

**MIRVAC AREA C RESIDENTIAL DEVELOPMENT  
146 NEWBRIDGE ROAD, MOOREBANK**

**FLOOD EMERGENCY RESPONSE PLAN**

**September 2022**

Prepared by

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Director

Tooker and Associates

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## 1. Introduction

On the 26 February 2020, the Liverpool City Council provided the DA consent conditions for the Local Planning Panel sub division approval (DA24/2017) on the 24 February 2020 for the Mirvac residential development on Lot 70 DP 1254895 at 146 Newbridge Rd Moorebank. This site is known as Area C within the Moorebank East Precinct (refer Figure 1).

Development consent conditions 14, 44 and 153 (refer Appendix A), require preparation of the Flood Emergency Response Plan (FERP) in consultation with SES and to be approved by Council. This report details the FERP for the Mirvac Area C residential development. This report has been prepared by Mark Tooker who has over 30 years experience in flood management aspects of urban development.

## 2. Proposed Development

The proposed Mirvac development in Area C will consist of 179 two storey residences all with a minimum ground floor and road level greater than RL 6.1m AHD (being the 100 yr ARI flood level plus 500mm freeboard) which is the Flood Planning Level. The finished road and floor levels will continually rise from RL 6.1m AHD on the south eastern edge of the development to the west reaching levels around RL 10m AHD as approved by the LEC and DA 1552/2006 at the proposed link road (Road 7) bridge which provides car access to Brickmakers Drive (see Figure 2).

There is a proposed pedestrian bridge which is elevated over Brickmakers Drive parallel to the Link Road (refer Figure 2). It has been approved by Council as an acceptable flood evacuation route for pedestrians accessing land not subject to flooding - that is, land above the Probable Maximum Flood (PMF). The bridge will land in Paine Park adjacent to Horizon Circuit at a level of RL 7m AHD. This level is equivalent to a 2000yr ARI flood level. Land above the PMF level is located approximately 200m west along Horizon Circuit (opposite Marble Road) from the bridge landing (see Figure 2). The bridge will be suitable for disable access.

All residences in the development will be two stories with the first floor level in all houses above the Probable Maximum Flood (PMF) level of RL 10.4m AHD.

The development will be under a Community Title which imposes a management structure responsible for the safety and well being of this community and Community Manager would assist the SES personnel in the management of the flood evacuation procedures.

## 3. Outline of the Flood Emergency Response Plan

The FERP involves the details of the flood evacuation procedures in the event of a severe flood.

For the Georges River, the Bureau of Meteorology (BoM) provides a warning of a flood likely to rise above a level of RL 4m AHD. This warning will provide a minimum of 13 hours warning before the flood waters reach a level of RL 4m AHD. For comparison, the minimum road and

house floor level in the proposed development is RL 6.1m AHD. For reference, the bank levels of the Georges River nearby to the site have levels typically around RL 2 to 2.5m AHD.

When this warning is given by the BoM, the SES will instruct an evacuation of the Area C development. The evacuation plan for Area C will be managed by SES personnel assisted by the Community Manager for the site and have the following general responses:

- Plan 1 – primary response is to evacuate all the residents and visitors by car;
- Plan 2 – if not all the people are evacuated by the times flood waters start to inundate the site (around RL 6m AHD), then the secondary plan is to evacuate on foot via the elevated pedestrian bridge;
- Plan 3 – if for some reason people have not evacuated, then they would have to move to the first floor level and stay in place.

#### 4. Initiation of the Evacuation

The flood evacuation initiation will occur in a number of ways for the Mirvac Area C development:

- a. BoM – will issue a flood warning via all media and SMS to the general public, SES and other designated personnel;
- b. SES – on receipt of the BoM flood warning, SES personnel will order an evacuation and initiate a door knock of all homes. The SES will ensure that the evacuation plans 1, 2 and 3 above are instigated as required;
- c. Community Manager – the Community Manager will be responsible for the safety and well being of this community and would assist the SES personnel in the management of the flood evacuation procedures by communicating with all residents using SMS and social media;
- d. Residents as Flood Wardens – A Flood Wardens committee would be formed with the Community Manager as the chairperson. The flood wardens would assist the SES in door knocking residents once flood evacuation has been initiated. The wardens would also assist with explaining details of the flood evacuation procedures to residents and assist in the annual flood evacuation training exercises.

