Technical Memorandum

To:	ESR Developments (Australia) Pty Ltd	**From:**	**SLR Consulting Australia**
	Level 24, 88 Phillip St Sydney NSW 2000	**Date:**	February 26, 2025
		Project No.	610.019439.00002

RE: Westlink Stage 1
Lot 3 Modification

1.0 Overview

SLR Consulting Pty Ltd (SLR) was commissioned by ESR Developments (Australia) Pty Ltd (ESR) to prepare a pre-construction Design Noise Verification Report for Westlink Stage 1 (the project) SSD-9138102. Westlink Stage 1 is located on the corner of Abbotts Road and Aldington Road located within the Mamre Road Precinct (MRP) in Kemps Creek, NSW.

The Design Noise Verification Report (DNVR) was prepared (and approved) as per the requirements of Condition B54 of the Development Consent. ESR is currently seeking a Modification to Lot 3 of Westlink Stage 1 (formerly identified at Lot 4 in the DNVR).

This memo summarises the revised assessment of the operational noise impacts associated with the Lot 3 modification (MOD).

2.0 Project Description

Westlink Stage 1 is located within the Mamre Road Precinct (MRP) in Kemps Creek. The MRP is an area that has been rezoned to industrial use and is being developed into an employment hub in Kemps Creek. Westlink Stage 1 consists of two warehouses with associated offices, carparking, loading areas and landscaping.

The Lot 3 MOD is being prepared to accommodate a new tenant at the Lot 3 warehouse (ie Warehouse 3) and the main changes are summarised below:

- Office space increasing from 480m^2 to 2,400m^2
- Dock office layout reconfigured
- Southern truck entry/exit moved north
- Additional car entry/exit crossover added to southern end of hardstand to service additional car parking spaces added to the southern area of the hardstand
- Waste area moved north and generator adjacent
- 2x roller shutter doors removed (previous most northern one and one now in front of dock office)
- Windows added to northern façade of warehouse.

The revised site plan for the Lot 3 MOD is shown in **Figure 1**.

Figure 1 Lot 3 MOD Site Plan

2.1 Nearest Receiver Areas

The nearest receiver areas to Westlink Stage 1 are residential properties to the southeast outside the MRP. The BAPS Temple is to the north of the site, within the MRP. The receiver areas are detailed in **Table 1**.

Table 1 Nearest Receiver Areas

ID	Address	Type	Distance (m)	Direction
Southeast Residential	Residences near Mount Vernon Road and Kerrs Road, Mount Vernon	Residential	400	Southeast
Northwest Residential	Residences near Medinah Avenue, Luddenham	Residential	3,200	Northwest
BAPS Temple	232 Aldington Road, Kemps Creek	Place of Worship	500	North

3.0 Operational Noise Assessment Methodology

A noise model has been developed for this MOD assessment with updated inputs compared to the previous DNVR, based on the revised tenant for Lot 3. The noise assessment methodology is consistent with the approved DNVR.

The potential noise impacts from the development have been determined by comparing the predicted noise levels to the noise limits in 15-minute assessment periods which represent the peak expected activity from the development. The peak 15-minute periods have been determined as those with the highest expected volumes of onsite traffic and corresponding activity for the daytime, evening and night-time periods.

3.1 Operational Noise Limits

The Development Consent Conditions for SSD-9138102 were issued on 21 April 2023. The operational noise limits from Condition B52 are shown in **Table 2**.

Table 2 Operational Noise Limits

Location	Day $L_{Aeq(15minute)}$	Evening $L_{Aeq(15minute)}$	Night $L_{Aeq(15minute)}$
Residential receivers near Medinah Avenue (Luddenham), Mount Vernon Road (Mount Vernon) and Kerrs Road (Mount Vernon)	36	31	27
BAPS Temple – Outdoor Use Area (Except Car Parking Area)	33 (When in use)		

3.2 Operational Noise Sources

The development consists of two warehouse and distribution centres with associated offices, carparking, loading areas and landscaping. Heavy vehicle deliveries would park in the hardstand loading areas or recessed loading docks while they are loaded/unloaded, before exiting the site. Light vehicle carparking is provided at each warehouse and would generally be used by staff.

Internal noise sources would generally be minimal and associated with typical logistical, distribution, warehousing and office space activities. There would be no use of manufacturing equipment within any warehouses. The development would operate 24 hours a day.

