awnconsulting
A Trinity Consultants Company

The Tecpro Building,
Clonshaugh Business & Technology Park,
Dublin 17, Ireland.

T: + 353 1 847 4220
F: + 353 1 847 4257
E: info@awnconsulting.com
W: www.awnconsulting.com

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21 September 2022

Jason Murphy
Henry J Lyons
51–54 Pearse Street
Dublin
D02 KA66

To whom it may concern,

RE: SD22A/0105: SUBSTATION FOR EDGECONNEX DUB04

The planning application SD22A/0105 refers to amendments to the electrical substation compound and structures permitted under Reg. Ref. SD19A/0042 and ABP Ref. 305948-19. This technical letter addresses the discharge of Condition 5 of the Grant of Permission, which relates to the assessment of environmental noise from the permitted amended substation.

Condition 5 states the following:

> 5. *Acoustic Assessment*
> *Prior to the commencement of development the Applicant is requested to provide an Acoustic Assessment to be agreed in writing with the Planning Authority. The Assessment must be undertaken by a suitably qualified acoustic consultant describing and assessing the impact of noise emissions from the proposed alterations to include the accumulative noise impact from existing on-site activities. The investigation must include, but not be necessarily limited to, the following:*
>
> *a) The identification of any neighbouring noise sensitive receivers who may be potentially impacted by the proposal*
> *b) The identification of all operations conducted onsite as part of the development proposal that are likely to give rise to a public nuisance for the neighbouring noise sensitive receivers.*

Cork Office
Unit 5, ATS Building,
Carrigaline Industrial Estate,
Carrigaline, Co. Cork.
T: + 353 21 438 7400
F: + 353 21 483 4606

AWN Consulting Limited
Registered in Ireland No. 319812

c) Distances between the development and the nearest noise sensitive receiver and the predicted level of noise (LAeq, 15min) from any development activities when assessed at the boundary of that receiver.

d) An assessment of the existing background (LA90,15 min) and ambient (LAeq,15 Min) acoustic environment at the receiver locations representative of the time periods that any noise impacts may occur. NOTE: For the purposes of the assessment background noise includes; noise of the surrounding environment excluding all noise sources currently located on-site.

e) A statement outlining any recommended acoustic control measures that should be incorporated into the development to ensure the use will not create adverse noise impacts on the occupiers of any neighbouring noise sensitive properties.

f) The report shall confirm whether the development complies with levels specified within the EIAR Acoustic Report dated 19th July 2019.

The Acoustic Assessment shall be submitted to the Planning Authority for written agreement, prior to the commencement of development on site.

REASON: In the interest of public health by the prevention of unacceptable levels of noise pollution which could interfere with normal sleep and rest patterns and/or when people could reasonably expect a level of quietness, the proper planning and sustainable development of the area and to uphold the Council's amenity policies set out in the South Dublin County Council Development Plan.

1.0 NOISE-SENSITIVE RECEIVERS

The planning application boundary for SD22A/0105 (the permitted amended substation) lies within the lands main planning application SD19A/0042 and ABP Ref. 305948-19 (the DUB04 datacentre). Figure 1 shows the nearest noise-sensitive locations (NSLs) to the permitted substation development and Table 1 gives a description of each location and approximate distance to the transformer yard edge.

Figure 1 Noise-sensitive locations (Background Image: Google Earth)

NSL Ref	Description	Approximate Distance (m)
R01	Dwelling House to the west of Adamstown Road and south of the Grand Canal	405
R02	Dwelling House to the east of Adamstown Road and south of the Grand Canal	435
R03	Dwelling houses near the junction of Hayden's Land and Lynch's Lane	730
R04		745
R05	Dwelling House to the north of Grange Castle Business Park	675
R17	Dwelling houses on the east side of Adamstown Road	245
R18		250
R19		250
R20		270
R21		295
R22	Dwelling House to the west of Adamstown Road and north of the Grand Canal	400
R23	Halting Site at Clutterland to the west of Adamstown Road	470
R24	Dwelling houses on the east side of Adamstown Road	265
R25		240
R26		245

Table 1 Noise-sensitive Locations with approximate distances to site

2.0 EXISTING BACKGROUND NOISE

A noise survey was carried out in preparation for the planning application SD19A/0042 for the data centre site (DUB04). The details and results of this noise survey are presented below.