#### 5. Plan 1 Vehicular Evacuation Details

The SES approved method of estimating the available and required times for vehicular evacuation are detailed in the SES Technical Guideline for the Use of the SES Timeline Evaluation Model in Flood Evacuation Planning. The application of this SES methodology for the proposed Area C residential development is detailed in Appendix B.

Based on the SES methodology and a one lane road evacuation route, there is ample time for vehicular evacuation of Area C with the available time being 14.6 hours and the required time for evacuation being only 9.7 hours. The required time could be even less if the Community Manager can alert residents of the need to evacuate, based on advice from SES to evacuate, before the SES personnel can mobilise to Area C.

The required times for evacuation are not based on any digital communication of the need to initiate evacuation. The SES could send a SMS message to residents and Community Manager informing of the need for evacuation in addition to informing people by a physical presence via door knocking. This would provide hours of additional time for people to evacuate above the times given above.

The vehicular evacuation route would as shown on Figures 2 and 3 and would be as follows:

1. Turn left from the Link Rd (Road 7) bridge crossing into Brickmakers Drive;
2. Turn right at Maddecks Ave;
3. Turn left at Nuwarra Rd;
4. Travel south along Nuwarra Rd across the M5 and turn right into Heathcote Rd;
5. Access the M5 from Heathcote Rd.

Council has agreed that a right turn into Maddecks Ave from Brickmakers Drive is appropriate in an emergency and has agreed for the sign to be changed to No Right Turn Except for Flood Evacuation. Other flood evacuation signage is proposed as discussed in Section 8 and presented on Figure 2.

## 6. Plan 2 Pedestrian Evacuation Details

The SES approved method of estimating the available and required times for pedestrian evacuation are detailed in the SES Technical Guideline for the Use of the SES Timeline Evaluation Model in Flood Evacuation Planning. The application of this SES methodology for the proposed Area C residential development is detailed in Appendix B.

Based on the SES methodology, there is ample time for pedestrian evacuation of Area C with the available time being 15.6 hours and the required time for evacuation being only 9.3 hours. The required time could be even less because the Community Manager can provide a digital alert by SMS and social media and resident Flood Wardens can door knock and physically alert residents of the need to evacuate, based on advice from SES to evacuate, before the SES personnel can mobilise to Area C.

The required times for evacuation are not based on any digital communication of the need to initiate evacuation. The SES could send a SMS message to residents and Community Manager informing of the need for evacuation in addition to informing people by a physical presence via door knocking. This would provide hours of additional time for people to evacuate above the times given above.

The vehicular evacuation route would be cut off at Brickmakers Drive when flood levels reach RL 6m AHD. Flood waters could reach this level approximately 14.6 hours (for the fastest flood rise in a PMF flood) from the BoM flood warning. At that stage, floodwaters would be lapping at the eastern side of the Area C development. If some residents in Area C have not evacuated by vehicle within 14.6 hours of the order to evacuate, they will have to walk out via the elevated pedestrian bridge over Brickmakers Drive. The floodwaters fastest rise in the PMF flood would reach RL 7m AHD (landing level for elevated pedestrian bridge) from RL 6m AHD in 1 hour. This timeframe is still ample as the time to evacuate on foot

would be around 20 minutes. Residents would only have to head west up Horizon Circuit for at least 200m once they have crossed the pedestrian bridge to reach flood free land.

The route for pedestrian evacuation is presented on Figure 2 and would be as follows:

1. Proceed to intersection of Roads 1, 2 and 7 via any of the three routes as shown on Figure 2;
2. Cross the elevated pedestrian bridge;
3. Head west up the Horizon Circuit for approximately 200m to just west of Marble Rd to flood free land.

## 7. Plan 3 Stay in Place

If, for some reason, residents have not evacuated Area C via Plans 1 and 2 above (after 15.6 hours after the order to evacuate) then they will have to move to the first floor of their residence and stay in place. The first floor level will be above the PMF level of RL 10.4m AHD and flood free. The development will be required to have a further fall back option with access to the roof spaces and then onto the house roofs through an opening skylight. This stay in place approach is not preferred but is just to be used only as a fall back option in an emergency.

## 8. Flood Signage

The following flood signage is to be installed in the Area C development and along the flood evacuation routes (see Figure 2).

