

CELSIUS DEVELOPMENTS

LOT 36 MONTARIO QUARTER SHENTON PARK

DEVELOPMENT APPLICATION ACOUSTIC REPORT

OCTOBER 2023

OUR REFERENCE: 31648-2-23318



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FOR

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1.0 INTRODUCTION

Herring Storer Acoustics was commissioned by Celsius Developments to conduct a preliminary review of the proposed development at Lot 36 Montario Quarter, Shenton Park.

This report has been based on the Development Application drawings provided.

2.0 PROPOSED DEVELOPMENT

The proposed development site is located at Lot 36 Montario Quarter, Shenton Park.

The development consists of a 12 floor "Build to Rent" apartment building.

Car parking is located on two basement level and as a part of the ground floor.

Amenities are located on the ground floor and level 2 (with level 1 hosting storerooms and bike stores).

Ground floor amenities include :

- Café;
- Retail;
- Working from home office/meeting space;
- Pet Wash room; and
- Workshop.

The level 2 amenities include :

- Pool, Sauna and Steam room;
- Gym;
- Group Exercise Room;
- Library;
- Games Room; and
- Theatre.

3.0 <u>CRITERIA</u>

3.1 BCA PROVISIONS

For Class 2 or 3 buildings, Part F5 of the National Construction Code (NCC), outlines the minimum acoustic isolation of apartments. The following summarises the acoustic criteria:

3.1.1 <u>Walls</u>

Wet to wet	R_w + C_{tr} not less than 50 dB.
Living to living	$R_w + C_{tr}$ not less than 50 dB.
Wet to living construction.	$R_{\rm W}$ + $C_{\rm tr}$ not less than 50 dB plus discontinuous
Kitchens to living construction.	$R_{\rm W}$ + $C_{\rm tr}$ not less than 50 dB plus discontinuous
SOU to Lobby	R_w not less than 50 dB.

Note: Where kitchens are part of an open living area, we consider the kitchen to be part of the living area and in these cases a discontinuous construction is required. This also includes cases where kitchens are back-to-back, however, discontinuous construction is only required on one side.

3.1.2 Floors

Floors	$R_w + C_{tr}$ not less than 50 dB.
Impact Isolation	$L_{n,w}$ not more than 55 dB is recommended.

Note: The impact isolation criteria under the BCA is an $L_{n,w}$ of not more than 62 dB. However, as a member firm of the Association of Australasian Acoustic Consultants, (AAAC) we recommend a criteria of an $L_{n,w}$ of not more than 55 dB be adopted for a development of this type.

3.1.3 Service Risers

to Habitable Rooms	R_W + C_{tr} not less than 40 dB.
to Non-Habitable Rooms	R_W + C_{tr} not less than 25 dB.

3.1.4 Hydraulics

The above requirements also apply to storm water down pipes.

3.1.5 Doors

Door (Connecting to a lobby) R_w not less than 30 dB.

The development will be designed to comply with the requirements of Part F5 of the BCA.

3.2 ENVIRONMENTAL PROTECTION (NOISE) REGULATIONS 1997

The *Environmental Protection (Noise) Regulations 1997* stipulate the allowable noise levels at any noise sensitive premises from other premises. The allowable or assigned noise levels for noise sensitive premises are determined by the calculation of an influencing factor, which is added to the baseline criteria set out in Table 1 of the Regulations. The baseline assigned noise levels are listed in Table 3.1. For commercial premises, the allowable or assigned noise levels are the same for all hours of the day. Table 3.1 also lists the assigned noise levels for commercial premises.

Premises Receiving	Time of Day	Assigned Level (dB)			
Noise	Time of Day	L _{A 10}	L _{A 1}	L _{A max}	
	0700 - 1900 hours Monday to Saturday	45 + IF	55 + IF	65 + IF	
Noise sensitive	0900 - 1900 hours Sunday and Public Holidays	40 + IF	50 + IF	65 + IF	
premises within 15	1900 - 2200 hours all days	40 + IF	50 + IF	55 + IF	
metres of a dwelling	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays	35 + IF	45 + IF	55 + IF	

TABLE 3.1 – ASSIGNED NOISE LEVELS

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

The L_{A1} noise level is the noise that is exceeded for 1% of the time.

The $L_{\mbox{\scriptsize Amax}}$ noise level is the maximum noise level recorded.

