

ALEXANDRIA HEALTH CARE

OPERATIONAL FLOOD EMERGENCY MANAGEMENT PLAN



Prepared for: Alexandria Property Development
By: enstruct group pty ltd
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ALEXANDRIA HEALTH CARE

OPERATIONAL FLOOD EMERGENCY MANAGEMENT PLAN

ISSUE AUTHORISATION

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A	9/11/23	DRAFT for review	Tim Henderson CPEng, NER	(draft only)	
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Executive Summary

enstruct Group have been engaged by Centuria to provide an Operational Flood Emergency Management Plan (OFEMP) for the development the Alexandria Health Centre at 28-32 Bourke St, Alexandria.

The aim of the OFEMP is to assess the impact of a 1% Annual Exceedance Probability (AEP) storm and larger events up to and including the Probable Maximum Flood (PMF) and recommend appropriate procedures for personnel onsite to follow to maximise their safety and reduce risk of death and injury due to flooding and flood water. This report will raise awareness of the risk of flooding and will include flood warnings, safe evacuation routes, designated safe assembly areas, and evacuation management plans.

The OFEMP will also discuss the flooding conditions in the vicinity of the site, proposed methods of detecting flooding, proposed routes for refuge, and details of management of all personnel on site during a flooding event.

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I. Definitions

For the purpose of this Plan, the definitions below apply:

Assembly area(s)

The designated place or places where people assemble during the course of an evacuation.

Emergency

An event that arises internally, or from external sources, which may adversely affect the occupants or visitors in a facility, and which requires an immediate response.

Emergency plan

The written documentation of the emergency arrangements for a facility, generally made during the planning process. It consists of the preparedness, prevention and response activities and includes the agreed emergency roles, responsibilities, strategies, systems and arrangements.

Emergency Planning Committee (EPC)

Elected persons from health centre who are responsible for the documentation and maintenance of the flood risk management plan and strategy at Alexandria Health Care.

Emergency Control Organiser (ECO)

A person or persons appointed by the emergency planning committee to direct and control the implementation of the facility's emergency response procedures.

Evacuation

The orderly movement of people from a place of danger.

Refuge

An area that is specifically designed to protect people from flood and provides direct access to an exit (SES).

Notes:

1. An area of refuge is intended to facilitate a safe delay in egress from the floor or area, thus constituting a space for people to await assistance for their evacuation.
2. Refuges are normally nominated by the relevant warden.

Warden intercommunication point (WIP)

The location on a floor or evacuation zone that includes a handset provided through which instructions can be received from the intercommunication panel via the emergency intercom system.

II. Abbreviations

The following abbreviations are used in this Emergency Plan document:

AHD	Australian Height Datum
AEP	Annual Exceedance Probability
AP	Assembly Point
ARI	Average Recurrence Interval
DDA	Disability Discrimination Act
ECO	Emergency Control Organization
EPC	Emergency Planning Committee
FERP	Flood Emergency Response Plan
OFEMP	Operational Flood Emergency Management Plan
FFL	Finished Floor Level
PMF	Probable Maximum Flood
SES	State Emergency Service
WIP	Warden Intercommunication Point

1 Introduction

The Operation Flood Emergency Management Plan (OFEMP) is for the proposed “Alexandria Health Centre” development located at 28-32 Bourke Road, Alexandria (the site), within the City of Sydney Council Local Government Area (LGA). The proposed works at Bourke Road will include basement and ground floor car parks providing approximately 77 car spaces, new mental health hospital, and a medical centre. This report is based on flood information obtained from:

- Architectural plans prepared by Warren and Mahoney
- 28-32 Bourke Road Alexandria Civil Engineering Flood Report, enstruct December 2023;
- The TUFLOW model from the Alexandria Canal Model Conversion 2020 by WMAwater Pty Ltd obtained under a data access agreement with Council.