### 8.1 Vehicular Flood Evacuation Directional Signs

Vehicular flood evacuation directional signs will be required along the evacuation route.

Signs are required at the roundabout at the intersection of Roads 1, 2 and 7 indicating the flood evacuation route is to turn onto the Link Rd (Road 7) bridge and another sign on the western side of Brickmakers Drive facing the Link Rd bridge left turn lane advising the vehicular flood route is to turn left into Brickmakers Drive.

A sign is required on the eastern side of Brickmakers Drive at the intersection with Maddecks Ave and on the southern side of Maddecks Ave at the intersection with Brickmakers Drive indicating to turn right into Maddecks Ave and proceed to Nuwarra Rd for the vehicular flood evacuation route.

## 8.2 Pedestrian Flood Evacuation Directional Signs

Pedestrian flood evacuation directional signs will be required in the development layout to show a number of different routes as shown in Figure 2.

At the common intersection point for pedestrian flood evacuation from Area C will be the intersection of Roads 1, 2 and 3. At this point there will be a sign directing pedestrians to the elevated pedestrian bridge over Brickmakers Drive.

At sign at the bridge landing point in Paine Park adjacent Horizon Circuit will direct pedestrians in a westerly direction up Horizon Circuit.

A sign on Horizon Circuit adjacent to Marble Road will direct pedestrians further west along Horizon Circuit. The sign will be located close to the PMF level of RL 10.4m AHD.

## 8.3 Flood Warning Signs

The intersection of Brickmakers Drive and the Link Road Bridge (Road 7) would not be flooded in a 100 yr ARI flood (RL 5.6m AHD) but is subject to flooding in a PMF flood. When PMF flooding reaches RL 6m AHD, the intersection would be deemed unpassable by cars. The development consent condition (Condition 44) requires flood warning signs at both ends of Road 7 indicating that the intersection at Brickmakers Drive is subject to flooding. The flood warning signs as proposed are indicated on Figure 2 with two signs at the Road 1, 2 and 7 intersection and one sign for vehicles entering the Brickmakers intersection from Area C.

## 9. Flood Evacuation Training

The FERP will be included in the Community Management Plan. The Community Manager is to ensure that every resident is provided with a copy of the approved Flood Emergency Evacuation Plan, has an understanding of the flood evacuation procedures and required responses and that training is provided annually with a mock flood evacuation for all residents in the Community Title. Three residents would be selected as Flood Wardens who would be responsible for assisting the Community Manager in the training of residents for flood evacuation and would assist the SES and Community Manager in the management of a flood evacuation.

