) should be deducted from the determined assigned levels.

## NOISE MODELLING

To assess the noise received at the neighbouring premises, noise modelling was undertaken using the noise modelling program SoundPlan.

Calculations were carried out using the Department of Water and Environmental Regulation’s standard weather conditions for the night period, which relate to worst case noise propagation, as stated in Table 4 of the Department of Environment Regulation Draft Guidance for the “Assessment of Environmental Noise Emissions”. These conditions include winds blowing from sources to the receiver(s). For information, the weather conditions, as stated in Table 4, are shown in the following Table 4.

**TABLE 4 – WEATHER CONDITIONS**

Condition	Night	Day
Temperature	15°C	20°C
Relative humidity	50%	50%
Pasquill Stability Class	F	E
Wind speed	3 m/s*	4 m/s*

\* From sources, towards receivers.

Note : The sound power noise levels for the existing turbines were as previously modelled, as listed below in Table 5.

**TABLE 5 – SOUND POWER LEVEL - NOISE SOURCES dB(A)**

Noise Sources	Sound Power Level dB(A)
<b>EXISTING TURBINES</b>	
Turbine	108
Enclosure Outlet	102

The sound power level for the future turbines, was as per attached.

## RESULT

A summary of the calculated noise levels for scenarios are shown in Table 6.

**TABLE 6 – CALCULATED NOISE LEVELS,  $L_{A10}$  dB(A)**

Receiver Name	Calculated Noise Level (dB(A))		
	Assigned outdoor Night Period Noise Level	Attenuated Plant Unattenuated 18.3m High Stack	Attenuated Plant Attenuate 26.4m High Stack
R1	33	29	27
R2	31	18	17
R3	30	30	29
Eastern Boundary	75	74	73

## ASSESSMENT

As the noise received from the power station would occur for more than 10% of the time, noise received at residential premises would need to comply with the assigned  $L_{A10}$  noise level. Table 7 lists the adjusted noise level (i.e adjusting 5 dB(A) for the “significantly contributing” provision of the Regulations), for which noise received at the residences would be deemed compliant.

**TABLE 7 - ASSIGNED OUTDOOR NOISE LEVEL**

Premises Receiving Noise	Time of Day	Location / Adjusted $L_{A10}$ Level (dB)		
		R1	R2	R3
Noise sensitive premises : Highly sensitive area	0700 - 1900 hours Monday to Saturday	42	41	40
	0900 - 1900 hours Sunday and Public Holidays	38	36	35
	1900 - 2200 hours all days	38	36	35
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays	33	31	30

Note:  $L_{A10}$  is the noise level exceeded for 10% of the time.

Tables 8 and 9 compare the noise level received at the residences with the adjusted noise level for which compliance would be achieved.



**TABLE 8 – ASSESSMENT OF NOISE LEVELS**  
**ATTENUATED PLANT AND 18.3m HIGH EXHAUST STACK – DATASHEET DATED 2025-04-07**

Receiver	Assessable Noise Level, dB(A)	Applicable Times of Day	L <sub>A10</sub> Compliance Noise Level (dB)	Exceedance to Assigned Noise Level L <sub>A01</sub> (dB)
R1	29	0700 - 1900 hours Monday to Saturday	42	Complies
		0900 - 1900 hours Sunday and Public Holidays	38	Complies
		1900 - 2200 hours all days	38	Complies
		2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays	33	Complies
R2	18	0700 - 1900 hours Monday to Saturday	41	Complies
		0900 - 1900 hours Sunday and Public Holidays	36	Complies
		1900 - 2200 hours all days	36	Complies
		2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays	31	Complies
R3	30	0700 - 1900 hours Monday to Saturday	40	Complies
		0900 - 1900 hours Sunday and Public Holidays	35	Complies
		1900 - 2200 hours all days	35	Complies
		2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays	30	Complies
Eastern Boundary	74	All hours	75	Complies

**TABLE 9 – ASSESSMENT OF NOISE LEVELS**  
**ATTENUATED PLANT WITH ATTENUATED 26.4m HIGH EXHAUST STACK – DATASHEET DATED 2025-04-24**

Receiver	Assessable Noise Level, dB(A)	Applicable Times of Day	L <sub>A10</sub> Compliance Noise Level (dB)	Exceedance to Assigned Noise Level L <sub>A01</sub> (dB)
R1	27	0700 - 1900 hours Monday to Saturday	42	Complies
		0900 - 1900 hours Sunday and Public Holidays	38	Complies
		1900 - 2200 hours all days	38	Complies
		2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays	33	Complies
R2	17	0700 - 1900 hours Monday to Saturday	41	Complies
		0900 - 1900 hours Sunday and Public Holidays	36	Complies
		1900 - 2200 hours all days	36	Complies
		2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays	31	Complies
R3	29	0700 - 1900 hours Monday to Saturday	40	Complies
		0900 - 1900 hours Sunday and Public Holidays	35	Complies
		1900 - 2200 hours all days	35	Complies
		2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays	30	Complies
Eastern Boundary	73	All hours	75	Complies

Based on the acoustic data provided, the revised noise modelling indicates that noise emissions from both power station options would comply with the requirements of the *Environmental Protection (Noise) Regulations 1997* at the residential premises.

Yours faithfully,  
for **HERRING STORER ACOUSTICS**

Tim Reynolds

Att.

The acoustic design of the Gas turbine package will fulfil the average sound pressure level<sup>1</sup> of 85 dB(A), at free field conditions, in the working area, defined as 1m from delivered equipment and 1,5 m above ground. Areas inside enclosures are excluded from the working area. If not in free field, corrections will be done according to ISO 11204 "Acoustics - Noise emitted by machinery and equipment - Determination of emission sound pressure levels at a workstation and at other specified positions applying accurate environmental corrections".