This OFEMP responds to the conditions of consent, specifically Condition B31

B31. A preliminary detailed Operation Flood Emergency Management Plan must be submitted that:	Responses
(a) has been prepared by a suitably qualified Engineer (who is included in the National Professional Engineers Register, administered by the Institution of Engineers Australia);	The author and reviewer of this OFEMP are suitably qualified and listed on the register
(b) includes advice from the NSW State Emergency Service noting the limitations described in the NSW Floodplain Development Manual Appendix N, section N7;	SES were consulted during the concept SSDA process.
(c) addresses the provisions of the Floodplain Risk Management Guidelines (EHG)	The 28-32 Bourke Road Alexandria Civil Engineering Flood Report and TUFLOW model from the Alexandria Canal Model Conversion 2020, as well as this document address the provisions of the Floodplain Risk Management Guidelines
(d) incorporates the following:	
(i) the flood emergency management protocols for operational phase of the development, including any emergency evacuation to the nearest hospital and procedures for site isolation;	Refer to sections 8, 9 and 10
(ii) predicted flood levels within the site and within the adjoining road system and other public land expected to be used by patients, staff, occupants and visitors;	Refer to section 2
(iii) the predicted duration of flood inundation within the site and within the adjoining road system for the full range of flooding events;	Refer to section 9
(iv) what system of monitoring of flood events would occur, including who would be responsible for the monitoring and warning;	Refer to sections 4 and 5
(v) strategies such as early or pre-emptive closure or management measures for relevant tenants of the building, including under what scenarios the hospital and other tenants would be closed and the frequency of closures due to flooding events and notification of closures;	Refer to section 11
(vi) clear emergency management triggers and responses, including the authority for measuring and issuing such a direction that the trigger has	Refer to section 9

been reached, the intended length of the warning times;	
(vii) details of flood warning time and flood notification;	Refer to sections 4 and 5
(viii) details of assembly points and flood free routes where required;	Refer to section 9
(ix) clear roles and responsibilities for emergency flood management within the development;	Refer to section 6
(x) clear messaging and communication protocols;	Refer to sections 6 and 7
(xi) clear requirements that the Plan be regularly reviewed; and	Refer to section 12
(xii) details of awareness training for employees, contractors, visitors, occupants, patients and caregivers and induction of new staff members	Refer to sections 5 and 11.2
(e) details minimum floor space per person for periods of isolation;	All floor space is protected from flooding
(f) details access to on-site systems to provide power, water and sewerage services during and beyond the event for the full range of flooding;	Refer to section 10
(g) identifies options to evacuate the site, prepared in consultation with SES, and the associated risk;	Refer to section 9
(h) details any Shelter-in-Place strategy, including how patients, staff, visitors and tenants would be safely sheltered for extended periods if the shelter in place cannot otherwise be demonstrated to be short term (less than six hours);	Refer to section 10
(i) details any arrangements to ensure that vehicles are restricted from leaving the basement and entering high risk flood waters;	Refer to section 9
(j) identifies personnel on site at all times who are responsible (including for all tenants within the building and what specific measures would be implemented to ensure coordinated and ongoing management is provided) for implementing the Operation Flood Emergency Management Plan, evacuating the site or the Shelter-in-Place strategy.	Refer to section 6

1.1 The Site

The land to which this flood management report relates to is known as 28-32 Bourke Road, Sydney. The site is situated on the southern side of Bourke Road.

The site occupies two land allotments and is legally described as follows: Lot 1-3 DP324707.

The site has a regular rectangular shape allotment with a frontage to Bourke Road of approximately 40.6 metres and an overall depth of approximately 73 metres, yielding a total site area of approximately 2,965 sqm.

Bourke Road forms a low point east of the subject site and is a two-way and two lane carriage way road.

A Location Plan including the site is provided in Figure 1.



Figure 1 Location Plan (Source: Six Maps)

2 Flood Risk

The site is located near a sag point on Bourke Road and is located in a high flood risk zone with major overland flow expected at or near the site. After investigating the Council flood model results, it was found that the 1% AEP flood level at the site was at 8.8 mAHD, while the Probable Maximum Flood (PMF) level varies from 10.3 mAHD to 10.4 mAHD.