## FIGURES



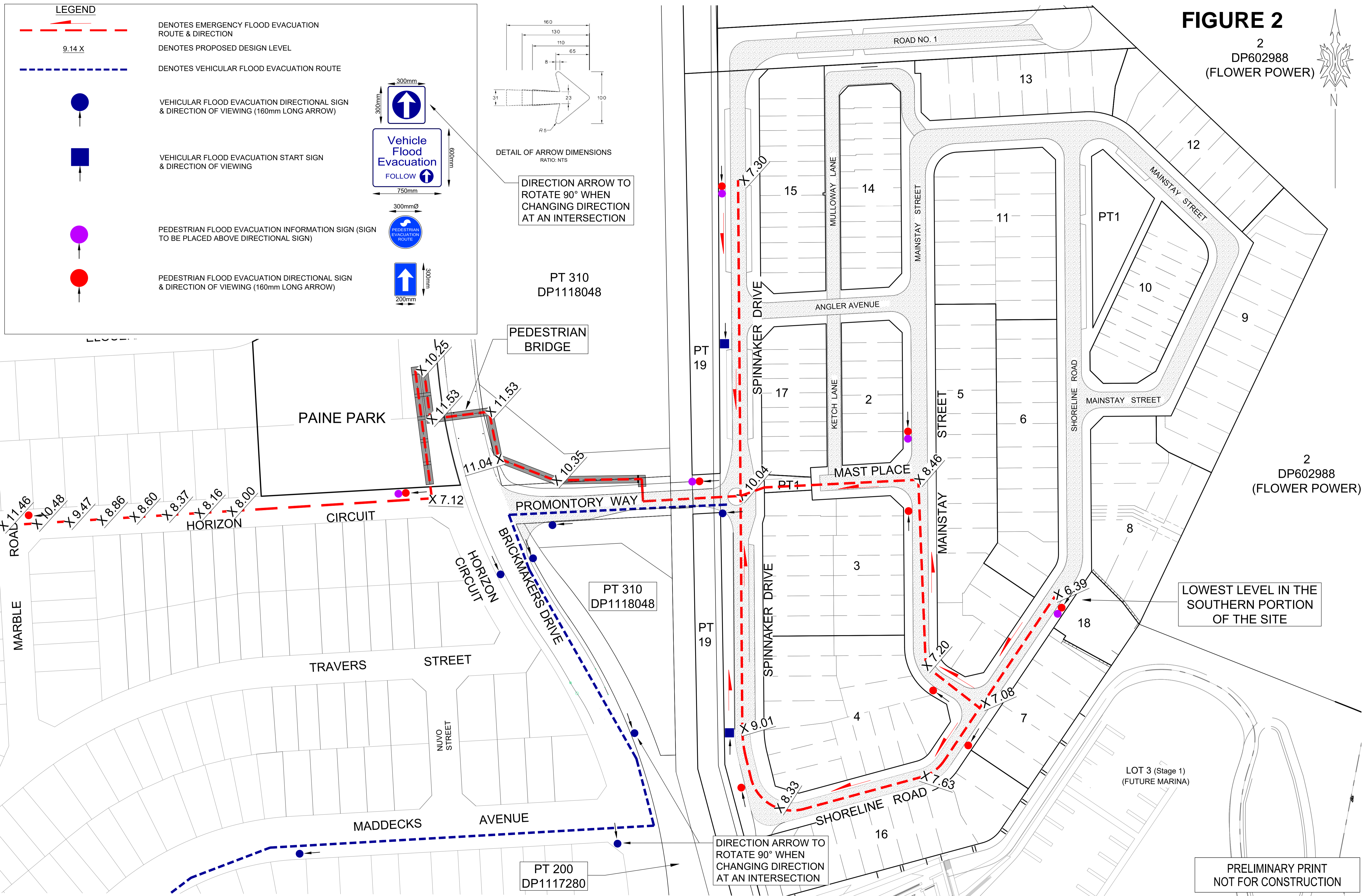
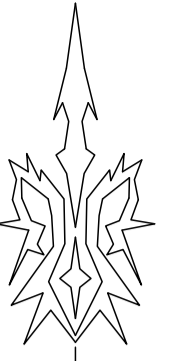
FIGURE 1



LOCALITY PLAN

**FIGURE 2**

2  
DP602988  
(FLOWER POWER)



**LEGEND**

- DENOTES EMERGENCY FLOOD EVACUATION ROUTE & DIRECTION
- DENOTES PROPOSED DESIGN LEVEL
- DENOTES VEHICULAR FLOOD EVACUATION ROUTE
- VEHICULAR FLOOD EVACUATION DIRECTIONAL SIGN & DIRECTION OF VIEWING (160mm LONG ARROW)
- VEHICULAR FLOOD EVACUATION START SIGN & DIRECTION OF VIEWING
- PEDESTRIAN FLOOD EVACUATION INFORMATION SIGN (SIGN TO BE PLACED ABOVE DIRECTIONAL SIGN)
- PEDESTRIAN FLOOD EVACUATION DIRECTIONAL SIGN & DIRECTION OF VIEWING (160mm LONG ARROW)

Vehicle Flood Evacuation  
FOLLOW

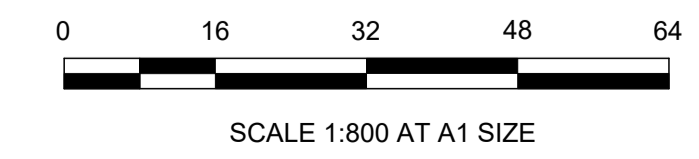
PEDESTRIAN EVACUATION ROUTE

DETAIL OF ARROW DIMENSIONS  
RATIO: NTS

DIRECTION ARROW TO ROTATE 90° WHEN CHANGING DIRECTION AT AN INTERSECTION

REV	DESCRIPTION	DATE	DRN	APP	REV	DESCRIPTION	DATE	DRN	APP
E	SIGNAGE AMENDED	24-08-2022	J.O.	S.G.					
D	SIGNAGE ADDED	10-08-2022	J.O.	S.G.					
C	REISSUED WITH MINOR NOTES AMENDMENTS	07-03-2020	S.G.	S.G.					
B	ISSUED FOR INFORMATION	06-03-2020	S.G.	S.G.	G	AMENDED SIGN LOCATIONS	08-08-2022	S.G.	S.G.
A	ISSUED FOR INFORMATION	26-08-2020	S.G.	S.G.	F	ISSUED FOR INFORMATION	31-08-2022	S.G.	S.G.