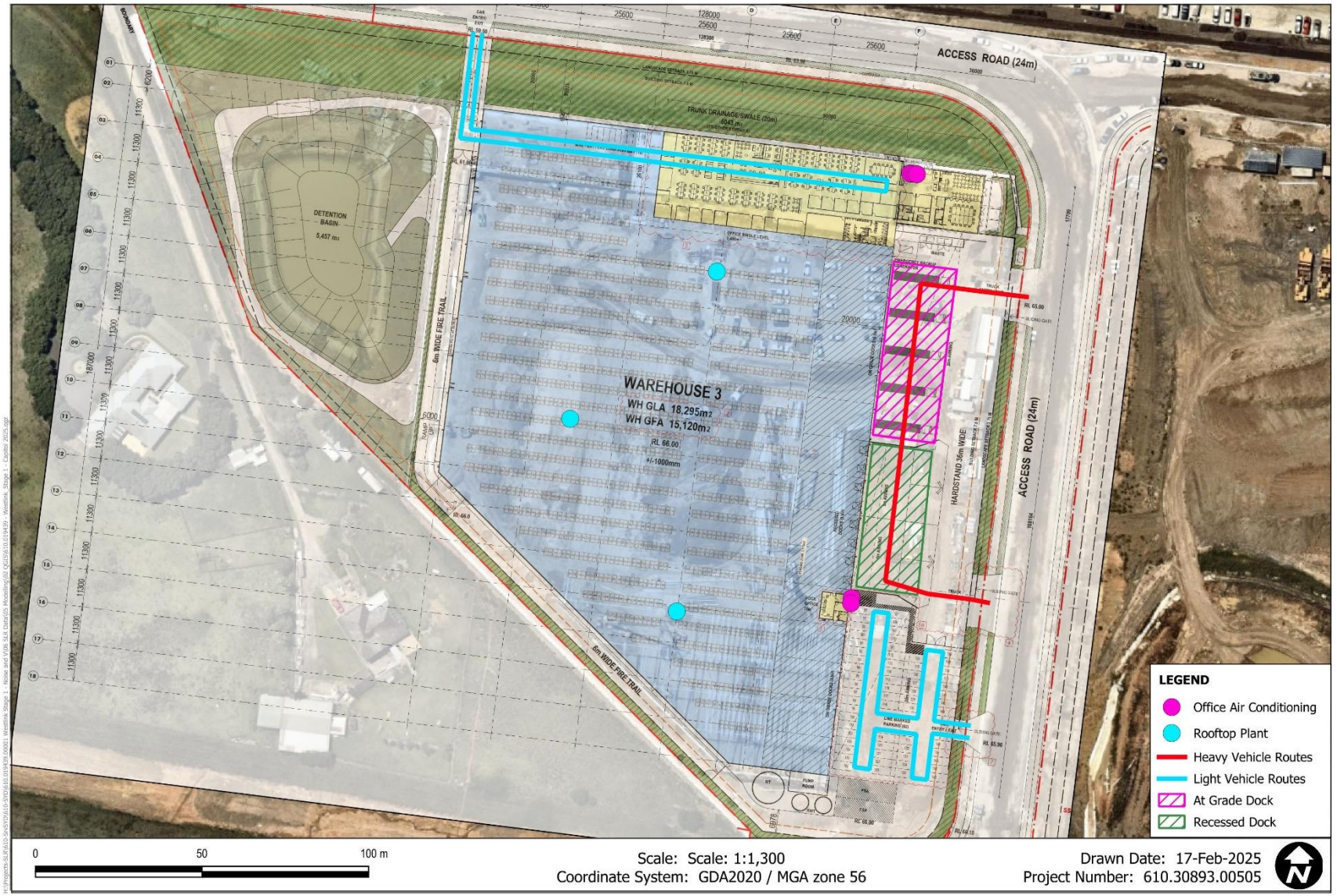
The main sources of operational noise at the development are expected to include:

- On-site light and heavy vehicle movements
- Loading dock activities in hardstands
- Mechanical plant

The locations of all modelled noise sources are shown in **Figure 2**.

Note: there are no revisions proposed to the warehouse on Lot 1 (ie Warehouse 1) as part of this MOD. As a result, all noise sources included for Warehouse 1 in the DNVR remain unchanged. Refer to the DNVR for the detailed list of noise sources included for Warehouse 1.

Figure 2 Modelled Noise Source Locations



3.2.1 On-Site Traffic

Realistic peak vehicle volumes specific to the proposed new tenant's operations have been provided for Warehouse 3. Vehicle volumes for Lot 1 remain unchanged from the DNVR.

