

Project name	Port Talbot Plaza		
Design note title	Planning Condition 16 Discharge Assessment		
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1. INTRODUCTION

Hydrock has prepared this design note in order to discharge planning condition 16 for Port Talbot Plaza, related to externally exhausting fixed plant and services noise.

2. CONDITION 16-FIXED PLANT AND SERVICES

“The noise rating level emitted from external mechanical plant shall not be greater than the existing background noise level. The noise levels shall be determined at the nearest noise-sensitive premises or at another location that is deemed suitable by the authority.”

A drawing of the proposed rooftop plant is presented in Figure 1.

The proposed rooftop level plant is listed below:

- Gym AHU
- Hall AHU
- Kitchen supply and extract fans
- VRF Condensing Units.

In addition, a third small AHU is located adjacent to the plant area from Figure 1.

Table 1 shows the list of proposed plant with the manufacturers stated noise levels.

3. FIXED SERVICES PLANT AND EQUIPMENT

The fixed services equipment and location plan for the development is summarised below for the as built development.

Table 1: Plant Item Acoustic Data

Item	Manufacturer	Product Name	Noise Levels	
			Sound Power Level dB L _{AW}	Sound Pressure Level dB L _{Ap} @ 1m
AHU/RF/01	Nuaire		Breakout: 32 Intake: 64 Discharge: 81	
AHU/RF/02	Nuaire	XBC25HA-NNN-E-LS4W	Breakout: 43 Intake: 56 Discharge: 66	
KEF/RF/01	Nuaire	SQFA42-3ES-QA14606	Breakout: 50 Inlet: -	
KSF/RF/01	Nuaire	ESBHS2H-D-QA14606	Breakout: 32 Outlet: --	
OU/RF/02	Mitsubishi	PURY-P600YSNW-A		70
OU/RF/04	Mitsubishi	PURY-P200YNW-A		69
OU/RF/05	Mitsubishi	PURY-P650YSNW-A		72
OU/RF/06	Mitsubishi	PUHY-P400YNW-A		67
OU/RF/07	Mitsubishi	PUZ-ZM35VKA		46
OU/RF/09	Mitsubishi	PUHZ-ZRP-140YKA3R2		52
OU/RF/12	Mitsubishi	PUHZ-ZRP-250YKA3R2		62
OU/RF/13	Mitsubishi	PUHZ-ZRP-250YKA3R2		62
OU/RF/14	Mitsubishi	PUHZ-ZRP-250YKA3R2		62
OU/RF/15	Mitsubishi	PUHZ-ZRP-250YKA3R2		62
OU/RF/16	Mitsubishi	PUHZ-ZRP-250YKA3R2		62
AHU3	Nuaire		Breakout: 43 Intake: 56 Discharge: 66	

None of the proposed plant is considered tonal or intermittent, or impulsive in terms of operational noise characteristics and therefore, no additional penalties from BS4142:2014 guidance have been applied.