Client:  
MIRVAC HOMES  
(NSW) PTY LTD.



Designed Date: S.GRAY 26-03-2020  
Drawn: S.GRAY  
Approved Date:  
PS Number:

**BW** Beveridge Williams  
32 Iolanthe Street  
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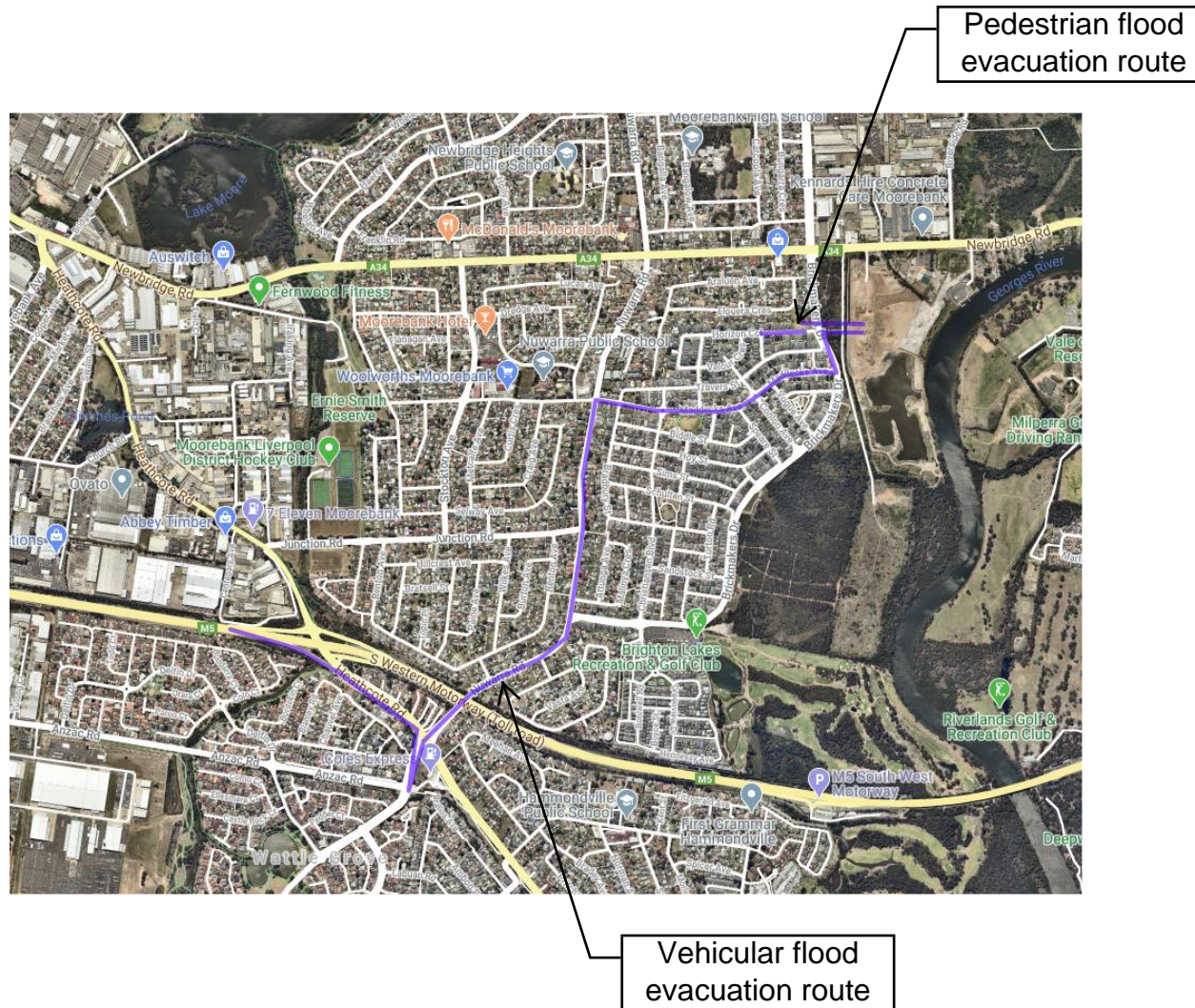
Project Details  
MOOREBANK COVE  
NEWBRIDGE ROAD, MOOREBANK  
Drawing Title  
FLOOD EMERGENCY  
EVACUATION ROUTE

