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Your Ref: SSD-82548708

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email: adela.murimba@dpie.nsw.gov.au
CC: helen.slater@ses.nsw.gov.au

Dear Adela,

**State Significant Development Application for Residential Flat Building with Infill
Affordable Housing 24, 26 & 28 Middle Harbour Rd**

Thank you for the opportunity to provide comment on the State Significant Development Application for Residential Flat Building with Infill Affordable Housing 24, 26 & 28 Middle Harbour Rd. It is understood that the proposed development seeks to undertake:

- Demolition of existing structures
- Bulk earthworks, involving cut and fill works
- Construction of a 9-storey residential flat building (RFB) comprising 94 residential units (including 20 for affordable housing and 32 for build-to-rent housing)
- Basement car parking for 190 spaces
- Flood storage tank with capacity of 180 metres cubed¹
- Associated services and infrastructure installation/augmentation and associated landscaping including tree removal

The NSW State Emergency Service (NSW SES) is the agency responsible for dealing with floods, storms and tsunami in NSW. This role includes, planning for, responding to and coordinating the initial recovery from floods. As such, the NSW SES has an interest in the public safety aspects of the development of flood prone land, particularly the potential for changes to land use to either exacerbate existing flood risk or create new flood risk for communities in NSW.

The NSW SES recommends that consideration of flooding issues is undertaken in accordance with the requirements of NSW Government's Flood Prone Land Policy as set out in the Flood Risk Management Manual 2023 (the Manual) and supporting guidelines, including the Support for Emergency Management Planning and relevant planning directions under the *Environmental Planning and Assessment Act, 1979*. Some of the key considerations relating to emergency management are further detailed in Appendix A.

¹ Willowtree Planning, 2025, Environmental Impact Statement, page 15.

There is an existing overland flow path through the site, with flood hazard on the site up to H5 during a Probable Maximum Flood (PMF) event for both pre and post development models. This flood hazard is unsafe for people and vehicles, and all buildings exposed to this hazard are vulnerable to structural damage.²

The proposed development would also increase flood levels during rarer flood events. During the PMF the site currently becomes inundated to depths of up to 1 metre,³ but under post-development conditions becomes inundated to depths of up to and greater than 2 metres.⁴

In summary, we:

- **Recommend** considering flood risks up to and including the PMF, and including climate change, instead of focusing only on the 1% Annual Exceedance Probability (AEP) flood, as the Flood Risk Management Manual 2023 defines 'Flood prone land' as *"Land susceptible to flooding by the PMF event"*.⁵
- **Do not support** shelter in place for this site, per condition 8c of the NSW Government Shelter-in-Place guideline for flash flooding, as the site and proposed buildings on the site would be directly exposed to high hazard flooding.
- **Recommend** considering the risks of inundation of the site, as modelling shows floodwaters of up to and greater than 2 metres depth immediately adjacent to (and therefore expected to inundate) the site in the PMF.⁶
- **Recommend** considering the risks of climate change, as the modelling shows afflux due to climate change on the proposed design would increase depths adjacent to the site by up to 0.30m during an 0.5% AEP event⁷ and greater than 0.30m during an 0.2% AEP event,⁸ resulting in an increase in the hydraulic hazard levels in this area.⁹
- **Recommend** ensuring that all openings to the basement (ramp, vents, etc) are situated above the PMF, or reconsidering basement carparking if this is not feasible, to reduce risk to life and property.

You may also find the following Guidelines available on the NSW SES website useful:

- [Reducing Vulnerability of Buildings to Flood Damage](#)
- [Designing Safer Subdivisions](#)
- [Managing Flood Risk Through Planning Opportunities](#)

² AIDR, 2017, *Guideline 7-3 Flood Hazard*, page 10.

³ WMS, 2025, *24-28 Middle Harbour Road, Lindfield – Flood Impact Risk Assessment*, page 51.

⁴ WMS, 2025, *24-28 Middle Harbour Road, Lindfield – Flood Impact Risk Assessment*, page 86.

⁵ State of NSW and Department of Planning and Environment, 2023, *Flood Risk Management Manual*, page 49.

⁶ WMS, 2025, *24-28 Middle Harbour Road, Lindfield – Flood Impact Risk Assessment*, page 86.

⁷ WMS, 2025, *24-28 Middle Harbour Road, Lindfield – Flood Impact Risk Assessment*, page 93.

⁸ WMS, 2025, *24-28 Middle Harbour Road, Lindfield – Flood Impact Risk Assessment*, page 95.

⁹ WMS, 2025, *24-28 Middle Harbour Road, Lindfield – Flood Impact Risk Assessment*, page 94 & 96.

Please feel free to contact Claire Flashman via email at rra@ses.nsw.gov.au should you wish to discuss any of the matters raised in this correspondence. The NSW SES would also be interested in receiving future correspondence regarding the outcome of this referral via this email address.

Yours sincerely,

A handwritten signature in grey ink, appearing to read 'P. Cinque'.

Peter Cinque
Senior Manager Emergency Risk Management
NSW State Emergency Service

ATTACHMENT A: Principles Outlined in the Support for Emergency Management Planning Guideline¹⁰

Principle 1 Any proposed Emergency Management strategy should be compatible with any existing community Emergency Management strategy.