A series of environmental noise surveys were conducted in order to quantify the existing noise environment. The survey was conducted in accordance with ISO/DIS 1996-2 Acoustics - Description, measurement and assessment of environmental noise -- Part 2: Determination of sound pressure levels (2015). Specific details are set out below.

2.1 Choice of Noise Survey Locations

Noise measurements were conducted at five locations: details of the particular locations are outlined below:

Location S01 Located near the north-eastern corner of the Edgeconnex DUB04/DUB05 site in line the nearest noise sensitive locations at the junction of the R120 and the Grand Canal.

Location S02 Located on the south-western corner of the Edgeconnex Phase 4 site along the common boundary of a nearby noise sensitive location. The location is representative of the row of noise sensitive locations that lie along the R120 beyond the eastern boundary of the DUB04/DUB05 site.

Location S03 Located in the vicinity of the nearest residential location to the north east of the proposed development site. The property is located on the boundary of the Grangecastle Business Park and is immediately adjacent a number of commercial activities.

Location S04 Located in the north-eastern area of the Edgeconnex DUB04 and DUB05 site. This location is considered to be representative of noise levels currently experienced in the vicinity of the residential properties on the Royal Canal to the north.

Location S05 Located in the south-western area of the development lands. The location is considered to be representative of noise levels currently experienced in the vicinity of the halting site located to the south west at some 200 m distance.

Figure 2 Noise Survey Locations (Background Image: Google Earth)

2.2 Survey Periods

Measurements were conducted over the course of the following survey periods:

Locations	Period	Start Time/Date	End Time/Date
S01, S02, S03	Day	09:50hrs 9 April 2016	12:40hrs 9 April 2016
	Evening	21:40hrs 9 April 2016	22:50hrs 9 April 2016
	Night	23:00hrs 9 April 2016	01:40hrs 10 April 2016
S04, S05	Unattended	15:00hrs 4 November 2020	11:45hrs 10 November 2020

Table 2 Noise Survey Periods

2.3 Personnel and Instrumentation

AWN conducted the noise level measurements during the various survey periods. The measurements were performed using Brüel & Kjær Type 2260 Modular Precision Sound Analysers. Before and after the survey the measurement apparatus was check calibrated using a Brüel & Kjær Type 4231 Sound Level Calibrator. AWN also installed and removed the noise meters on site in the 2020 unattended survey.

Meter	Serial Number
Brüel & Kjær 2260	2248262
Rion NL-42	575802
Rion NL-52	186670

Table 3 Instrumentation Details

2.4 Procedure

During each of the daytime, evening and night-time periods, measurements were conducted on a continuous basis over the stated time periods. Sample periods were 15 minutes during all surveys. The results were saved to the instrument memory for later analysis where appropriate. Survey personnel noted all primary noise sources contributing to noise build-up. In terms of the various locations the following significant noise sources (in subjective order of influence) were noted:

Location	
S01	S02
• R120 road traffic noise. • Water running in a nearby canal in absence of traffic. • Site work and plant noise associated with existing sites. • During evening period noise dominated by traffic and water noise associated with the canal. • During night time plant noise from existing facilities (to the East and South) is the dominant background source.	• Plant noise from facility to the south. • Noise from existing site including impulsive noise (bangs) and reverse alarms. • Dogs barking and birdsong. • During the evening distant traffic noise and plant noise noted. • During night time existing plant noise from southern existing facilities is the dominant source. Distant traffic also noted.
Location	
S03	S04
• Noise dominated by existing plant noise from adjacent facility. • Occasional bus passing by. • Water flow from nearby watercourse. • Reverse alarms and construction noise from nearby site. • As above for evening period with the exception of construction noise. • During night time plant noise from the adjacent facility and water flow from nearby watercourse.	• R120 road traffic noise. • Water flow from nearby watercourse. • During night time plant noise from the adjacent facility and water flow from nearby watercourse noted.
Location	
S05	
• R120 road traffic noise. • Water flow from nearby watercourse. • During night time plant noise from the adjacent facility and water flow from nearby watercourse noted.	

Table 4 Significant noise sources

2.5 Noise Monitoring Results

The noise data collated during the current noise survey is extensive in nature. It is not produced in full here however is available on request.

Table 5 presents average daytime and night-time noise levels measured at the monitoring location over the period of the noise monitoring programme.