Sheet 1 of 1  
Scale  
1:800 @ A1  
Project Ref  
14005  
Stage No  
E45  
Drawing No  
350  
Rev  
E

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PRELIMINARY PRINT  
NOT FOR CONSTRUCTION

**FIGURE 3**



**FLOOD EVACUATION ROUTES  
MIRVAC AREA C MOOREBANK**

**APPENDIX A**  
**DEVELOPMENT CONSENT CONDITIONS**  
**FLOOD EVACUATION**

## **Sydney Water Comments**

11. All comments provided by Sydney Water shall be complied with prior, and at the completion of construction. A copy of the Sydney Water comments are attached to this decision notice.

## **B. PRIOR TO ISSUE OF A CONSTRUCTION CERTIFICATE**

**The following conditions are to be complied with or addressed prior to issue of the relevant Construction Certificate by the Principal Certifying Authority:**

### **Voluntary Planning Agreement**

12. The development shall be undertaken in accordance with any applicable terms and conditions of the Voluntary Planning Agreement applicable to this site executed by Tanlane Pty Ltd and Liverpool City Council (dated 11 June 2008) or any subsequent amendments to the abovementioned Voluntary Planning Agreement.

### **Fee Payments**

13. Unless otherwise prescribed by this consent, all relevant fees or charges must be paid. Where Council does not collect these payments, copies of receipts must be provided. For the calculation of payments such as Long Service Levy, the payment must be based on the value specified with the Development Application/Construction Certificate.

The following fees are applicable and payable:

- (a) Damage Inspection Fee – relevant where the cost of building work is \$20,000 or more, or a swimming pool is to be excavated by machinery.
- (b) Fee associated with Application for Permit to Carry Out Work Within a Road, Park and Drainage Reserve.
- (c) Long Service Levy – based on 0.35% of the cost of building work where the costing of the CC is \$25,000 or more.

These fees are reviewed annually and will be calculated accordingly.

### **Flood Emergency Plan**

14. A flood emergency response plan shall be developed and maintained in consultation with the SES for the entire site. The flood emergency response plan shall include a suitable flood warning system that has specific evacuation triggers and communication mechanisms for emergency evacuation of all areas, signage



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**Web** [www.liverpool.nsw.gov.au](http://www.liverpool.nsw.gov.au) **NRS** 13 36 77 **ABN** 84 181 182 471

and exits to ensure the fail-safe evacuation of people during floods up to and including the Probable Maximum Flood. The flood emergency response plan shall be submitted and approved by Liverpool City Council Manager of DA prior to the issue of a construction certificate. The flood warning system shall include the following:

- a. Water level monitoring system at Georges River to monitor overtopping of river banks near the site.
- b. Suitable arrangements to alert all occupants of the entire site.
- c. Necessary arrangement for site evacuation before the site becomes fully isolated by floodwaters.

The flood warning system shall be put in operation prior to, during and after a flood to manage activities including evacuation arrangements for all occupants of the site.

### **Provision of Services**

15. An application to obtain a Section 73 Compliance Certificate under the Sydney Water Act 1994, must be lodged with Sydney Water. To facilitate this, an application must be made through an authorised Water Servicing Coordinator. Please refer to the “building and developing” section of Sydney Water’s web site at [www.sydneywater.com.au](http://www.sydneywater.com.au), or telephone 13 20 92.

Following receipt of the application, a ‘Notice of Requirements’ will detail water and sewer extensions to be built and charges to be paid. Please make early contact with the Coordinator, since building of water/sewer extensions can be time consuming and may impact on other services and building, driveway or landscape design. A copy of the ‘Notice of Requirements’ must be submitted to the PCA.