The modelled on-site vehicles are representative of the expected realistic peak 15-minute period for the daytime, evening, and night-time; and are summarised in **Table 3** and **Table 4**. Heavy vehicles have been modelled in hardstands and on-lot truck access roads. Light vehicles have been modelled in car parks and on-lot light-vehicle access roads.

Table 3 Vehicle Traffic Data – Realistic Peak 15-Minute Period

Warehouse	Vehicle Type	Number of Vehicles in Realistic Peak 15-minute Period[1]		
		Daytime	Evening	Night-time
Warehouse 3	Heavy Trucks	1	1	1
	Medium Trucks	3	3	3
	Delivery Vans	2	1	2
	Light Vehicles	10	1	5

Note 1: Total vehicles, includes both inbound and outbound vehicles. Volumes are rounded up to whole numbers for display purposes.

Table 4 Vehicle Sound Power Levels

Vehicle Type	Location	Sound Power Level (dBA)	Vehicle Speed (km/h)
Heavy Trucks	Hardstands and on-lot truck access roads	108[1]	10
Medium Trucks	Hardstands and on-lot truck access roads	97[2]	10
Delivery Vans	Hardstands and on-lot truck access roads	91[3]	10
Light Vehicles	Car parks and on-lot light-vehicle access roads	90[4]	20

Note 1: Sound power level for 'heavy trucks' taken from the Federal Highway Administration's Traffic Noise Model and is representative of trucks with three or more axles. Based on 106 dBA for trucks at slow speed for 80% of the time and 111 dBA for trucks accelerating for 20% of the time.

Note 2: Sound power level for medium trucks based on measurement data. Based on 95 dBA for trucks at slow speed for 80% of the time and 100 dBA for trucks accelerating for 20% of the time.

Note 3: Sound power level for delivery vans based on measurement data.

Note 4: Sound power level for light vehicles based on measurement data.

3.2.2 Loading Docks

Details of the loading dock noise sources are shown in **Table 5**. External forklift movements (ie outside of the warehouses) have been modelled in the at-grade dock areas of the hardstands at a rate of one forklift per heavy vehicle onsite, operating continuously during any one 15-minute period. The development will have electric forklifts.

Table 5 Loading Dock Noise Sources

Noise Source	Sound Power Level (dBA)[1]	Typical Duration of Use in Realistic Peak 15-minute Period
Truck reversing alarm	107[2]	30 seconds
Forklift reversing alarm	102[2]	90 seconds
Truck air brakes	118	1 second
Electric forklift	84	900 seconds
Roller door	94	15 seconds

Note 1: Sound power level taken from SLR's measurement database unless specified otherwise.

Note 2: Sound power level includes a 3 dB reduction due to alarms being discrete events.

The use of the emergency backup generator would not form part of normal operations and as a result has not been included in the realistic peak 15-minute operations. The tenant has advised that the generator would be tested once every six months during the daytime period.

3.2.3 Internal Activities

Internal noise-generating activities at all warehouses are generally expected to be minimal. A sound power level of 75 dBA has been applied at the loading dock openings in the facades of each warehouse to account for potential break-out noise from general internal activities, based on observations of loading activities at similar facilities. Warehouse roller shutter doors are assumed to be open during loading dock activities.

3.2.4 Mechanical Plant

The details of the assessed mechanical plant are shown in **Table 6**. All mechanical plant is conservatively assumed to operate 24/7. In reality, office air conditioning would likely not be required during the night-time period.

Table 6 External Mechanical Plant Details

Area	Details and Sound Power Level[1]	Warehouse 4 Location
Smoke clearance fans[2]	Fantech SS1406CA6/24 – 80 dBA each	3 units distributed across the warehouse, 0.5 m above roof level
Main office air-conditioning condensers	Daikin REYQ22BYM9 – 78 dBA	Main office at northwest corner of the office, 1 m above office roof level 6 units
Dock office air conditioning condensers	Mitsubishi PUZ-RP170 – 79 dBA Mitsubishi PUZ-ZM125 – 73 dBA	Dock office at centre of hardstand, 1 m above ground level 2 units (1no. each)

Note 1: Sound power levels based on manufacturer data.

Note 2: Smoke clearance fans SWL based on 50% operation for general ventilation / night purge. 100% operation would only occur for smoke exhaust / clearance upon fire trip and is not included in the realistic peak 15 minute periods representing typical operation.