The levels are measured on similar equipment. The values are for information only and are not guaranteed.

Equipment:		Expected sound pressure/power levels [dB(A)]										
		Freq. [Hz]	31,5	63	125	250	500	1000	2000	4000	8000	Total
1	Complete package	SPL <sup>2</sup> [dB(A)]										85
	(Sum of row 2-12, incl. stack outlet)	SWL <sup>2</sup> [dB(A)]	88	94	101	98	102	101	99	94	89	109
	(Sum of row 2-12, excl. stack outlet)	SWL <sup>2</sup> [dB(A)]	88	94	101	95	96	96	98	94	89	106
2	Air intake filter house	SWL [dB(A)]	74	87	89	91	91	87	78	80	70	97
3	Gas turbine enclosure	SWL [dB(A)]	85	88	93	89	86	90	96	89	82	100
4	Gas turbine enclosure ventilation outlet fans	SWL [dB(A)]	72	84	87	83	87	86	80	72	64	93
5	Gas turbine enclosure ventilation outlet	SWL [dB(A)]	63	75	90	83	82	84	83	80	76	93
6	Gas turbine enclosure ventilation inlet	SWL [dB(A)]	56	71	82	77	78	80	88	88	82	93
7	Generator 50Hz, air cooled with enclosure	SWL [dB(A)]	85	90	98	85	81	79	74	56	40	99
8	Generator cooling inlet (DAC)	SWL [dB(A)]	56	68	76	80	85	84	85	82	74	91
9	Generator cooling outlet (DAC)	SWL [dB(A)]	65	74	90	82	85	84	87	83	77	94
10	Exhaust bellows and duct	SWL [dB(A)]	61	72	77	81	86	86	89	86	85	94
11	Lube oil cooler (air cooled)	SWL [dB(A)]	68	75	79	83	87	87	85	82	74	93
12	Oil mist outlet	SWL [dB(A)]	48	62	71	75	81	82	75	67	59	86
13												
14												
15	Stack outlet	SWL [dB(A)]	73	80	92	94	100	99	89	77	71	104
16	Unsilenced exhaust noise if applicable	SWL [dB(A)]	85	92	121	125	127	137	132	132	131	140

Narrow band component:	Yes <input checked="" type="checkbox"/> X	No <input type="checkbox"/> O	Frequency/octave band [Hz]: 2000Hz
Description of implemented noise control measures / other information:			
Silencers in air inlet, enclosure ventilation inlet and outlet and exhaust outlet when delivered with stack.			
Enclosure over gas turbine and generator.			
Special information:			
Sound power levels measured according to ISO 3746 for all major noise sources except stack outlet, which is measured according to ISO 10494.			

Note1 Energy average of the time-averaged sound pressure levels at all microphone positions used with the background noise correction factor K1

and the environmental correction factor K2 applied.

Note2 Sound pressure level in dB (re. 20  $\mu$ Pa) at 1m distance. Sound power level in dB (re. 1 pW)



**SGT-800**  
**EQUIPMENT NOISE DATA SHEET**  
Sound pressure level  $\leq 85$  dB(A)  
AGL Kwinana, special +26 m stack

**Doc. No.:**  
**Rev.: 1**  
**Page: 1(1)**  
**Date: 2025-04-24**

The acoustic design of the Gas turbine package will fulfil the average sound pressure level<sup>1</sup> of 85 dB(A), at free field conditions, in the working area, defined as 1m from delivered equipment and 1,5 m above ground. Areas inside enclosures are excluded from the working area. If not in free field, corrections will be done according to ISO 11204 "Acoustics - Noise emitted by machinery and equipment - Determination of emission sound pressure levels at a workstation and at other specified positions applying accurate environmental corrections".

The levels are measured on similar equipment. The values are for information only and are not guaranteed.

	Equipment:	Expected sound pressure/power levels [dB(A)]										
		Freq. [Hz]	31,5	63	125	250	500	1000	2000	4000	8000	Total
1	Complete package	SPL <sup>2</sup> [dB(A)]										85
	(Sum of row 2-12, incl. stack outlet)	SWL <sup>2</sup> [dB(A)]	88	94	101	96	99	98	99	94	89	106
	(Sum of row 2-12, excl. stack outlet)	SWL <sup>2</sup> [dB(A)]	88	94	101	95	96	96	98	94	89	106
2	Air intake filter house	SWL [dB(A)]	74	87	89	91	91	87	78	80	70	97
3	Gas turbine enclosure	SWL [dB(A)]	85	88	93	89	86	90	96	89	82	100
4	Gas turbine enclosure ventilation outlet fans	SWL [dB(A)]	72	84	87	83	87	86	80	72	64	93
5	Gas turbine enclosure ventilation outlet	SWL [dB(A)]	63	75	90	83	82	84	83	80	76	93
6	Gas turbine enclosure ventilation inlet	SWL [dB(A)]	56	71	82	77	78	80	88	88	82	93
7	Generator 50Hz, air cooled with enclosure	SWL [dB(A)]	85	90	98	85	81	79	74	56	40	99
8	Generator cooling inlet (DAC)	SWL [dB(A)]	56	68	76	80	85	84	85	82	74	91
9	Generator cooling outlet (DAC)	SWL [dB(A)]	65	74	90	82	85	84	87	83	77	94
10	Exhaust bellows and duct	SWL [dB(A)]	61	72	77	81	86	86	89	86	85	94
11	Lube oil cooler (air cooled)	SWL [dB(A)]	68	75	79	83	87	87	85	82	74	93
12	Oil mist outlet	SWL [dB(A)]	48	62	71	75	81	82	75	67	59	86
13												
14												
15	Stack outlet, +26 m	SWL [dB(A)]	68	75	87	89	95	94	84	72	66	99
16	Unsilenced exhaust noise if applicable	SWL [dB(A)]	85	92	121	125	127	137	132	132	131	140

Narrow band component: Yes ☒ No ☐ Frequency/octave band [Hz]: 2000Hz

Description of implemented noise control measures / other information:

Silencers in air inlet, enclosure ventilation inlet and outlet and exhaust outlet when delivered with stack.