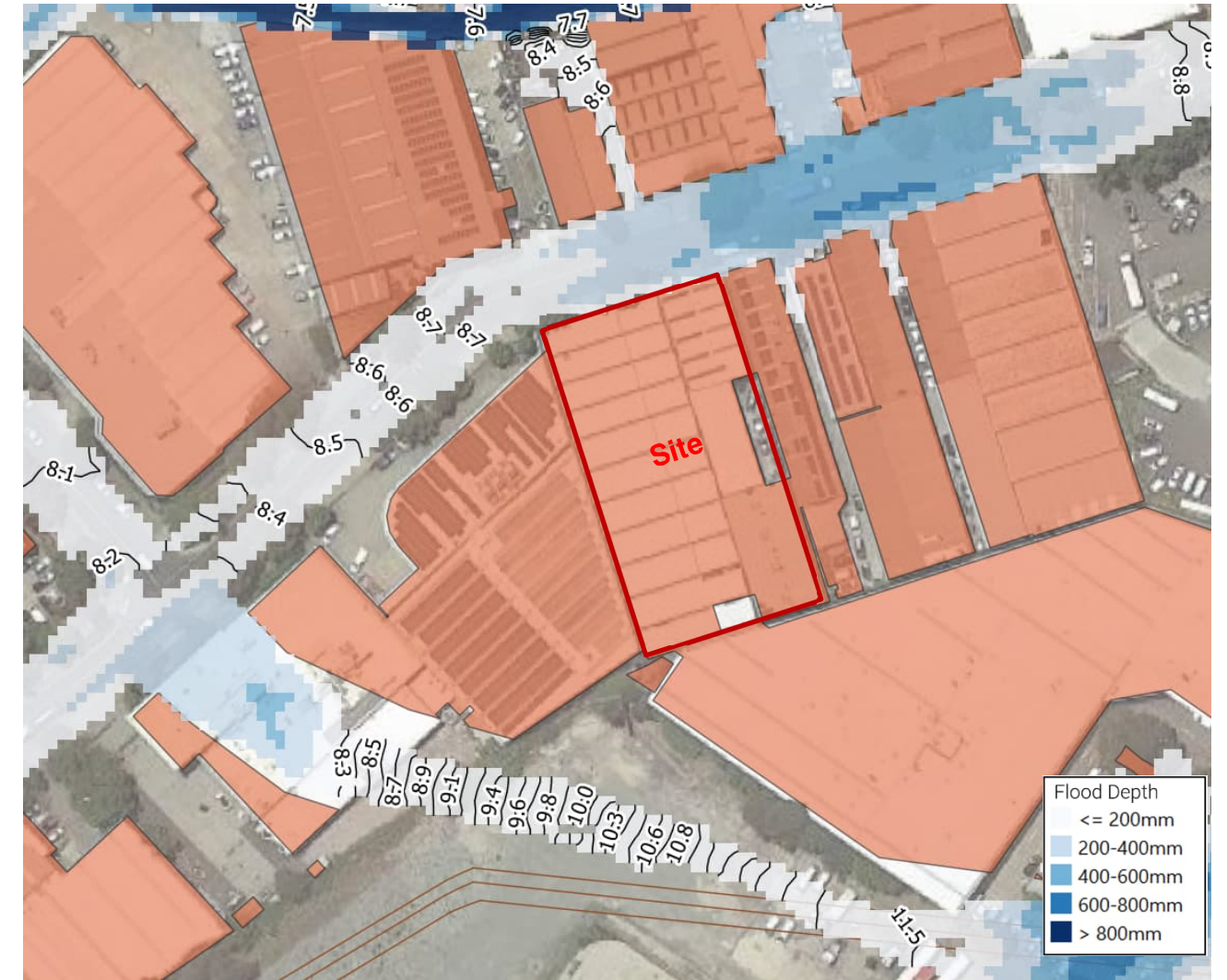


Figure 2 1% AEP Flood Map

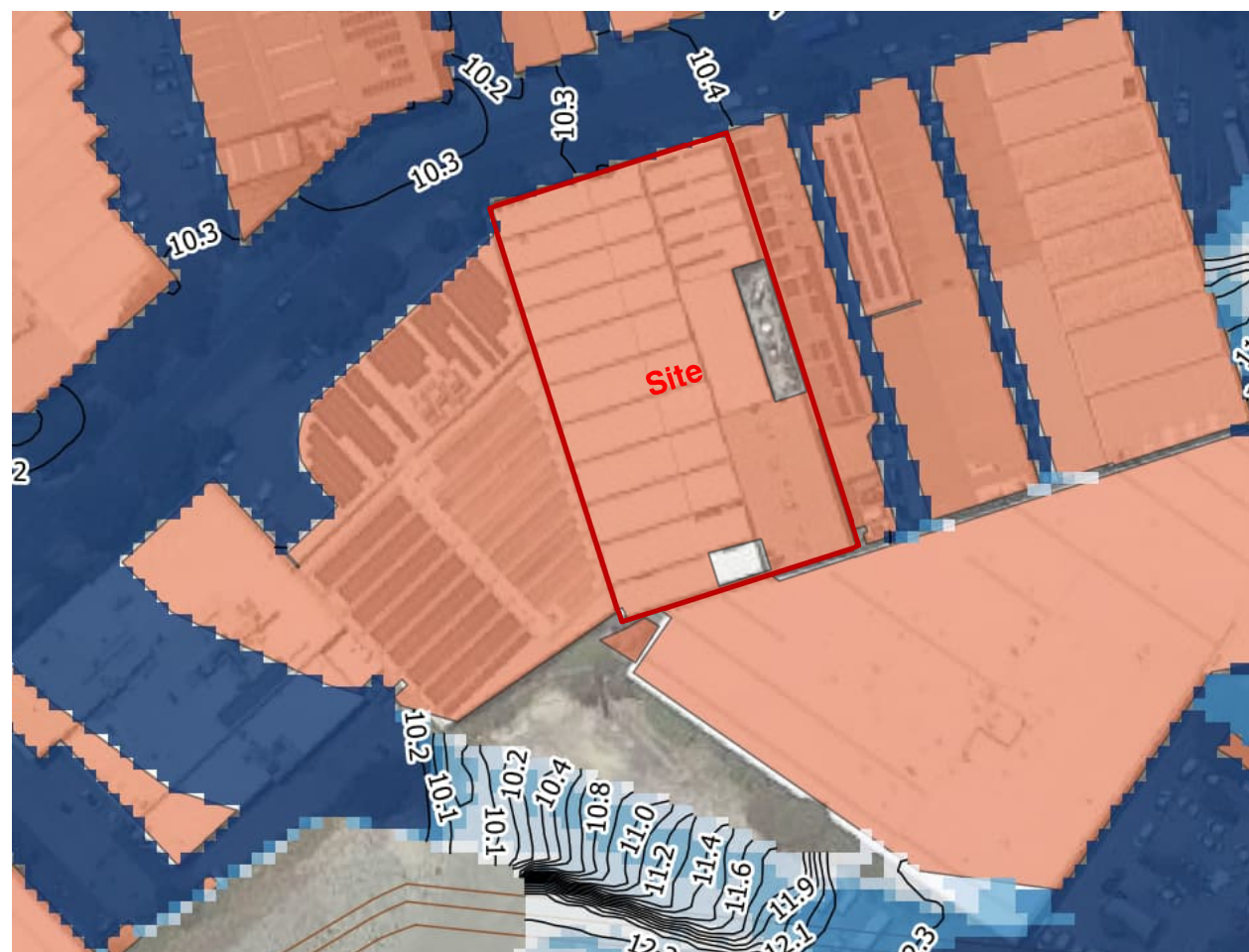


Figure 3 Probable Maximum Flood Map

3 Flood Planning Requirements

Given the proposed use of the site is a hospital, the building is classified as a critical facility within the City of Sydney Interim Floodplain Management Policy and hence all habitable floor levels require to be at least at the PMF level (10.4m AHD). This is generally in line with the NSW Floodplain Development Manual.

The development includes a basement level. All entrance levels to the basement, including the vehicle ramp, stairwells, ventilation, lifts, etc will be designed to be protected from flooding during a PMF event to comply with the Interim Floodplain Management Policy.

4 Flood and Evacuation Warnings

There are several official flood warnings issued by the Bureau of Meteorology, State Emergency Service (SES) and NSW Police which can assist in the preparation of a potential flood. The warning types are:

Severe Weather Warnings (Bureau of Meteorology):

Severe Weather Warnings are provided for potentially hazardous or dangerous weather that is not directly related to severe thunderstorms, tropical cyclones or bushfires. They are issued for sustained winds of gale force; wind gusts of 90km/h or more; very heavy rain that may lead to flash flooding and abnormally high tides.

Severe Thunderstorm Warnings (Bureau of Meteorology):

A Severe Thunderstorm Warning is issued if the severe phenomena are directly caused by the thunderstorm and include wind gusts of 90km/h or more; gale force winds; tornados; blizzards\ heavy rainfall that is conducive to flash flooding; hail with a diameter of at least 2cm; abnormally high tides and unusually large surf waves expected to cause dangerous conditions on the coast.

Flood Watch (Bureau of Meteorology):

A Flood Watch is issued by the Bureau of Meteorology if flood producing rain is expected to happen in the near future and flooding is expected to be above Minor level. A Flood Watch covers a river basin or catchment. The general weather forecasts can also refer to flood producing rain. You should be prepared to act should flooding occur.