3.2.5 Noise Sources with Potential for Sleep Disturbance

As the development is proposed to operate 24-hours a day, noise emissions during the night-time have the potential for sleep disturbance impacts at the nearest residential receivers. The details of typical activities with the potential to cause sleep disturbance are shown in **Table 7**.

Table 7 Sleep Disturbance Noise Events – L_{Amax} Sound Power Levels

Noise Source	Sound Power Level L_{Amax} (dBA)
Truck airbrakes in hardstands (recessed and at-grade docks)	118
Truck reversing alarm in hardstands (recessed and at-grade docks)	110
Forklift reversing alarm in hardstands (at-grade docks)	105
Roller doors	94
Accelerating trucks on estate roads, on-lot truck access and hardstands	111
Light vehicle movements on estate roads, carparks and light-vehicle access	100

4.0 Predicted Noise Levels

SLR has reviewed the revised design of the Warehouse 3 and undertaken revised noise modelling. As outlined in the DNVR, the main sources of operational noise at the development are expected to include:

- On-site light and heavy vehicle movements
- Loading dock activities in hardstands
- Mechanical plant.

The DNVR identified that the dominant noise sources related to the development on Lot 3 are the heavy vehicle movements. A summary of the predicted realistic peak noise levels from the development is shown in **Table 8**.

Table 8 Operational Noise Assessment - MOD

Receiver	Period	Noise Limit (dBA)	Predicted $L_{Aeq(15minute)}$ Noise Level (dBA)		Exceedance (dB)	Compliance
			DNVR	Lot 3 MOD		
Residential Southeast (most affected)	Day	36	30	29	-	Yes
	Evening	31	26	29	-	Yes
	Night	27	29	29	2	**No**
Residential Northwest (most affected)	Day	36	<20	<20	-	Yes
	Evening	31	<20	<20	-	Yes
	Night	27	<20	<20	-	Yes
BAPS Temple	When in use (Day/ Evening)	33	31	31	-	Yes

The above assessment indicates that noise levels from the operation of the development are consistent with the outcomes of the DNVR. Noise emissions from the development are predicted to comply with the development consent noise limits for most receivers. Night-time exceedances in the southeast residential area are predicted for a total of three receivers. Night-time exceedances at the most affected southeast residential receiver are predicted to be up to 2 dB and are controlled by vehicle movements associated with the operations of Lot 1, consistent with the predictions presented in the DNVR.

4.1 Sleep Disturbance

The predicted maximum noise levels at the most affected residential receiver during the night-time period are shown in **Table 9**.

Table 9 Sleep Disturbance Assessment

Source	Maximum Noise Level L_{Amax} (dBA)				Below Screening Level
	Sleep Dist. Screening Level	DNVR Predicted	Lot 3 MOD Predicted	Exceedance	
Airbrake	52	47	49	-	Yes
Truck reversing		41	42	-	Yes
Forklift reversing		34	33	-	Yes
Roller door		27	28	-	Yes
Trucks		42	43	-	Yes
Cars		30	31	-	Yes

The above assessment indicates that maximum noise levels from the operation of the development are predicted to comply with sleep disturbance screening level at the nearest receivers in all cases, consistent with the outcomes of the DNVR.

4.2 Mitigation and Management Measures

Where operational noise impacts are predicted from a development, all feasible and reasonable operational noise mitigation and management measures should be considered.

A detailed assessment of all feasible and reasonable mitigation measures that could be applied to the development to minimise the operational noise impacts was completed in the DNVR, and the measures outlined in the DNVR remain applicable.

All mitigation measures have been reviewed for Lot 3 as part of this revised assessment (eg noise source/path control). No additional measures to those already identified in the DNVR have been determined as reasonable and feasible to apply.

5.0 Outcome

The Lot 3 MOD assessment indicates that the results of the DNVR and the Lot 3 MOD are generally similar for the daytime and night-time periods, with some difference during the evening period due to an increase in the onsite vehicle volumes proposed by the tenant of Lot 3, compared to those adopted in the DNVR.

Consistent with the outcomes determined in the DNVR, noise emissions from the development are predicted to comply with the development consent noise limits for most receivers. Night-time exceedances in the southeast residential area are predicted for the same three receivers as outlined in the DNVR.

Night-time exceedance at the most affected southeast residential receiver is predicted to be up to 2dB, consistent with the DNVR. As a result, all feasible and reasonable mitigation measures detailed in the DNVR remain applicable, to minimise operational noise impacts.

We trust that this is sufficient for your needs, however, please don't hesitate to get in contact if you require further information.

Prepared by: AS
Checked/Authorised by: SL