16. Written clearance from Endeavour Energy, stating that electrical services can be available to the development or that arrangements have been entered into for the provision of services to the development must be submitted to the PCA.
17. Prior to the issue of the a Construction Certificate, the Principal Certifying Authority shall be satisfied that telecommunications infrastructure may be installed to service the premises which complies with the following of the Telecommunications Act 1997
  - (a) For a fibre ready facility, the NBN Co’s standard specifications current at the time of installation, and
  - (b) For a line that is to connect a lot to telecommunication infrastructure external to the premises, the line shall be located underground.



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**Web** [www.liverpool.nsw.gov.au](http://www.liverpool.nsw.gov.au) **NRS** 13 36 77 **ABN** 84 181 182 471

event. Engineering details of the emergency access road, including transitions to existing watercourse upstream and downstream of the works shall be provided with the detailed civil design. These requirements shall be reflected on the Construction Certificate plans and supporting documentation.

### **Flood Warning Signs**

44. The developer shall provide flood warning signs at each end of the proposed entry road (Road 1). This requirement shall be reflected on the Construction Certificate plans and supporting documentation.

### **On-site Detention**

45. On-site water quality treatment facilities shall be provided to ensure that stormwater runoffs leaving the site comply with Council's water quality standards. The treatment facilities shall capture all gross pollutants and liquid contaminants from the stormwater before discharging into the river. Water quality treatment works shall be designed using MUSIC modelling software and the water quality treatment system performance shall be verified using Council's MUSIC link. Detailed design and drawings of water quality treatment facilities including water quality modelling report and electronic copy of MUSIC model developed for the site shall be submitted for Council's review and approval.

### **Construction Environmental Management Plan (CEMP) (As amended)**

46. Prior to issue of a construction certificate, a Construction Environmental Management Plan (CEMP) for the development must be provided to the Principal Certifying Authority for approval. The environmental site management measures must remain in place and be maintained throughout the period of the development. The CEMP must address all environmental aspects of the development's construction phases, and include, where relevant, but not be limited to, the following:

- Asbestos Management Plan;
- Project Contact Information;
- Site Security Details;
- Timing and Sequencing Information;
- Site Soil and Water Management Plan;
- Noise and Vibration Control Plan;
- Dust Control Plan;
- Air Monitoring;
- Odour Control Plan;
- Health and Safety Plan;



## Long-Term Environmental Management Plan

151. A Long-Term Environmental Management Plan (LTEMP) shall be prepared by a suitably qualified environmental consultant and provide a site-specific framework for managing and mitigating contamination for the life of the proposal. The LTEMP shall make provisions for auditing the effectiveness of the proposed environmental protection measures and procedures for the management and maintenance of the cap and landfill gas mitigation systems. Procedures for scenarios where the capping or landfill gas mitigation systems need to be penetrated and reinstated must also be included in the LTEMP.

The LTEMP shall require periodic inspection by an environmental / geotechnical consultant to confirm that the overall integrity of the cap has not been compromised and that the capping system and gas mitigation systems remain functional and comply with the requirements of the LTEMP.

The Community Association on behalf of individual house owners of the Community Title scheme shall be responsible for the implementation of the LTEMP. Council is not responsible for the overall administration of the Plan or its implementation. The LTEMP shall be submitted to Liverpool City Council with any future Development Application for residential development which will be subject to separate Approval.

## Flood Affectation Certificate

152. The submission of a report from a suitably qualified and experienced civil (hydrology) engineer to the Principal Certifying Authority is required, prior to the issue of the Subdivision Certificate. This report is required to certify that the 'as-constructed' subdivision and associated works will not have any detrimental effects to adjoining properties or upon the subject land with respect to the loss of flood storage, changes in flood levels and alteration of flood conveyance, as a result of flooding or stormwater run-off.

## Evacuation Management

153. The development excluding roads to be dedicated to LCC shall be under the Community Title and shall impose a management structure responsible for the safety and wellbeing of the occupants of the area and shall be used to manage the flood evacuation procedure. Evidence that the appropriate management structures to manage flood evacuation procedures are in place and endorsed by Liverpool City Council Manager Development Assessment prior to the issue of a Subdivision Certificate.