It is a requirement that noise from the site be free of annoying characteristics (tonality, modulation and impulsiveness) at other premises, defined below as per Regulation 9.

"impulsiveness"	means a variation in the emission of a noise where the difference between L_{Apeak} and $L_{Amax Slow}$ is more than 15dB when determined for a single representative event;
"modulation"	means a variation in the emission of noise that –
	 (a) is more than 3dB L_{A Fast} or is more than 3dB L_{A Fast} in any one-third octave band; (b) is present for more at least 10% of the representative assessment period; and (c) is regular, cyclic and audible;
"tonality"	means the presence in the noise emission of tonal characteristics where the difference between –
	 (a) the A-weighted sound pressure level in any one-third octave band; and (b) the arithmetic average of the A-weighted sound pressure levels in the 2 adjacent one-third octave bands,
	is greater than 3 dB when the sound pressure levels are determined as $L_{Aeq,T}$ levels where the time period T is greater than 10% of the representative assessment period, or greater than 8 dB at any time when the sound pressure levels are determined as $L_{A Slow}$ levels.

Where the above characteristics are present and cannot be practicably removed, the following adjustments are made to the measured or predicted level at other premises.

TABLE 3.2 – ADJUSTMENTS FOR ANNOYING CHARACTERISTICS				
Where tonality is present Where modulation is present Where impulsiveness is present				
+ 5 dB	+ 5 dB	+ 10 dB		

From a review of the development, with Selby Street being a secondary road, the influencing factor for this development and the surrounding noise sensitive premises has been conservatively estimated at +2 dB.

Hence, the assigned noise levels would be as listed in Table 3.3.

Premises Receiving	Time of Day		Assigned Level (dB)		
Noise			L _{A1}	L _{Amax}	
	0700 - 1900 hours Monday to Saturday	47	57	67	
Noise sensitive	0900 - 1900 hours Sunday and Public Holidays	42	52	67	
premises within 15	1900 - 2200 hours all days	42	52	57	
metres of a dwelling	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays	37	47	57	

TABLE 3.3 - ASSIGNED OUTDOOR NOISE LEVEL

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

 L_{A1} is the noise level exceeded for 1% of the time.

L_{Amax} is the maximum noise level.

We note that noise emissions from the premises need to comply with the requirements of the *Environmental Protection (Noise) Regulations 1997*. This primarily consists of mechanical services associated with the development.

4.0 BCA REQUIRMENTS

The proposed development will be constructed to comply with the requirements of Part F5 of the NCC.

It is noted that the construction will exceed the requirements, in particular, the footfall impact isolation requirements.

4.1 GENERAL DESIGN COMMENTS

The location of the residents gym on the second floor is noted. As is the group exercise room.

Structure borne noise transfer of the gym (up/down the building) and the group exercise room, will need to be considered.

Given the build to rent status, and what appears to be a well appoint gym proposed, it is suggested that these areas be constructed on a structurally isolated floating slab – however – as the contents of the gym are not known at present.

Typically, such gyms only house cardio equipment, such as rowers, bikes and treadmills – however on occasions there may be some light dumbbells.

Once the contents of the gym are known, during the design development process, appropriate matting for the gym will be selected to ensure any weight drops are not transmitted throughout the building.

Similarly with the group exercise room – once the use of the space is known – or the range of uses that are desired to be accommodated, the space can be designed accordingly.

5.0 NOISE INGRESS

Given the distance from the surrounding major road and rail network, there is no requirement for this development to undertake a specific assessment for noise ingress.

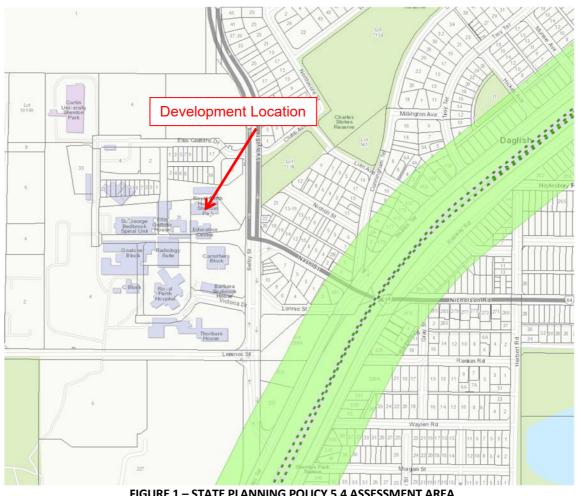


FIGURE 1 – STATE PLANNING POLICY 5.4 ASSESSMENT AREA

It is proposed to adopt an internal noise level design criteria, similar to other areas within Perth. The aim of the criteria is to design the residential building façade to achieve the following internal sound levels :

- Leg 35 dB(A) in sleeping areas (bedrooms); and
- L_{eq} 40 dB(A) in living/work areas and other habitable rooms.