Flood Warning (Bureau of Meteorology):

A Flood Warning is issued by the Bureau of Meteorology when flooding is expected to occur or is happening. Flood Warnings provide a predicted flood level and time at which a river will reach that level. Flood Warnings are issued in relation to flood gauges which are situated at a certain point on a river. Flood Warnings may contain observed, peak, or predicted river heights.

The address below can be visited to check flood warnings for the Alexandria Canal.

<http://www.bom.gov.au/nsw/forecasts/sydney-local-forecasts.shtml>

NSW SES Flood Bulletins (SES):

NSW SES Flood Bulletins provide information on likely flood consequences and what actions are required to protect yourself and your property.

Evacuation Warning (SES):

When flooding is likely to cut evacuation routes or inundate property, the NSW SES issues an Evacuation Warning to indicate that you should get prepared to evacuate. Being prepared will allow you to respond quickly if an Evacuation Order is issued.

4.1 Other warnings will be:

Monitor the flood situation:

In addition to receiving an official warning, monitoring the situation before flooding begins to impact the site is important. Monitoring the situation can be undertaken by personally witnessing the height and rate at which floodwaters are rising; maintaining contact with other people in the building and local and government radio stations to receive and share updates on the flood situation.

The likelihood of flash flooding:

Severe Weather Warnings and Severe Thunderstorm Warnings issued by the Bureau of Meteorology warn of the possibility of flash flooding.

When flash flooding is likely, leaving low-lying businesses (evacuation) well before flash flooding begins is the best action to take, but only if it is safe to do so. If you are trapped by rising floodwater, seek refuge on site. Stay there and call '000' (triple zero) if you need rescue.

All warnings will be issued through the Bureau of Meteorology website, television and local radio stations for weather warnings such as 702 ABC SYDNEY 702 AM, 2CH 1170 AM, 2DAY FM 104.1 FM, 2GB 873 AM, 2ME 1638 AM, 2SM/GORILLA 1269 AM, 2UE 954 AM, C91.3 FM 91.3 FM, MIX 106.5 106.5 FM, NOVA 96.9 FM, RADIO 2MORO 1620 AM, RADIO 2RDJ 88.1 FM, SBS RADIO 97.7 FM, SYDNEY'S 95.3 95.3 FM, TRIPLE M 104.9 FM and WFSM 101.7 FM.

5 Flood Response Preparation

It is the responsibility of the Emergency Planning Committee as part of the site Emergency Management Plan that they prepare the site for a flood event. This will be achieved through induction training, nomination of flood wardens reporting to the Chief Warden during emergency events, education of flood risks and behaviour, and the preparation and maintenance of a Floodsafe Emergency Kit.

The Emergency Planning Committee is also to organise evacuation drills and flood emergency kits to prepare all site personnel for flood risks.

5.1 Flood Emergency Kit

Potential items for a flood emergency kit are outlined at www.floodsafe.com.au and reproduced below:

- A copy of the building Emergency Management Plan;
- A torch with spare batteries;
- A first aid kit;
- Waterproof bag for valuables;
- A copy of emergency numbers; and
- Battery operated radio with AM and FM frequency access (with spare batteries).

The kit should be kept on each level of the Alexandria Health Care development for efficient deployment in the event of an emergency. The contents of the kit and management during a flood event will be the responsibility of the Chief Warden. This storage area should also be used for protecting hazardous materials and valuable goods from flood water.

5.2 Isolation Management

There is a risk of site isolation during extreme and long duration storm events. To prepare for such an event, the following provisions should be made on site.

- The kitchen should at all times have adequate supplies of food and water to service all occupants for a period of 24 hours.
- Reserve supplies of linen and consumables should be stored on site at all times.

6 Flood Response Personnel

Summarised below are the personnel involved in the management of the flood response at the site, and corresponding responsibilities.

Table 1: Personnel and Responsibilities

Personnel	Responsibility
Emergency Control Organisation	<ul style="list-style-type: none"> Coordinate flood evacuation drills
Chief Warden	<ul style="list-style-type: none"> Monitor weather daily for upcoming extreme rainfall events; Decide when evacuation is required; Liaise and communicate with SES or Emergency Services personnel if they attend site; and Manage the evacuation process in consultation with SES or Emergency Services.

7 Emergency Contact

The Chief Warden is to be contactable via the WIP phone at all times to ensure they are ready to assist any person at the site.

- For emergency assistance during flood events, please call the SES on 132 500.
- If you are in a life-threatening situation please call Police, Fire or Ambulance on "000" (triple zero).
- Local Mascot Police Station on 8338 7399.