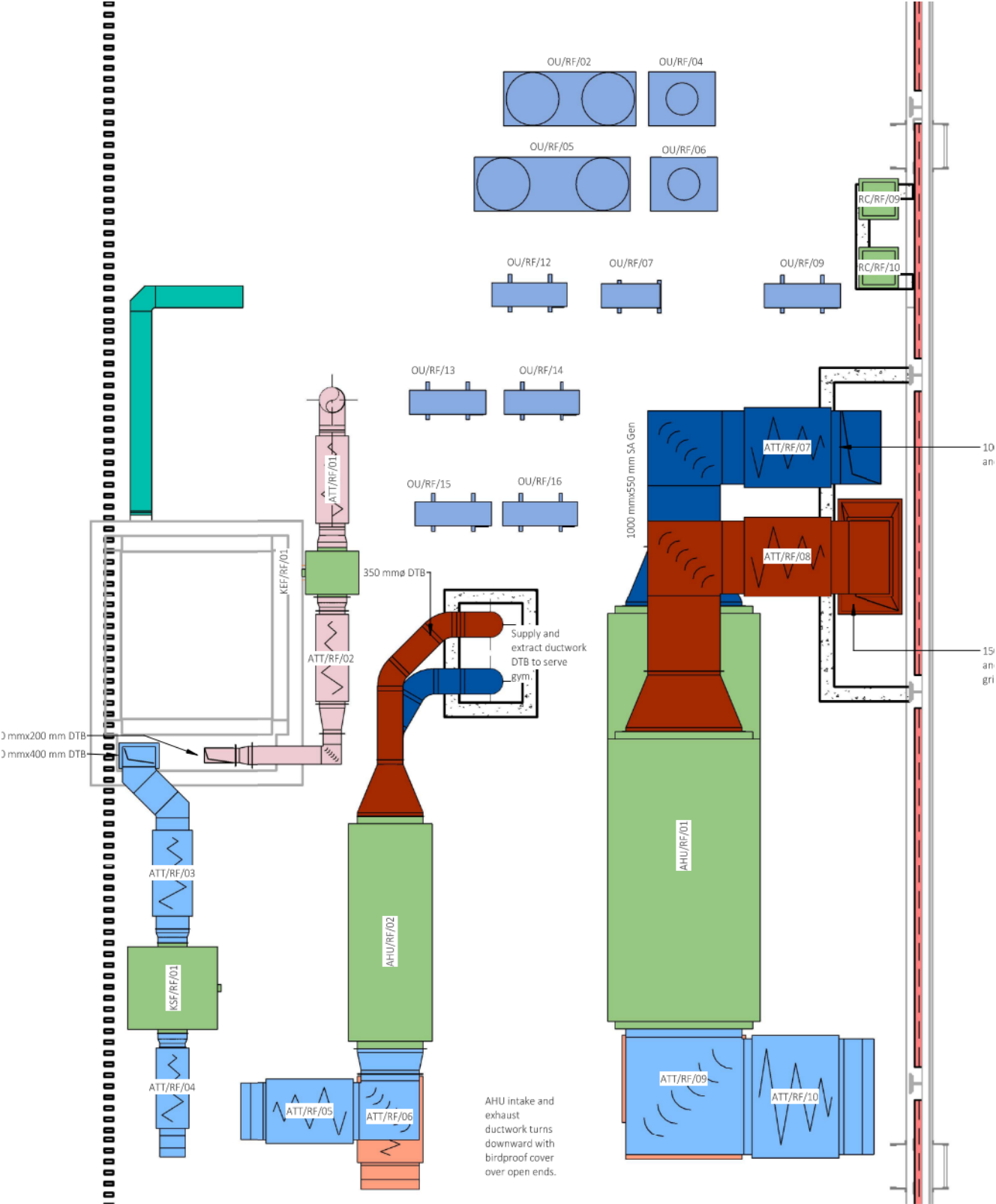


Figure 1: Rooftop Plant Location Plan.

4. PLANNING CONDITION 16 DISCHARGE DESIGN CRITERIA

The typical existing background noise levels at the nearest sensitive building were derived in planning report ref: HWS0359-HYD-ZZ-XX-RP-Y-1001 as prepared by Hydrock as Table 3.

Parameter	Period	Noise Levels, dB
L ₉₀	Daytime (0700hrs to 2300hrs)	43
L ₉₀	Night Time (2300hrs to 0700hrs)	42

5. OPERATIONAL SUMMARY

The plant is proposed to operate only during daytime hours. Condition 16 says that the noise rating level from new plant should not exceed the existing background levels, therefore, it should not exceed 43 L_{Ar,Tr}

6. BS4142 2014 NOISE IMPACT ASSESSMENT RESULTS

A noise model was generated using industry standard noise propagation modelling software (CadnaA Version 2019 MR2 (build: 173.4950) to assess the noise impact in accordance with BS4142:2014 at the nearest noise sensitive receptors.

The modelling software incorporates engineering methods for assessing sound propagation and attenuation from BS EN ISO 9613 "Acoustics — Attenuation of sound during propagation outdoors".



Figure 2: Rooftop Plant Noise Impact Assessment

Figure 2 show the predicted free field noise rating level noise levels resulting from fixed services plant and equipment at the identified sensitive receptors in the vicinity.

7. CONDITION 16-CONCLUSION

As shown in Figure 2 above, the noise rating levels resulting from the proposed plant and equipment associated with the development when assessed at the façade of the closest existing sensitive receptors will not exceed the background noise levels (43 dB L_{A90}) when assessed free field at a height of 1.5m.

On this basis the design requirements of planning condition 16 are met and the condition should be discharged.