Any proposed Emergency Management strategy for an area should be compatible with the evacuation strategies identified in the NSW State Flood Plan¹¹ and the Hornsby Ku-ring-gai Local Flood Plan, where evacuation is the preferred emergency management strategy for people impacted by flooding.¹² We also note that any proposed evacuation strategy must not require people to drive or walk through flood water.

We do not support shelter in place for this site, per condition 8c of the NSW Government Shelter-in-Place guideline for flash flooding, as the site and proposed buildings on the site would be directly exposed to high hazard flooding. Please see Principle 4 for further discussion.

Principle 2 Decisions should be informed by understanding the full range of risks to the community.

Decisions relating to future development should be risk-based and ensure Emergency Management risks to the community of the full range of floods are effectively understood and managed.

Flood risks up to the PMF

Risk assessment should consider the full range of flooding, including events up to the Probable Maximum Flood (PMF) and not focus only on the 1% AEP flood. For example, section 5 of the FIRA states “Duration of inundation ... is expected to be less than 1 hour in 1% AEP storm event”,¹³ however there is no mention of duration for events greater than the 1% AEP.

It is noted that the site itself is currently prone to flooding in a 10% AEP event with flood depths of 0.15-0.50m across the site,¹⁴ and depths of up to 1m during a PMF. However, the post-development modelling shows the site would become inundated with depths of up to and greater than 2 metres immediately adjacent to the site during a PMF.

We would also like to emphasise that the NSW SES has responded to multiple flood related requests in this area, including inundation of properties on Middle Harbour Road and Capper Street, and multiple sandbagging requests for property protection in the area.

¹⁰ NSW Government. 2023. Principles Outlined in the *Support for Emergency Management Planning Guideline*

¹¹ NSW Government. 2024. NSW State Flood Plan. Section 5.1.7, page 34.

¹² NSW SES, 2021, *Hornsby Ku-ring-gai Flood Emergency Sub Plan*, Section 5.8, page 16.

¹³ WMS, 2025, *24-28 Middle Harbour Road, Lindfield – Flood Impact Risk Assessment*, page 22.

¹⁴ WMS, 2025, *24-28 Middle Harbour Road, Lindfield – Flood Impact Risk Assessment*, page 31.

Climate change

Current evidence suggests that flood events will become more frequent due to climate change. Flood impacts and risks due to climate change should be considered, beyond providing modelling for these events. The afflux models for the 0.5% AEP and 0.2% AEP (proxies for the 1% AEP event plus climate change)¹⁵ clearly demonstrate increases in the area inundated by floodwater under both scenarios, with flood depths adjacent to the site increasing by up to 0.30m during an 0.5% AEP event¹⁶ and greater than 0.30m during an 0.2% AEP event.¹⁷ These afflux levels are not insignificant. The climate change proxy modelling also shows that climate change would increase flood hazard by 1-2 levels in various locations adjacent to and downstream from the site.¹⁸

A Climate Change Calculator has been developed to address the updated ARR climate change guidelines (Wasko et al, 2024), recommending the adjustment of the BoM 2016 IFDs to account for the warming that has occurred since the mid-point of the data used for their development (1961-1990). This results in a significant increase in existing conditions flood levels.¹⁹ The change in flood probabilities with climate change for the this catchment area results in the new probability of the 1 in 100 AEP to be approximately 1 in 44 AEP event for the current 2025 scenario, becoming even more frequent in the future.²⁰ For the proposed development site, this could result in more frequent inundation and isolation than what is currently expected based on previous modelling.

Principle 3 Development of the floodplain does not impact on the ability of the existing community to safely and effectively respond to a flood.

The ability of the existing community to effectively respond (including self-evacuating) within the available timeframe on available infrastructure is to be maintained. It is not to be impacted on by the cumulative impact of new development.

During the PMF the site currently becomes inundated to depths of up to 1 metre,²¹ but under post-development conditions becomes inundated to depths of up to and greater than 2 metres.²² The afflux maps also indicate that the proposed development would increase flooding on adjacent sites to the north, west and south of the site during the PMF by up to and greater than 0.3m, and would introduce floodwater to properties and parts of properties that would otherwise have been dry.²³ This proposal would therefore impact on the existing

¹⁵ WMS, 2025, 24-28 Middle Harbour Road, Lindfield – Flood Impact Risk Assessment, page 24.

¹⁶ WMS, 2025, 24-28 Middle Harbour Road, Lindfield – Flood Impact Risk Assessment, page 93.

¹⁷ WMS, 2025, 24-28 Middle Harbour Road, Lindfield – Flood Impact Risk Assessment, page 95.

¹⁸ WMS, 2025, 24-28 Middle Harbour Road, Lindfield – Flood Impact Risk Assessment, page 94 & 96.

¹⁹ Babister et al. 2024. Climate Change Calculator: Estimating Changes to Flood Probability Under Different Climate Change Scenarios, page 1

²⁰ WMAwater. 2024. Climate Change Calculator. Retrieved 24 June 2025 from <https://ccc.wmawater.com.au/>

²¹ WMS, 2025, 24-28 Middle Harbour Road, Lindfield – Flood Impact Risk Assessment, page 51.