Location	Date	Period	Start Time	Measured Noise Levels (dB re. $2x10^{-5}$ Pa)		
				$L_{Aeq,15min}$	L_{AFMax}	$L_{A90,15min}$
S01	9 April	Day	09:51	58	71	44
	9 April	Day	11:15	61	76	47
	9 April	Evening	21:46	53	63	45
	10 April	Night	00:01	48	61	42
	10 April	Night	00:58	49	67	43
S02	9 April	Day	10:23	48	65	42
	9 April	Day	11:37	48	73	41
	9 April	Day	12:47	49	65	43
	9 April	Evening	22:04	44	61	41
	9 April	Night	23:38	41	63	39
	10 April	Night	01:20	40	61	38
S03	9 April	Day	10:50	53	76	47
	9 April	Day	12:05	53	73	48
	9 April	Day	12:21	52	72	48
	9 April	Evening	22:35	51	68	49
	9 April	Night	23:00	51	70	48
	9 April	Night	23:16	49	54	48

Table 5 Noise monitoring results

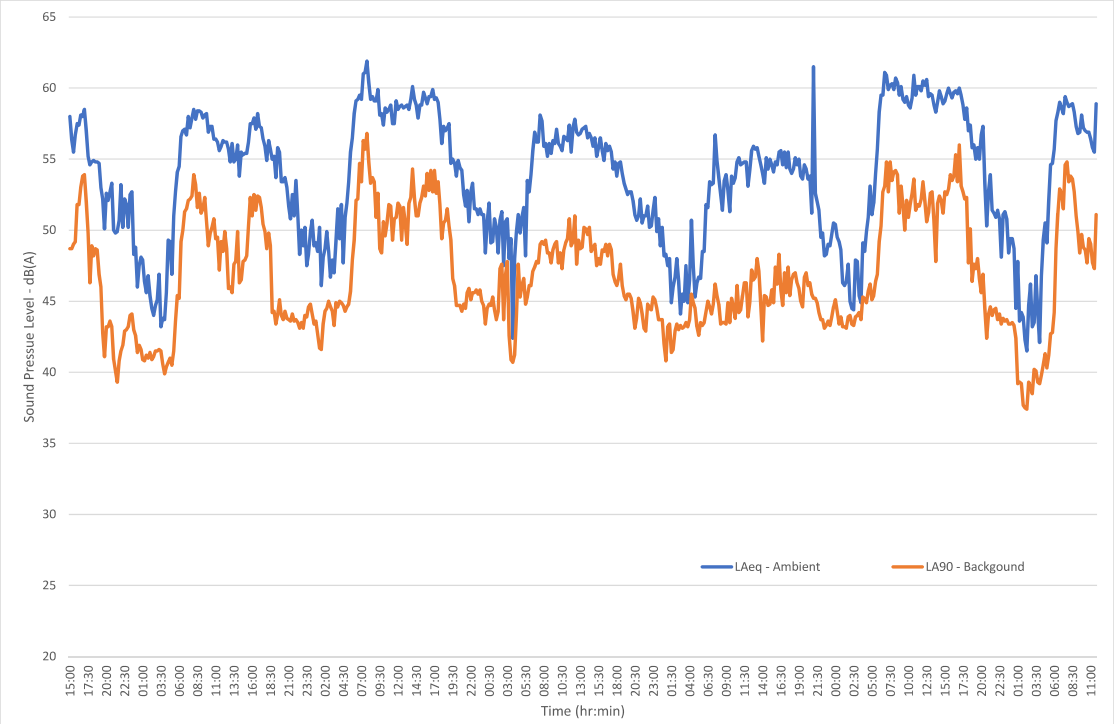

Figure 3 Unattended Noise Monitoring – Location S04

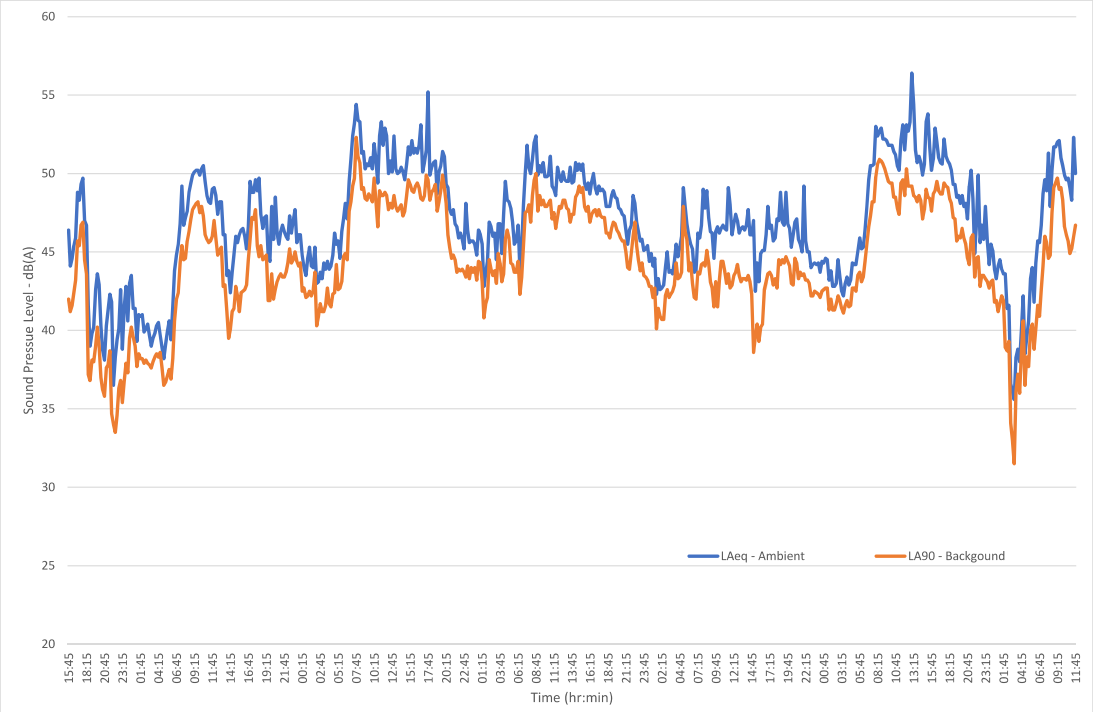

Figure 4 Unattended Noise Monitoring – Location S05

3.0 NOISE DUE TO SUBSTATION

The principal noise sources associated with the substation are the four transformers at the southern end of substation area. The sound power level of a single transformer is presented in Table 6.

Item	Sound Power Levels dB								dB(A)
	63	125	250	500	1000	2000	4000	8000	
Transformer	72	40	70	63	66	50	39	36	72

Table 6 Transformer noise level advised by Ethos Engineering and typical transformer spectrum from AWN database was assumed for assessment purposes.

Using the computer-based noise modelling methods as presented in the EIAR for the Edgeconnex DUB04 planning application, the noise levels due to the four transformers have been predicted to the noise-sensitive locations in Figure 1. The noise calculations take account of the acoustic screening afforded by the 8 m high wall around the transformer yard. Predicted noise levels are presented in Table 7. The noise levels are below 10dB in all cases.