Enclosure over gas turbine and generator.

Special information:

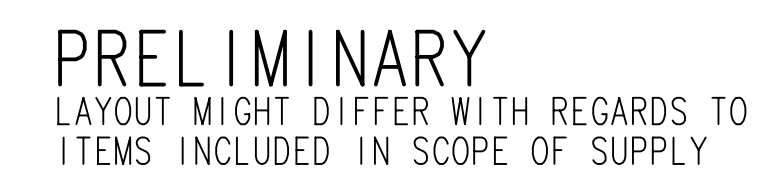
Sound power levels measured according to ISO 3746 for all major noise sources except stack outlet, which is measured according to ISO 10494.

Note1 Energy average of the time-averaged sound pressure levels at all microphone positions used with the background noise correction factor K1

and the environmental correction factor K2 applied.

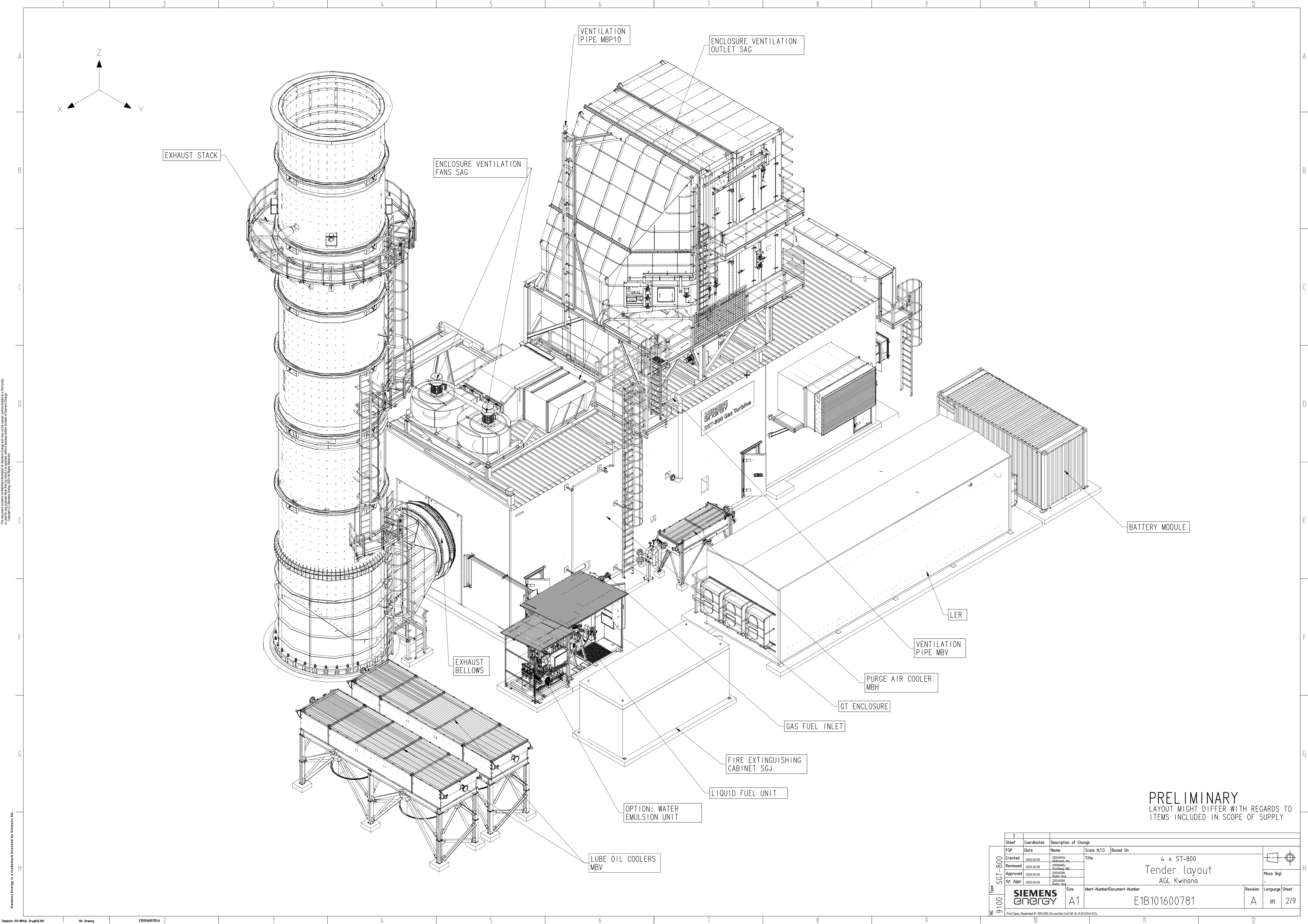
Note2 Sound pressure level in dB (re. 20  $\mu$ Pa) at 1m distance. Sound power level in dB (re. 1 pW)