²² WMS, 2025, 24-28 Middle Harbour Road, Lindfield – Flood Impact Risk Assessment, page 86.

²³ WMS, 2025, 24-28 Middle Harbour Road, Lindfield – Flood Impact Risk Assessment, page 90.

community, and we recommend removing the statement *“the proposed development results in limited flood level afflux within neighbouring properties”²⁴* as this does not hold true for all events up to the PMF.

Risk assessment should have regard to flood warning and evacuation demand on existing and future access/egress routes. Consideration should also be given to the impacts of localised flooding on evacuation routes. Evacuation must not require people to drive or walk through flood water. Development strategies relying on an assumption that mass rescue may be possible where evacuation fails or is not implemented are not acceptable to the NSW SES.

Principle 4 Decisions on development within the floodplain does not increase risk to life from flooding.

Managing risks associated with flooding requires careful consideration of development type, likely users, and their ability respond to minimise their risks. This includes consideration of:

- Isolation – There is no known safe period of isolation in a flood, the longer the period of isolation the greater the risk to occupants who are isolated.
- Secondary risks – This includes fire and medical emergencies that can impact on the safety of people isolated by floodwater. The potential risk to occupants needs to be considered and managed in decision-making.
- Consideration of human behaviour – The behaviour of individuals such as choosing not to remain isolated from their family or social network in a building on a floor above the PMF for an extended flood duration or attempting to return to a building during a flood, needs to be considered.

Shelter in Place

As noted earlier, we do not support shelter in place for this site, primarily because the site would be directly exposed to high hazard flooding. This therefore does not meet condition 8c of the NSW Government Shelter-in-Place guideline for flash flooding.

We also note that 'shelter in place' strategy is not an endorsed flood management strategy by the NSW SES for *future development*. Such an approach is only considered suitable for existing dwellings where the risk of staying is lower than the risk of evacuating, without increasing the number of people subject to such risks. Development strategies relying on deliberate isolation or sheltering in buildings surrounded by flood water are not equivalent, in risk management terms, to evacuation.

Elevated structures to achieve compliance with habitable floor levels, although effective for property protection, brings with it the problem that residents will be convinced that it is safe to “sit-out the flood”. Unless the floor level is above the limit of all flooding i.e., above the PMF, this is not true because the water could keep rising over the floor level after residents have lost their escape route. It also does not consider how occupants may behave including

²⁴ WMS, 2025, 24-28 Middle Harbour Road, Lindfield – *Flood Impact Risk Assessment*, page 21.

the potential that they may attempt to leave too late, or access flood affected buildings when it is unsafe to do so. Unfortunately, our experience is that people change their mind about sheltering in place after they have been surrounded by flood water or when essential services such as water, power and sewer cease to function. Building stability can also be an issue, particularly in high hazard floods where all buildings are susceptible to structural failure.

The flood evacuation constraints in an area must not be used as a reason to justify new development by requiring the new development to have a suitable refuge above the PMF. Allowing such development will increase the number of people exposed to the effects of flooding and other secondary emergencies such as fires and medical emergencies. Emergency services are also exposed to greater risks than if flood-free access was available. This unnecessarily exposes emergency service personnel to flood situations which may lead to injury or death.

Basement carparking

Basement car parks have inherent risks to life and property²⁵ and can often restrict safe evacuation of the occupants. This can be managed through building design, such as crest levels above a certain level (e.g. the PMF) to prevent water ingress and flooding.

Building designs which put cars or other property under the building may also encourage people to take risks to save these items, and therefore is not preferred for future development that sees an increase in the number of people exposed to the risks.

Principle 5 Risks faced by the itinerant population need to be managed.

Any Emergency Management strategy needs to consider people visiting the area or using a development.

Principle 6 Recognise the need for effective flood warning and associated limitations.

An effective flood warning strategy with clear and concise messaging understood by the community is key to providing the community an opportunity to respond to a flood threat in an appropriate and timely manner.

The AEP of an event will not be known until after the flooding has peaked and therefore should not be used in determining flood emergency response strategies. Instead, flood emergency response plans (FERPs) should include triggers and plans which apply to all events including frequent flood events and events up to and including the PMF. For this site, Severe Weather Warnings and Thunderstorm Warnings will be the most likely form of advice about the potential for flood producing storms and rainfall.

²⁵ Collier, L. Phillips, B., and Griffin, M. 2017. *Basement Development in the Floodplain*. Floodplain Management Australia Conference. Newcastle, 2017.

Principle 7 Ongoing community awareness of flooding is critical to assist effective emergency response.

The flood risk at the site and actions taken to reduce risk to life should be communicated to all site users (includes increasing risk awareness, community connections, preparedness actions, appropriate signage and emergency drills) during and after the construction phase. However, it is important to note that the NSW SES is opposed to the imposition of development consent conditions requiring private flood evacuation plans rather than the application of sound land use planning and flood risk management.

Development in a floodplain will increase the need for NSW SES to undertake continuous community awareness, preparedness, and response requirements.