It is noted that these internal design sound levels are congruent with other noise ingress policies such as the WAPC State Planning Policy 5.4 and the Town of Vincent Sound Attenuation Policy, and whilst these policies are not applicable at this location, in the absence of a policy specific to the City of Nedlands, these policies have been utilised as justification for the internal sound levels set for our design considerations.

It is noted that given the location of the development, the glazing requirements are highly unlikely to be dictated by acoustic requirements, with thermal and energy efficiency requirements taking precedent in design considerations. This work will be undertaken during the design development phase of the project.

6.0 NOISE FROM DEVELOPMENT

The main source of noise from the proposed development will be from mechanical services consisting of a car-park ventilation fans and air-conditioning condenser units. Noise received at neighbouring premises from these items need to comply with the assigned noise levels as determined under the *Environmental Protection (Noise) Regulations 1997*.

6.1 MECHANICAL SERVICES

The main source of noise from the proposed development will be from mechanical services consisting of a car-park ventilation fans and air-conditioning plant. Noise received at residence (neighbours and residence within the development) from these items need to comply with the assigned noise levels as determined under the *Environmental Protection* (*Noise*) *Regulations 1997*.

As the mechanical services could operate during the night, noise emissions from the development needs to comply with the assigned L_{A10} night period noise level of 35 dB(A) at residential premises. Potentially, noise emissions from mechanical services could be tonal, in which case an +5 dB(A) penalty for a tonal component could be applied to the resultant noise levels. Therefore, the design level at the neighbouring residential premises would be 32 L_{A10} dB.

6.1.1 Apartments

The air conditioning for the apartments is not yet known, however, it is understood that it is likely to be one main plant located on the roof level as shown in Figure 2 below.

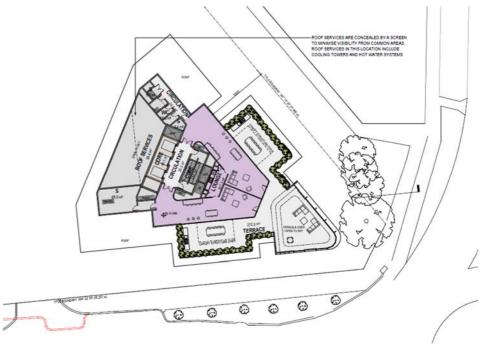


FIGURE 2 – ROOFPLAN EXTRACT SHOWING AC DECK

A preliminary assessment of the roof services has not been undertaken as the noise impact associated with the selection will vary substantially with selection.

It would be appropriate for the project to be approved with a development approval condition for an assessment of mechanical services noise in accordance with the Environmental Protection (Noise) Regulations 1997.

6.1.2 Car Park Exhaust Fans

Noise emissions from the carpark exhaust fans, will also need to comply with the Regulatory requirements. From previous projects, we believe that with careful fan selection and the incorporation of either 1D or 2D unpodded silencers, compliance with the *Environmental Protection (Noise) Regulations 1997* is normally achieved.

6.2 WASTE COLLECTION

Noise emissions from waste collection are exempt from requiring to comply with the *Environmental Protection (Noise) Regulations 1997*, under Regulation 14A.

Regulation 14A exempts waste collection from being required to meet the Assigned Noise Levels stipulated by the *Environmental Protection (Noise) Regulations 1997* provided the works are either carried out during the day period, or under a noise management plan.

It appears that the bin store is design to incorporate commercial style bins, hence, the provision of a noise management plan (if collections are to occur outside the day period) would be the responsibility of the collection agency that is contracted to undertake the work and would be no different to any other typical residential premise in the area.

Given that the waste collection bay, and bins, are located internal to the building on the Ground Floor, any noise impact external to the building and immediate carparking area would be negligible.