8 Nearest Hospitals

The site is approximately equidistant to three major hospitals:

- Royal Prince Alfred Hospital (RPA) in Camperdown to the northwest of the site.
- St Vincents Hospital in Darlinghurst to the north of the site.
- Prince of Wales Hospital in Randwick to the east of the site.

9 Assembly Point (AP) and Evacuation Routes

Since no official SES flood warnings will be issued prior to a flood emergency in the Alexandria Canal catchment area, it is expected that some persons will be on the site during a flood emergency. Occupants should have sufficient time to leave the site through provided evacuation routes before they are obstructed as the water level rises in large storm events. If occupants delay leaving the site, they may become isolated by the flood water which may prevent safe exit from the site until the storm event subsides.



Figure 4 Access/egress routes

As the site is bounded by inaccessible roadways, all persons at the site when a flooding occurs are expected to be unable to safely leave the site. All floor levels are protected from flooding during a PMF. Vehicles evacuating the carpark are expected to proceed through the car ramps to the ground level and out the appropriate exit.

In all events up to the 20-year ARI storm, evacuation is expected to be able to continue through the peak flood as the flood water will only affect a portion of the site. Furthermore, all ground floor levels, including the crest of ramps to basement levels, are located above the PMF ensuring any person within the building will be in refuge from the flood event.

Bowden Street is a known flooding hotspot. During a short duration 100-year ARI storm (90 minutes), Bowden Street is untrafficable for a period of approximately 20 minutes. During long duration events (6+ hours) the street are likely to be trafficable. In any case, the Chief Warden must monitor the

situation and seek information on the status of the surrounding roads. Any persons evacuating the site should proceed with caution and follow the directions of the SES and emergency services.

In the PMF event, if any person is not able to evacuate before flood waters reach the site, they are expected to seek refuge on any level above and including the ground floor where an emergency Assembly Point will be allocated.

10 Shelter In Place

During 1% AEP storm event, site may be isolated for a period of approximately 20 minutes. This is considered an inconvenience to site users (patients and staff) and should be managed similarly to other occurrences such as bad traffic, public transport delays and the like.

During a PMF event, the isolation period has shown to vary up to approximately 12 hours. In this instance, staff and patients will remain on site for the duration of the site being isolated. The site includes a backup generator located above the PMF level so the site will be powered. The proposed hospital has an on site kitchen, which will have adequate supplies of food and water for the isolation period. There will be reserve supplies of linen and consumables. Any procedures involving anaesthetic should be postponed to minimise the risk of medical emergencies on site.

The Chief Warden will remain in contact with the authorities (Police, SES, etc) and monitor local and government radio stations to receive and share updates on the flood situation with site occupants.

In general, staff remaining on site should continue to provide patient care at an appropriately reduced capacity. The kitchen staff will be notified by the Chief Warden on the number of people on site and expected duration of isolation to plan for and prepare meals and supply water.

In the event of a medical emergency, contact 000.

11 Flood Response Actions

11.1 Emergency Risk Management

To minimise the risk to site occupants, the number of people on site should be minimised where there is a risk of flooding. When any warnings outlined in Section 4 are issued, medical procedures involving anaesthesia should be rescheduled where possible. Admissions should also be rescheduled where possible.

11.2 Evacuation Drills

Evacuation drills are designed to increase flood awareness within the building. These drills are to be undertaken annually to familiarise patrons of the building, specifically of the commercial sectors, of the procedures when responding to a flood event.

11.3 Evacuation

Once a Flood Warning or Flood Bulletin for the City of Sydney Council LGA has been issued;

- Sound evacuation tone;
- Chief Flood Warden to be on hand if any person requires guidance;
- Chief Flood Warden to make contact with Emergency Services to request assistance;
- Leave signage at site entrance that evacuation has occurred, and to where;
- Any person within the site is to move towards the site entrance in an orderly fashion;
- Chief Flood Warden to maintain regular communication with all persons, providing updates on the situation;
- Site to be shut down, where possible of all, but essential power; and
- All persons at the site to evacuate.

12 Revision of Flood Emergency Response Plan

This plan should be reviewed if the City of Sydney Council requirements or City of Sydney Council Flood Study, Plans and Maps are revised, and if the street drainage surrounding the site is upgraded.

The proposed development of the area including laneways servicing Alexandria Health Centre will enable evacuation via O'Riordan Street. This plan should be revised when these upgrades are complete.