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**Web** [www.liverpool.nsw.gov.au](http://www.liverpool.nsw.gov.au) **NRS** 13 36 77 **ABN** 84 181 182 471



**APPENDIX B**

**SES METHODOLOGY FOR ESTIMATION OF AVAILABLE AND  
REQUIRED EVACUATION TIMES**

## **Area C Mirvac Residential Development Flood Emergency Response Plan SES Evacuation methodology**

The following assessment of Available Times and Required Times for evacuation of the proposed Mirvac Area C Residential Development has been undertaken based on the SES Technical Guideline for the use of the SES Timeline Evaluation Model in Flood Evacuation Planning, and the Cardno assessments of rate of rise of floodwaters for the site.

The estimated evacuation times for the Mirvac Area C Residential development would be as follows.

1. **Available Time** – evacuation of pedestrians – 15.6hrs; evacuation of vehicles – 14.6hrs

The available time is a combination of the flood warning time provided by the BoM warnings and rate of rise of flood waters estimated by Cardno.

BoM provide a minimum of 13 hours warning for flood levels above RL 4m AHD. The rate of rise of flood waters is then used to estimate the time for flood waters to reach the level at which access would be cutoff.

The safe access for vehicles is cutoff at RL 6m AHD due to inundation of the Brickmakers Drive/Link Rd intersection. The time for flood waters to rise from RL 4m to 6m depends on the severity of the flood – the least available time is in a PMF flood. For a PMF flood, the time for the rise of floodwaters from RL 4m to RL 6m is 1.6hrs.

So, the total time available for evacuation by vehicle is 14.6hrs (13+1.6).

The safe access for pedestrians is cutoff at RL 7m AHD due to flood inundation at the base of the elevated pedestrian bridge at its landing in Paine Park adjacent to Horizon Circuit. The time for flood waters to rise from RL 4m to 7m depends on the severity of the flood – the least available time is in a PMF flood. For a PMF flood, the time for the rise of floodwaters from RL 4m to RL 7m is 2.6hrs.

So, the total time available for pedestrian evacuation is 15.6hrs (13+2.6).

2. **Time Required** – people evacuation – 9.3hrs; vehicle evacuation – 9.7hrs.

The time required is made up of a number of actions.

- a. SES mobilisation time – 6hrs  
SES will consider the necessity to give the evacuation order sometime within this 6 hr period. The proposed Mirvac residential development in Area C will be a Community Title sub division. As such, the development and residents will be subject to Management Statements, By-Laws and be controlled by a Community Manager. The Manager will have a legal requirement to urge all residents to evacuate. The Community Manager will receive the SES order to evacuate and will be able to disseminate more quickly than the SES, the order to evacuate. This is likely to mean that the evacuation would commence within this 6 hour period rather than at the end of this period.

- b. Warning Acceptance Factor – 1hr  
SES recommend adoption of a 1 hour duration for people to accept the order to evacuate.
- c. Warning Lag Factor – 1hr  
SES recommend adoption of a 1 hour duration for people to pack and leave the building.
- d. Travel Time  
People Evacuation – 0.3hrs  
SES recommend adoption of a walking rate of 2km per hour for evacuation. The maximum distance to be travelled to areas above the PMF flood level is approximately 580m which would take 20 minutes.  
  
Vehicle Evacuation – 0.67hrs  
The number of cars adopted for the evacuation from the site is 358 which is two cars per residence. SES recommends adoption of an evacuation rate of 600 cars/hour/lane. The evacuation route has one lane so it would take approximately 40 minutes for a vehicular evacuation of the proposed Mirvac residential development of Area C.
- e. Traffic Safety Factor – 1 hr  
SES recommends adoption of a 1 hour duration for traffic safety issues such as accidents, breakdowns etc.
- f. Total Time Required for Evacuation  
For the pedestrian evacuation, the total time required would be 9.3hrs (6+1+1+0.3+1).  
For vehicular evacuation, the total time required would be 9.7hrs (6+1+1+0.67+1).

- 3. **Summary** – based on the SES guideline, the time available is ample for the evacuation of people (required time is 9.3hrs and available time is 15.6hrs) and for the evacuation of vehicles (required time is 9.7hrs and available time is 14.6hrs).

In summary, based on the SES guidelines, there is ample time for flood evacuation of the proposed population in the Mirvac Area C residential development.