6.3 <u>REATAIL/CAFE TENANCY</u>

Noise emissions associated with the commercial tenancies on the ground floor associated with the project will be assessed and appropriate noise controls will be incorporated into the design to ensure compliance with the requirements of the *Environmental Protection* (*Noise*) *Regulations 1997*. However, we do not believe that compliance will be difficult to achieve, given the location of the tenancy and the separation to the apartments within the development.

Given the location of the café, and canopy above any alfresco area, the noise impacts to the surrounds would be minimal. Further protection is incorporated within the design of this development, and adjacent proposed developments, where there is no direct line of sight into the alfresco area – allowing for a significant barrier effect for any noise emissions.

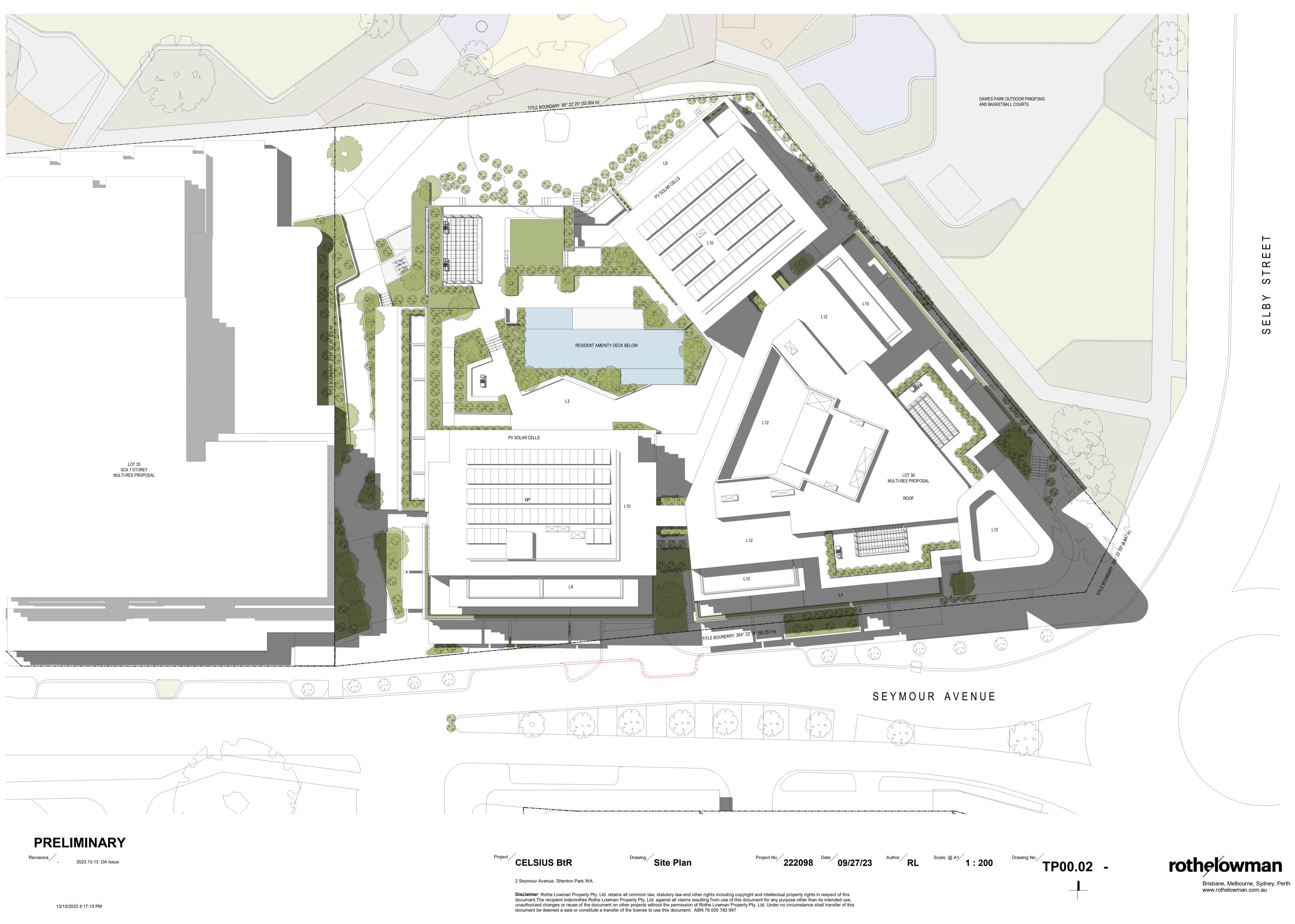
7.0 GENERAL DESIGN COMMENTS

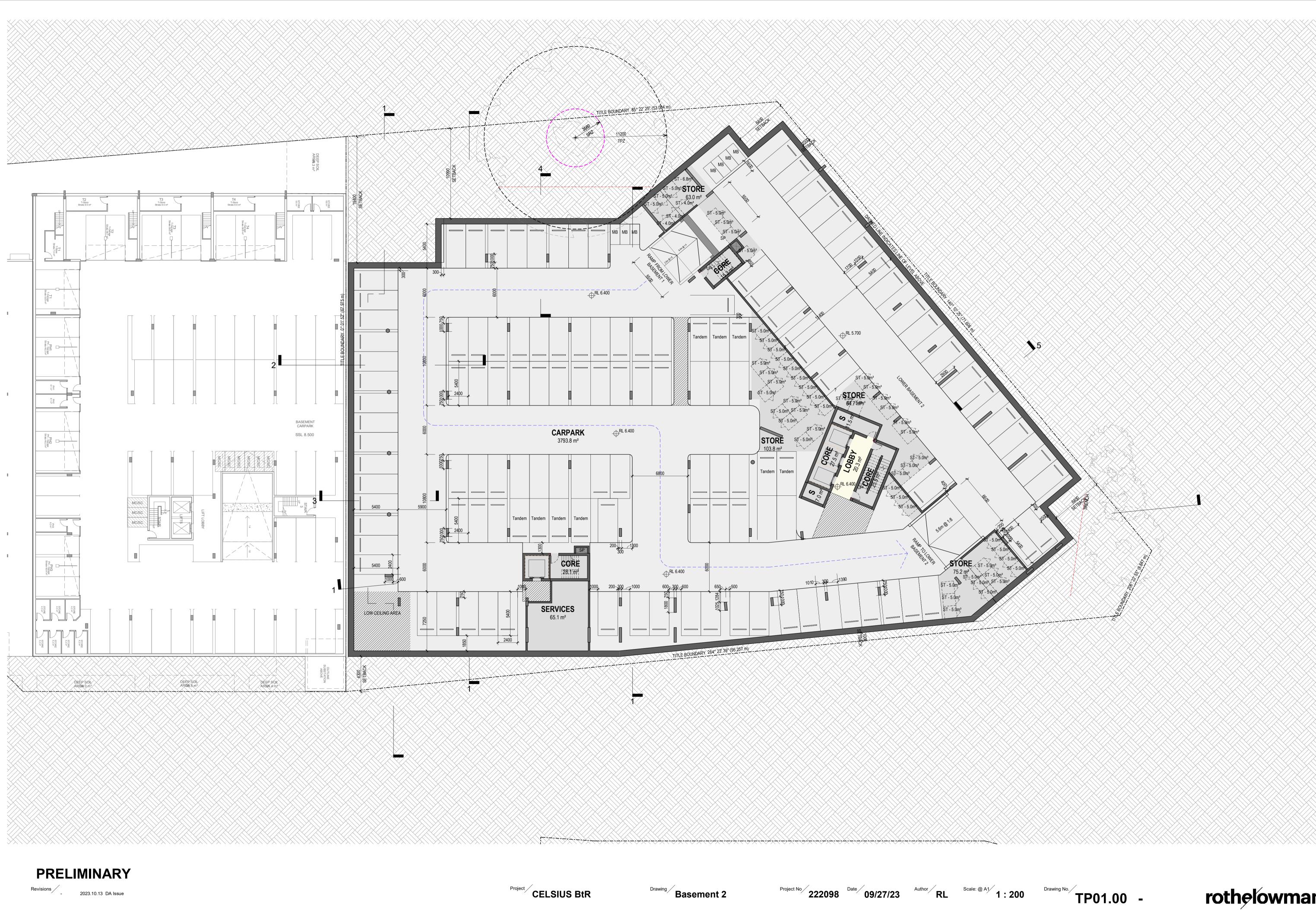
Any carpark gates or similar, allowing access to the carpark areas, will require to be constructed such that the system is mounted on structurally isolated mounts – reducing the potential of any structurally transmitted noise impacts from this area affecting the apartments above and within the development.