The Emergency Planning Committee shall be responsible for ensuring the Flood Risk Management Plan is reviewed annually and updated as required. As part of the review, the Emergency Planning Committee shall contact Council annually to confirm if any new street drainage upgrades are planned or have been constructed.

13 Conclusion

Since official flood warnings are not issued for the Alexandria Canal catchment area, it is recommended that the site users leave the site under the direction of the Warden. This allows for sufficient time to leave the site through provided evacuation routes before local roadways are inundated. If persons delay leaving the site they may become isolated by flood water in the PMF, however, safe refuge is available on all floors.

It is the responsibility of the Emergency Planning Committee as part of the site Emergency Management Plan that they prepare the building for a flood event. This will be achieved through induction training, nomination of flood wardens reporting to the Chief Warden, education of flood risks and behaviour, and the preparation and maintenance of a Floodsafe Emergency Kit.

This plan should be reviewed if the City of Sydney Council requirements or City of Sydney Council Flood Study, Plans and Maps are revised, and if the street drainage surrounding the site is upgraded.

Further, this OFEMP is reviewed regularly (on a yearly basis).

Our Ref: ID2247
Your Ref: SSD-38600121

16 January 2024

Tim Henderson
Enstruct Group Pty Ltd
Level 4/2 Glen Street
Milsons Point NSW 2061

email: tim.henderson@enstruct.com.au
CC: shelly.stingmore@one.ses.nsw.gov.au

Dear Tim,

Flood Emergency Response Plan for Alexandria Health Care

Thank you for the opportunity to provide comment on the Flood Emergency Response Plan (FERP) for the proposed development at 28-32 Bourke Road Alexandria.

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.

It is the preference of NSW SES that all development follows the application of sound land use planning and flood risk management in accordance with the Flood Prone Land Policy, the Flood Risk Management Manual 2023 (the Manual) and supporting guidelines. This includes site design and stormwater management measures that minimise any risk to the community.

The NSW SES has reviewed the proposed FERP and the flood risk information (e.g. City of Sydney Local Flood Emergency Plan, Alexandra Canal Flood Study 2014 etc.) available to the NSW SES. We emphasise that NSW SES does not have the statutory authority to endorse or approve the FERP, however we provide an overview of the key issues for NSW SES in Attachment A.

In summary we:

- **Note** that the site itself is prone to isolation by flooding around the 10 year ARI event¹, with depths in excess of 2m during a Probable Maximum Flood (PMF) event².

¹ Cardno, 2014, Alexandra Canal Catchment Flood Study, Figure 6.4

² Enstruct, March 2023, Civil Engineering Flood Report, Section 4.3, Figure 7 Flood Model Results – PMF – future conditions

- **Recommend** careful consideration is given to the safety of staff and visitors as the duration of isolation may be up to 11.5 hours during a PMF event³ with surrounding streets un-trafficable for as long as 14.55 hours⁴.
- **Recommend** consideration is given to access/egress routes, particularly the proposed Bowden Street egress route, as the FERP states Bowden Street is *“a known flooding hotspot. During a short duration 100-year ARI storm (90 minutes), Bowden Street is non trafficable for a period of approximately 20 minutes”*⁵
- **Recommend** future egress routes are excluded from the FERP and not relied upon for emergency access/egress for the site until these routes have been developed and have become available for use. The FERP can be updated following the establishment of these routes.
- **Recommend** consideration is given to the role of the chief warden in monitoring surrounding streets as the current role as stated in the FERP may not be feasible - *“In any case, the Chief Warden must monitor the situation and seek information on the status of the surrounding roads.”*⁶
- **Recommend** consideration is given to preventing egress from basement parking into flooded streets.
- **Request** that references to ‘Evacuation Warning (SES)’ are removed. The Australian Warning System uses three categories of hazard warnings: Advice, Watch and Act, and Emergency Warning. These categories replace the previous terminology such as Evacuation Warnings and Evacuation Orders. In addition, due to the short timeframe available prior to the onset of flooding, orderly evacuation is unlikely to be feasible. Further information can be found on the NSW SES website at <https://www.ses.nsw.gov.au/about-us/our-warnings/>.