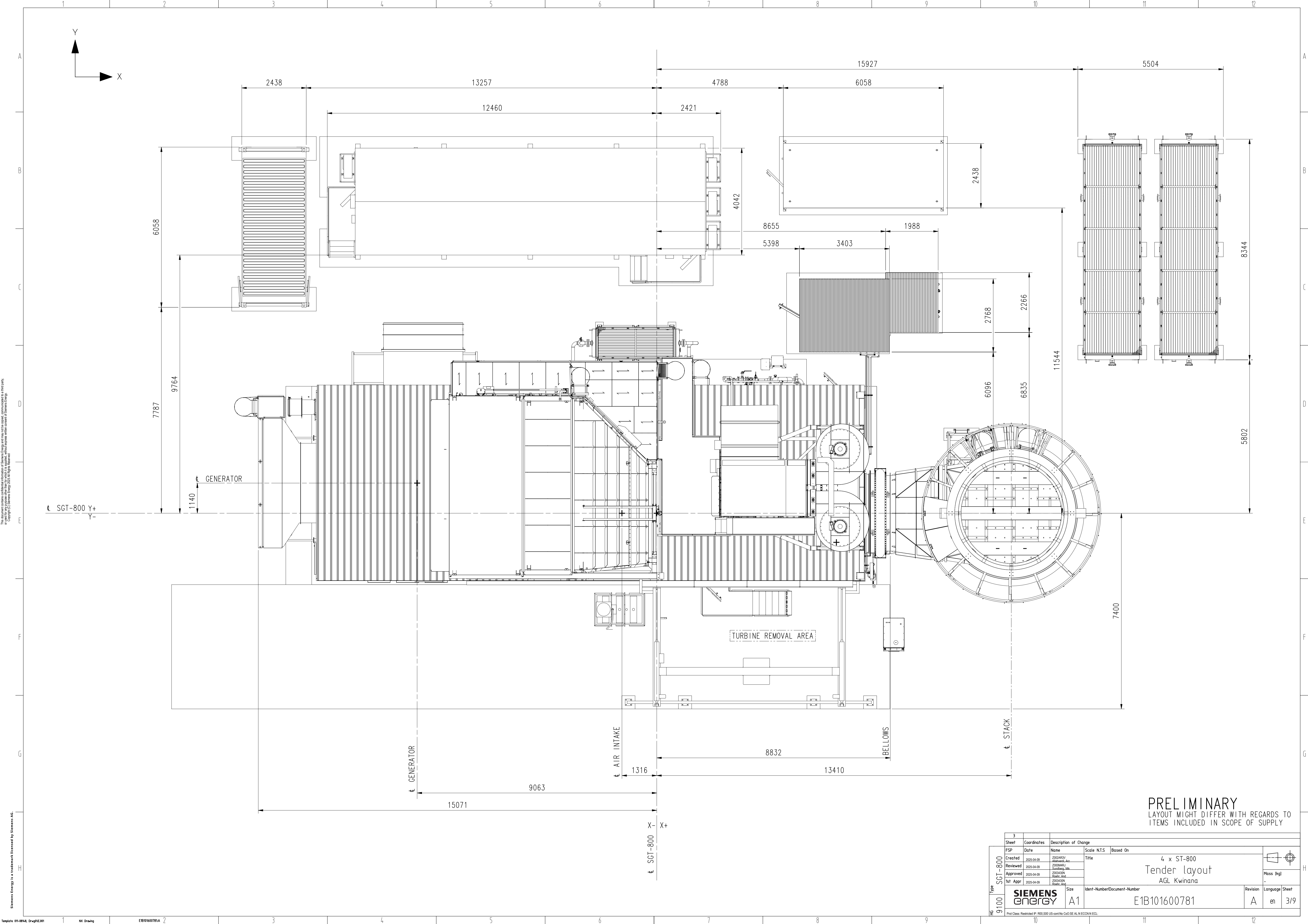


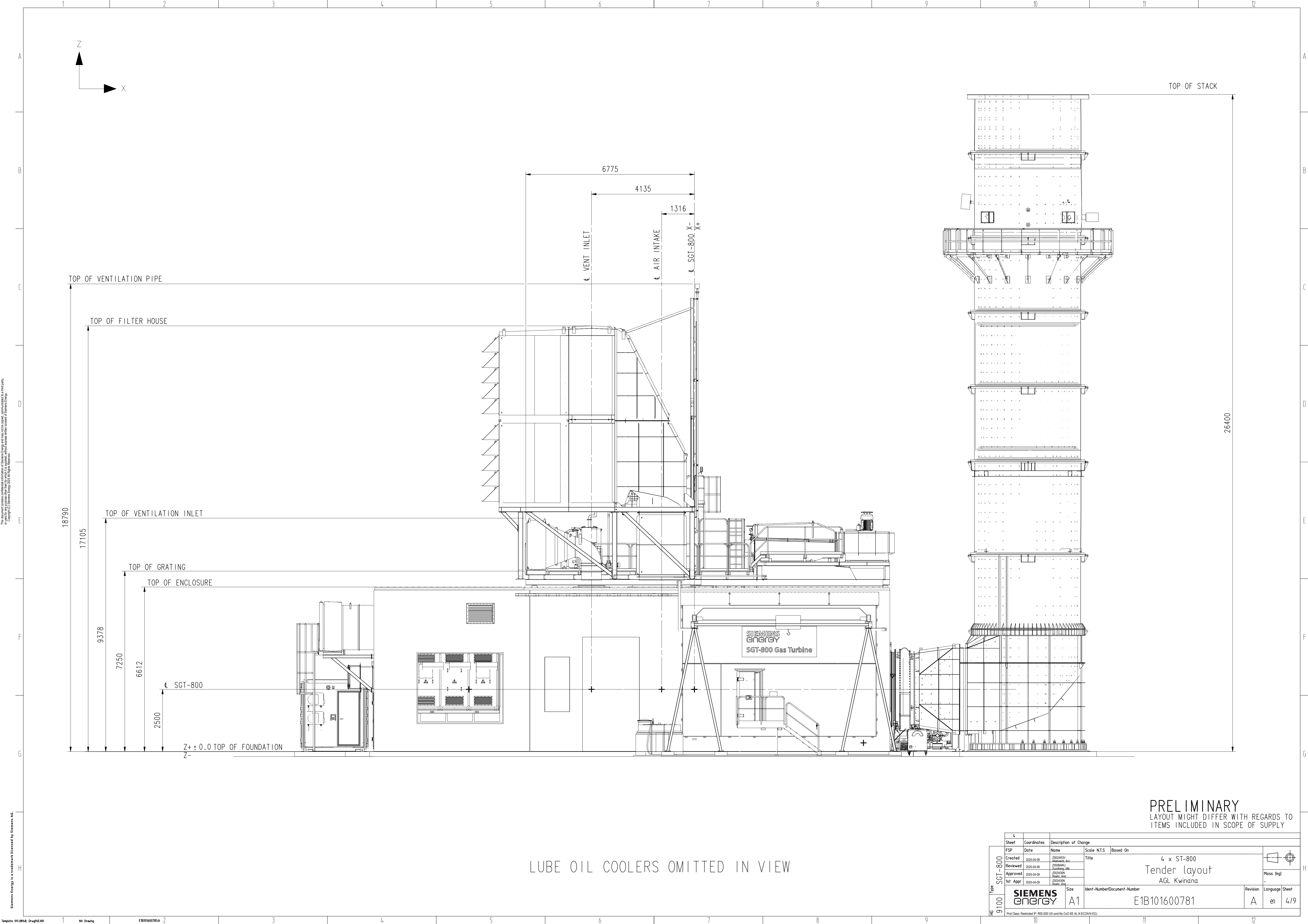
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