The noise impact of the gate in the surrounding area is not considered significant, given the low level of noise such gates produce and the setback into the underside of the building where they might be located.

APPENDIX A

DEVELOPMENT APPLICATION PLANS



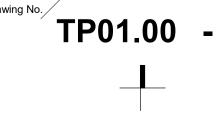




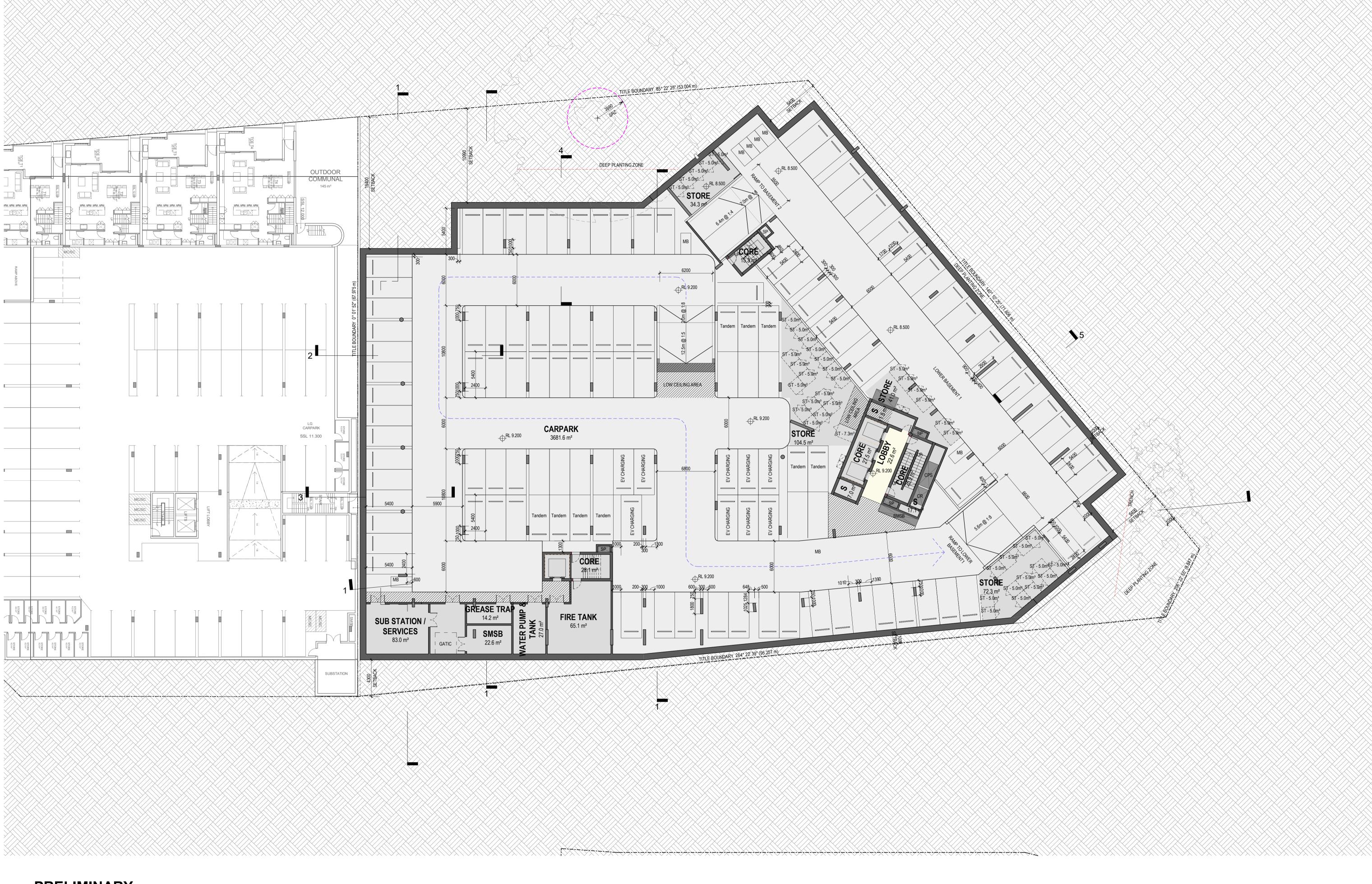
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CELSIUS BtR

Basement 1

Project No 222098

, Date 09/27/23

2 Seymour Avenue, Shenton Park WA

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