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Attention: Anas Rahhal

Company: Aland Developments

From: Fu Siong Hie

Date: 22/11/2022

Subject: 12 Carson Lane, St Marys - Review of Ventilation Shafts

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Anas,

As requested by Council, the following is a preliminary review of the proposed ventilation shafts, as highlighted in Figure 1 within the communal open space areas of the residential development at 12 Carson Lane, St Marys (MOD22/0083).

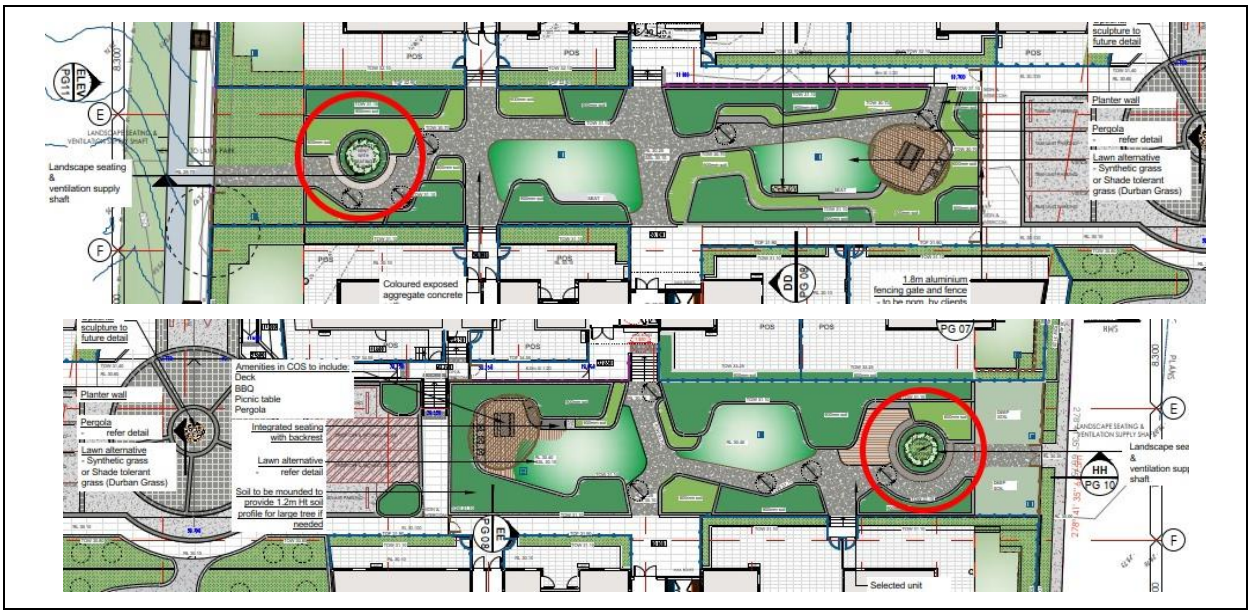


**Figure 1 – Location of Ventilation Shafts**

According to the acoustic report prepared Rodney Stevens Acoustics 'Development Application Acoustic Assessment Proposed Residential Development 12 Carsons Lane, St Marys' (Report: 13660R1, Revision 2), Table 1 presents a summary of the allowable intrusive noise limit for this project. The design and selection of the mechanical equipment required to service the proposed development will be required to achieve the noise limits as presented in Table 1.

**Table 1—Project Limits, dBA**

| Time Period | $L_{Aeq,15minute}$ Criterion for New Sources | $L_{Aeq,Period}$ Criterion for New Sources |
|---|---|---|
| Day | **51** | 59 |
| Evening | 51 | **42** |
| Night | 45 | **40** |

At this stage, the final design and selection of mechanical equipment has not been completed. Table 2 list the preliminary fan selection for the carpark exhaust and supply fans located in the basement.

**Table 2 – Carpark Fan Noise Levels**

| Equipment | Source | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | SWL | dBA @ 3m |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CPEF-B2-01 | Inlet | 104 | 99 | 101 | 99 | 99 | 97 | 92 | 88 | 108 | 83 |
| | Outlet | 105 | 101 | 100 | 98 | 98 | 96 | 93 | 90 | 109 | 82 |
| CPSF-B2-01 | Inlet | 102 | 100 | 99 | 99 | 97 | 96 | 91 | 88 | 107 | 82 |
| | Outlet | 102 | 103 | 98 | 97 | 96 | 95 | 92 | 89 | 108 | 81 |

Typically, based on similar sized residential projects we would expect the following noise control measures to be implemented for the carpark exhaust/supply fans located in the basement:

- Exhaust and supply fans operate with a VSD and CO sensor.
- The fans operate on variable speed and are unlikely to operate at full speed during the night period of between 10pm and 7am.
- Provide acoustic attenuators to the supply and discharge of the fans. The following Table 3 presents the minimum acoustic performance for the attenuators.
- Vibration isolation mounts are to be selected in accordance with manufacturer's recommendations. Where required, incorporate restraining devices to prevent excessive movement of plant, equipment and piping systems. Refer to Table 42 "Selection Guide for Vibration Isolation" of Chapter 47 in ASHRAE Applications Handbook for a guide to isolating vibrating equipment.

**Table 3 – Residential Tower: Minimum Acoustic Performance of Attenuators**

| Location | Location | Dimensions | 63 | 125 | 250 | 500 | 1K | 2K | 4K | 8K |
|---|---|---|---|---|---|---|---|---|---|---|
| CPEF-B2-01 | Discharge | 2100 | 12 | 25 | 45 | 50 | 50 | 50 | 50 | 50 |
| CPSF-B2-01 | Intake | 2100 | 10 | 21 | 41 | 50 | 50 | 50 | 50 | 45 |

Following the DA approval of the proposed development, during the Construction Certification Stage a detail assessment of all mechanical plant and equipment will be conducted to ensure compliance with the project noise limits.

We trust this information is sufficient. Should you have any further queries, please do not hesitate to contact us.

Regards,

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