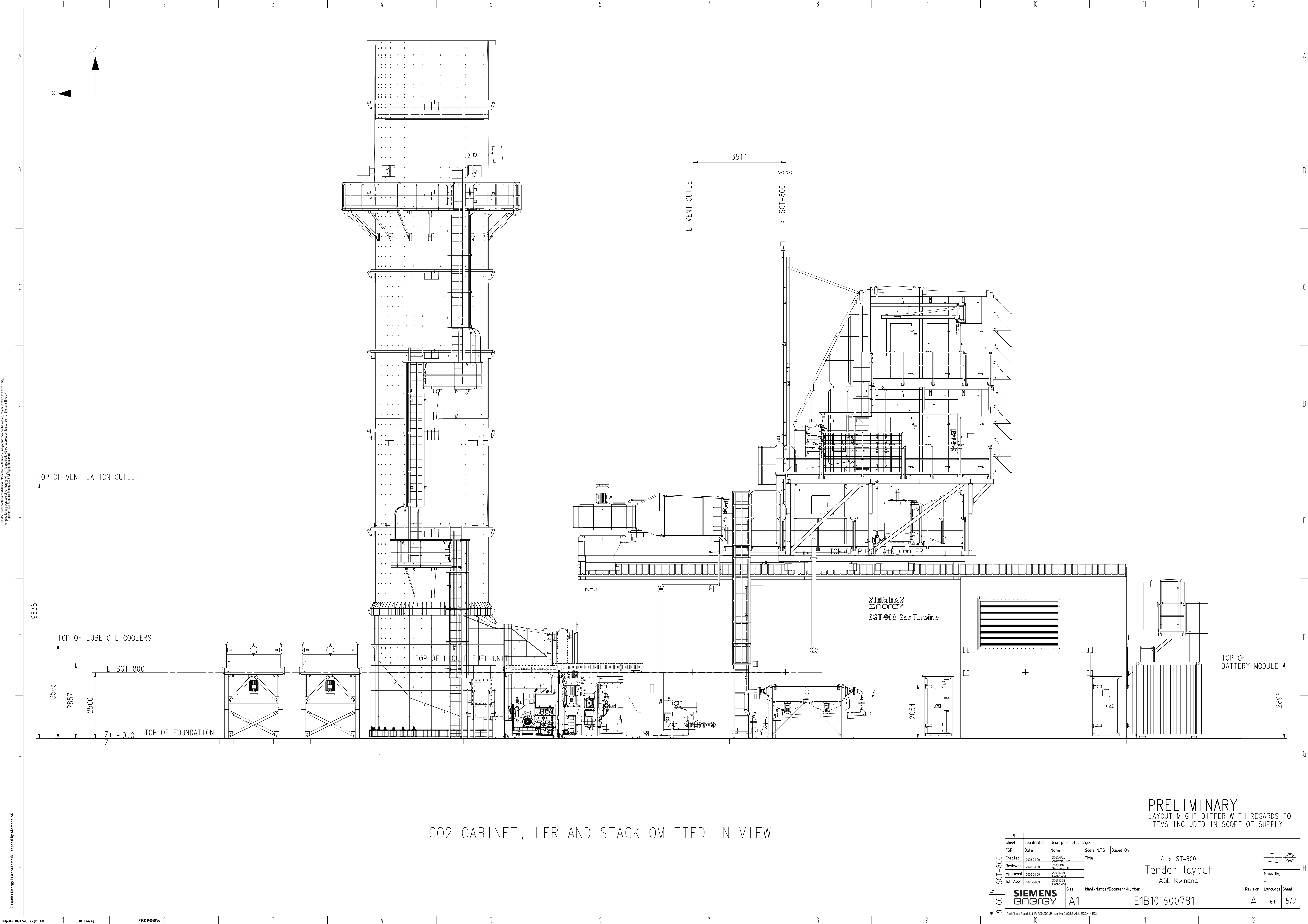
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