NSL Ref	Predicted Noise Level dB $L_{Aeq,T}$
R01	<10
R02	<10
R03	<10
R04	<10
R05	<10
R17	<10
R18	<10
R19	<10
R20	<10

NSL Ref	Predicted Noise Level dB $L_{Aeq,T}$
R21	<10
R23	<10
R24	<10
R25	<10
R26	<10

Table 7 Predicted plant noise levels due to 4 no transformer units.

From the EIA screening report[1] submitted for the substation amendment application (SD22A/0105) (Section 5.2.2):

> *The operation of the proposed development will remain consistent with the type of activity and buildings the vicinity of the proposed development site. The proposed development will be subject to compliance with any relevant noise criteria outlined in any relative planning conditions.*
>
> *It is considered that there is no significant change between the proposed amendments as compared with the consented development in terms of noise and vibration during the operational phase. The potential effects on noise and vibration are neutral, imperceptible, and long term for the operational phase.*

On review of the noise levels in Table 7 above, it is AWN's view that the above statement remains accurate and that acoustic control measures are not required.

Similarly, as the noise from the permitted substation amendment is imperceptible at off-site noise-sensitive locations, it follows that noise from the permitted amended substation is in compliance with noise criteria in the EIAR Acoustic Report dated 19th July 2019, which refers to the EIAR for the Edgeconnex DUB04 data centre building.

This concludes the discharge of Planning Condition 5 Acoustic Assessment in respect of the permitted amended substation.

Yours sincerely,

Mike Simms Leo Williams

MIKE SIMMS
Senior Acoustic Consultant

LEO WILLIAMS
Senior Acoustic Consultant

[1] Document Ref: CKS/21/12500 dated 8 April 2022