Further useful information can be found:

- NSW SES website <https://www.ses.nsw.gov.au/disaster-tabs-header/flood/>
- Emergency Business Continuity Plan (<http://www.sesemergencyplan.com.au/business/>)
- The Department of Planning and Environment website <https://www.environment.nsw.gov.au/research-and-publications/publications-search/floodplain-development-manual>

³ Enstruct, March 2023, Civil Engineering Flood Report, Section 4.5, Table 2 Potential periods of isolation for various storm events

⁴ Enstruct, March 2023, Civil Engineering Flood Report, Section 4.5, Table 1 PMF peak levels and isolation duration

⁵ Enstruct, March 2023, Civil Engineering Flood Report, Section 5.2, Site Access and Egress

⁶ Enstruct, December 2023, Alexandria Health Care Operational Flood Emergency Management Plan, Section 9 Assembly Points (AP) and Evacuation Routes, Page 10

Please feel free to contact Kate Dawes 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 black ink, appearing to read 'Elspeth O'Shannessy', written over a thin horizontal line.

Elspeth O'Shannessy
Manager Emergency Risk Management
NSW State Emergency Service

ATTACHMENT A: Principles Outlined in the Support for Emergency Management Planning Guideline⁷

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 relevant local or state flood plan or by the NSW SES. As per the City of Sydney Flood Emergency Sub Plan⁸, evacuation is the primary emergency management strategy.

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. It is noted that “The site is located near a sag point on Bourke Road and is located in a high flood risk zone with major overland flow expected at or near the site”⁹. The site itself is prone to isolation by flooding around the 10 year ARI event¹⁰, with depths in excess of 2m during a PMF event¹¹.

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.

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

The preferred Emergency Management approach is evacuation, where evacuation capacity and capability has been demonstrated as the most effective strategy to manage Emergency Management risks (i.e. a strategy that enables the users of development to self-evacuate to an area outside the floodplain that has adequate services to sustain the community in an orderly planned outcome).

⁷ NSW Government. 2023. Principles Outlined in the Support for Emergency Management Planning Guideline

⁸ City of Sydney Flood Emergency Flood Plan, Endorsed February 2023, Section 5.8, Page 16

⁹ Enstruct, December 2023, Alexandria Health Care Operational Flood Emergency Management Plan, Section 2 Flood risk, Page 7

¹⁰ Cardno, 2010, Alexandra Canal Catchment Flood Study, Figure 6.4

¹¹ Enstruct, March 2023, Civil Engineering Flood Report, Section 4.3, Figure 7 Flood Model Results – PMF – future conditions

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 when adopting any Emergency Management strategy.

Sheltering in a building within the flood extent is not safe, as is proposed in section 10 of the FERP. Sheltering in buildings where entrances and exits may become flooded in the larger floods may result in isolating people potentially without food or water for several hours or more depending on the weather system/s. Isolation also increases the risk of fire or medical emergencies.

When evaluating potential impact, the risk of isolation, secondary risks and human behaviour should be considered. Risk to occupants may be compounded by secondary risks such as fires or medical emergencies. There is also the risk that people will not follow emergency management plans, for example they may refuse to remain isolated from family for an extended duration.

The development has the potential to become isolated for durations of up to 11.5 hours during a PMF event¹² with surrounding streets un-trafficable for as long as 14.55 hours¹³ during extreme events. As stated in the FERP “In general, staff remaining on site should continue to provide patient care”¹⁴, this may result in staff who have already worked a full shift at the onset of flooding being required to continue working for an additional 12 hours. The change of staff shifts may therefore pose a significant risk, which will need to be managed carefully.

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. Consideration should be given to visitors and pedestrians in the area through the provision of publicly accessible space above the PMF, with adequate infrastructure to enable the physically impaired to access such space, that is easily accessible 24 hours a day for seven days a week which is clearly identified for this purpose with associated directional

¹² Enstruct, March 2023, Civil Engineering Flood Report, Section 4.5, Table 2 Potential periods of isolation for various storm events

¹³ Enstruct, March 2023, Civil Engineering Flood Report, Section 4.5, Table 1 PMF peak levels and isolation duration

¹⁴ Enstruct, December 2023, Alexandria Health Care Operational Flood Emergency Management Plan, Section 10 Shelter In Place, Page 11

signage. We strongly recommend early closure of the services if there is the potential for flooding on the adjacent roadways. This should be based on realistic and clear triggers, that would avoid false alarms.

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. As there is very little warning time available prior to the onset of flooding, there will be limited opportunity for the community to respond appropriately.

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

The flood risk at the site and actions that should be undertaken to reduce the potential risk to life should be clearly communicated to all site users, for example through signage and emergency drills, during and after the construction phase and for the lifespan of the development.