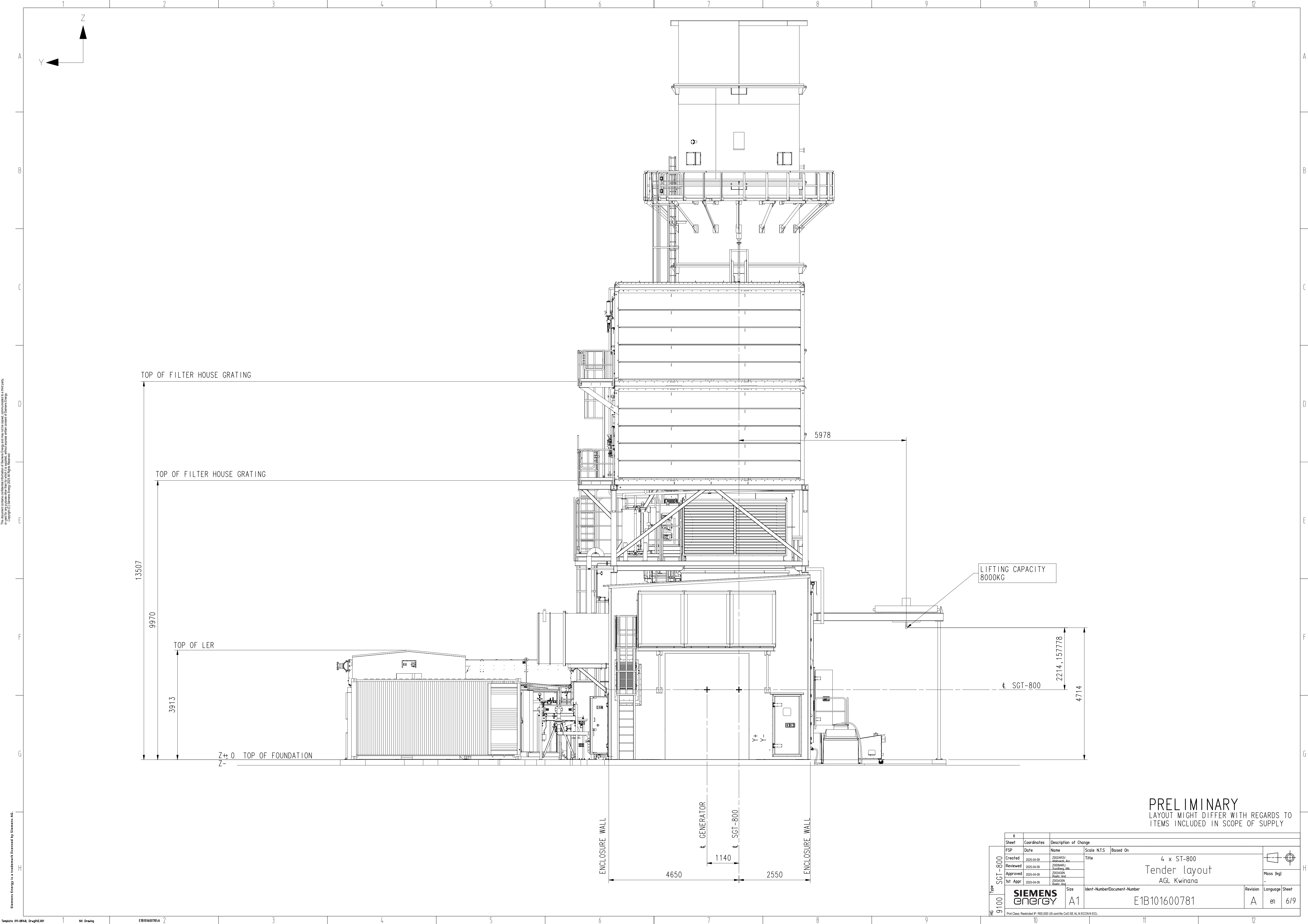
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CO2 CABINET, LER AND STACK OMITTED IN VIEW

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TOP OF FILTER HOUSE GRATING

TOP OF FILTER HOUSE GRATING

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TOP OF LER

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Z+0 TOP OF FOUNDATION  
Z-

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LIFTING CAPACITY  
8000KG

2214, 15778

SGT-800

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ENCLOSURE WALL

GENERATOR

SGT-800

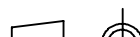
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ENCLOSURE WALL

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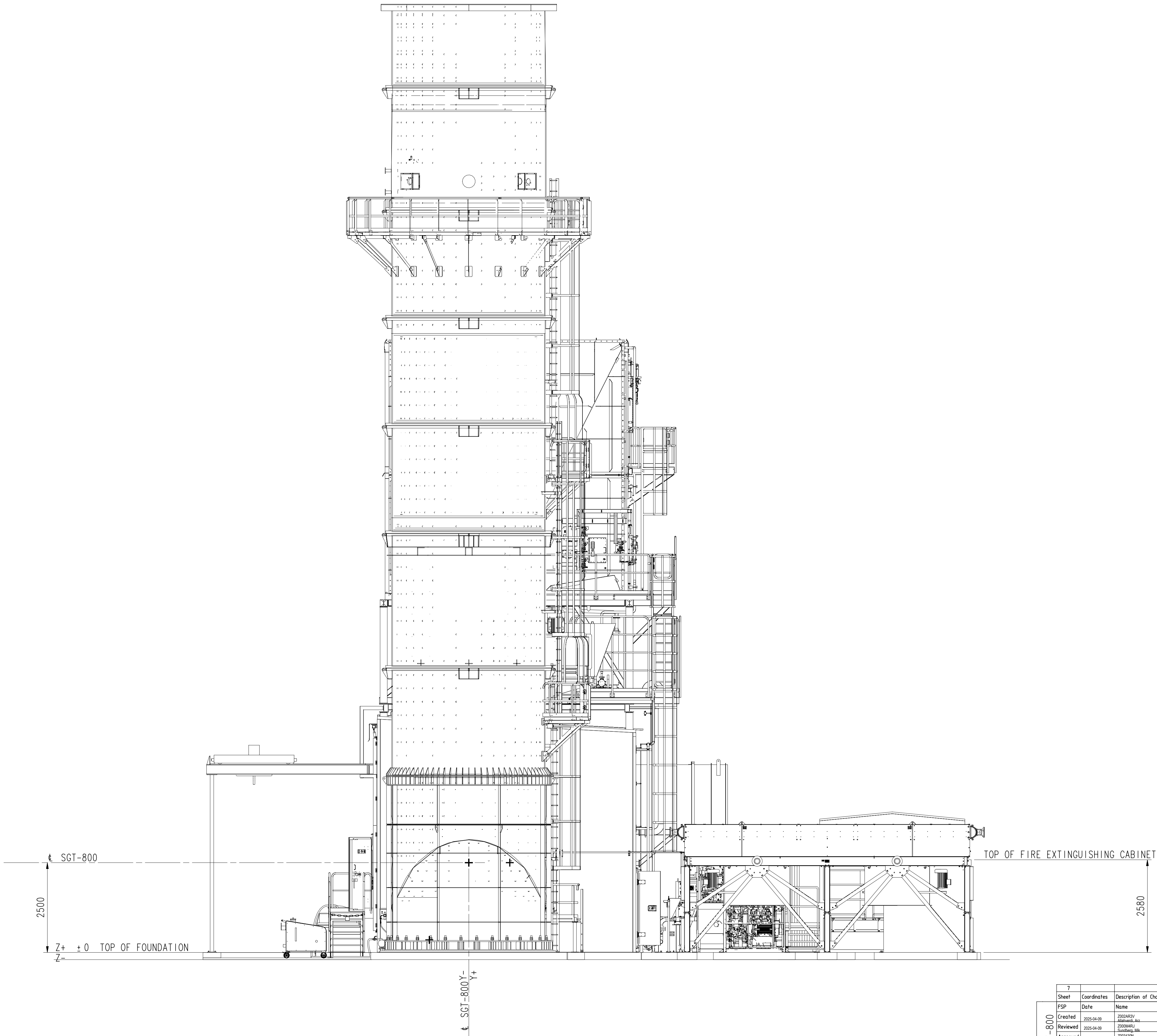
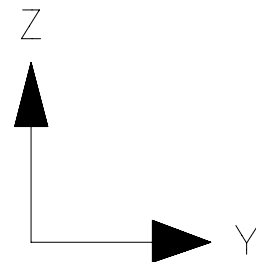
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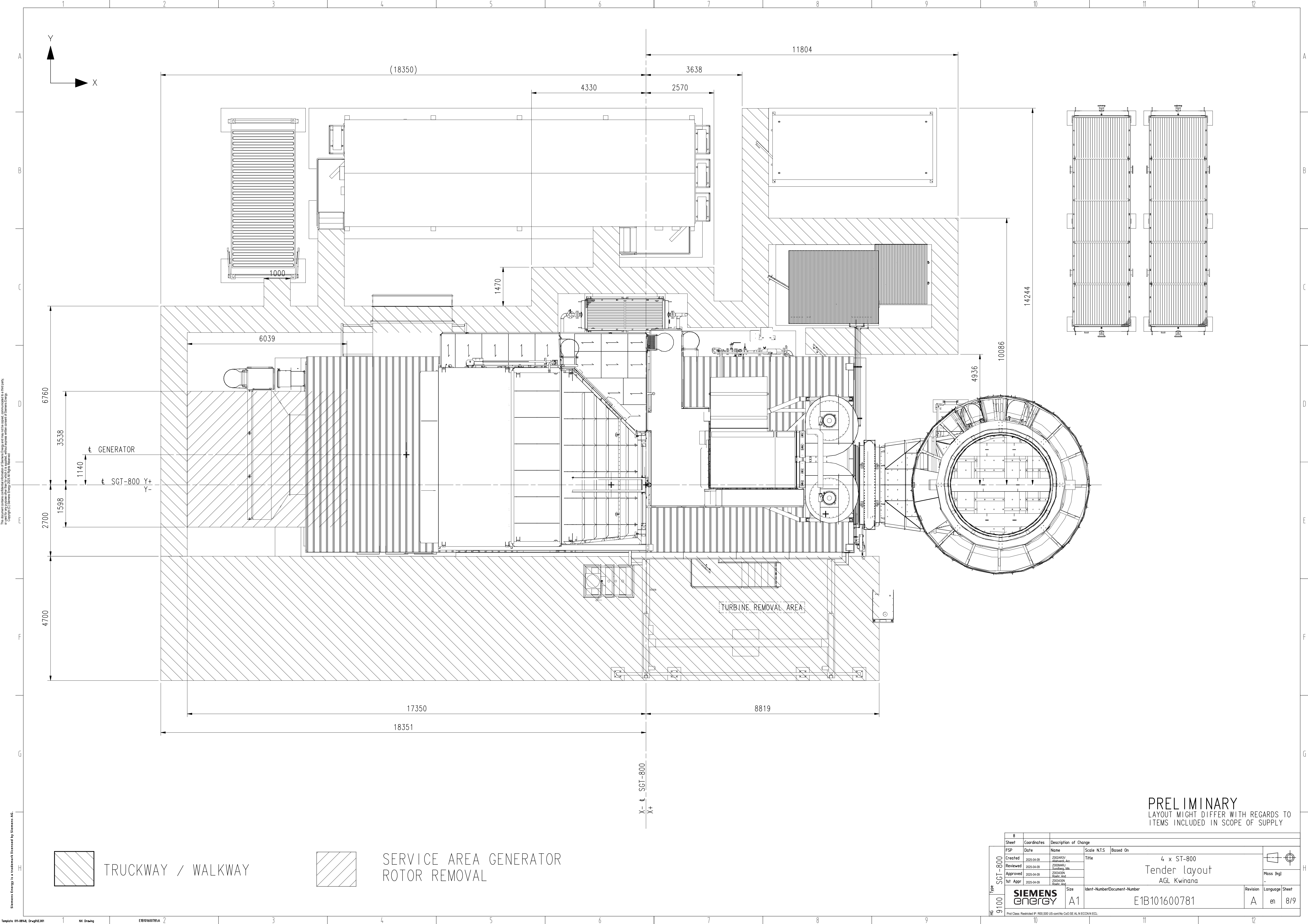
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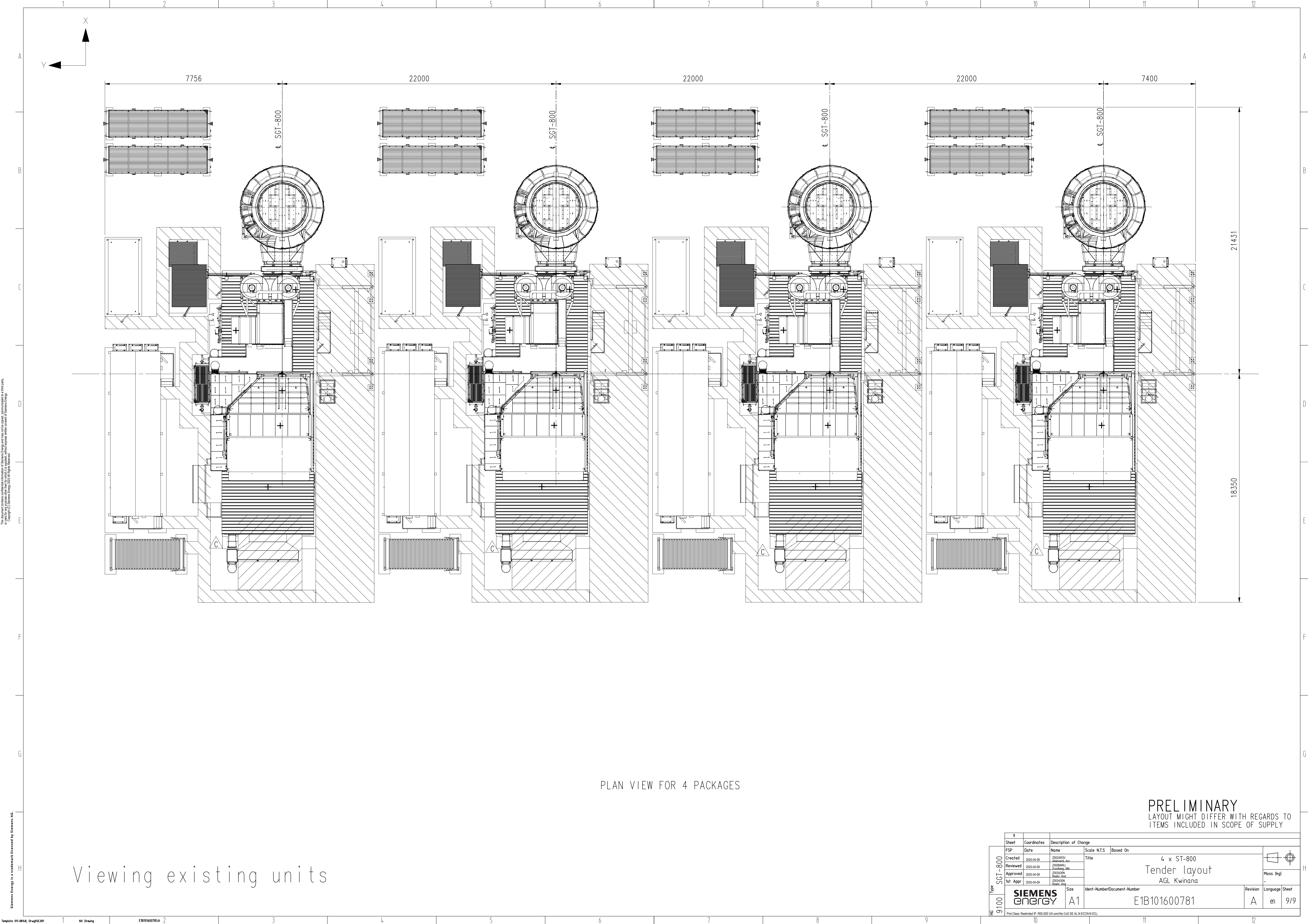


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PLAN VIEW FOR 4 PACKAGES

Viewing existing units

PRELIMINARY  
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HE			SIEMENS		Size	Ident-Number/Document-Number		Revision	Language	Sheet	
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