

**Melbourne Planning Scheme Amendment C384melb
Land Subject to Inundation and Special Building Overlays**

Panel Report

Planning and Environment Act 1987

20 December 2022

How will this report be used?

This is a brief description of how this report will be used for the benefit of people unfamiliar with the planning system. If you have concerns about a specific issue you should seek independent advice.

The planning authority must consider this report before deciding whether or not to adopt the Amendment.

[section 27(1) of the *Planning and Environment Act 1987* (the PE Act)]

For the Amendment to proceed, it must be adopted by the planning authority and then sent to the Minister for Planning for approval.

The planning authority is not obliged to follow the recommendations of the Panel, but it must give its reasons if it does not follow the recommendations. [section 31 (1) of the PE Act, and section 9 of the *Planning and Environment Regulations 2015*]

If approved by the Minister for Planning a formal change will be made to the planning scheme. Notice of approval of the Amendment will be published in the Government Gazette. [section 37 of the PE Act]

Planning and Environment Act 1987

Panel Report pursuant to section 25 of the PE Act

Melbourne Planning Scheme Amendment C384melb

Land Subject to Inundation and Special Building Overlays

20 December 2022



Sarah Raso, Chair



Michael Wheelahan



Jessica Tulloch

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Glossary and abbreviations

AEP	Annual Exceedance Probability
Arden Structure Plan	<i>Arden Structure Plan</i> (July 2022)
ARR 1987 Guidelines	<i>Australian Rainfall and Runoff 1987, A Guide to Flood Estimation</i> , Institution of Engineers
ARR 2019 Guidelines	<i>Australian Rainfall and Runoff 2019, A Guide to Flood Estimation</i> , Commonwealth of Australia
AHD	Australian Height Datum
Council	Melbourne City Council
Crown Resorts land	8 Whiteman Street, Southbank, 57-91 Clarendon Street, Southbank, 1-13 Whiteman Street, Southbank and 1-29 Queens Bridge Street, Southbank
DELWP	Department of Environment, Land, Water and Planning
ESR	ESR Real Estate (Australia) Pty Ltd
ESR land	3 Southgate Avenue, Southbank and 16-60 City Road, Southbank
Evolve	Evolve Development / Evolve No. 22 Pty Ltd
Expert Conclave Report	Expert Conclave Joint Report on Hydrology (13 October 2022)
Flood Guidelines	<i>Guidelines for Development in Flood Affected Areas</i> , (DELWP February 2019)
Floodplain Strategy	<i>Victorian Floodplain Management Strategy</i> (DELWP 2016)
Flood Studies	Technical Reports 1-9
Good Design Guide	<i>Good Design Guide for Buildings in Flood Affected Areas in Fishermans Bend, Arden and Macaulay</i> (City of Melbourne, Melbourne Water and City of Port Phillip, 2021)
LSIO	Land Subject to Inundation Overlay
LSIO1	Schedule 1, Land Subject to Inundation Overlay
LSIO2	Schedule 2, Land Subject to Inundation Overlay
LSIO3	Schedule 3, Land Subject to Inundation Overlay
Melbourne Water	Melbourne Water Corporation

Moonee Ponds Creek Flood Study	<i>Technical Report 05: Arden Macaulay Precinct & Moonee Ponds Creek Flood Modelling</i> (Engeny Water Management, August 2020)
NFPL	Nominal Flood Protection Level
PE Act	<i>Planning and Environment Act 1987</i>
PPN12	<i>Planning Practice Note 12: Applying the Flood Provisions in Planning Schemes</i>
Practitioner's Guide	<i>Practitioner's guide to Victoria's planning schemes</i> (Version 1.5, April 2022)
SBO	Special Building Overlay
SBO1	Schedule 1, Special Building Overlay
SBO2	Schedule 2, Special Building Overlay
SBO3	Schedule 3, Special Building Overlay
Yarra River Flood Study	<i>Technical Report 06: Lower Yarra River Flood Mapping</i> (GHD, 24 September 2020)

Overview

Amendment summary

The Amendment	Melbourne Planning Scheme Amendment C384melb
Common name	Land Subject to Inundation and Special Building Overlays
Brief description	The Amendment proposes to either update or introduce schedules to the Land Subject to Inundation Overlay and Special Building Overlay to land identified as being prone to riverine flooding and drainage flooding, respectively, thereby triggering the requirement for a planning permit assessment for development in flood-prone areas.
Subject land	Land identified as being subject to inundation from riverine flooding in the Moonee Ponds Creek and Lower Yarra River waterways, and drainage flooding in the Arden, Macaulay and Moonee Ponds Creek, Elizabeth Street, Fishermans Bend, Hobsons Road and Southbank catchments. See Figure 1
Planning Scheme	Melbourne Planning Scheme
Planning Authority	Melbourne City Council
Authorisation	18 August 2021
Exhibition	14 October to 29 November 2021
Submissions	Number of Submissions: 43. Refer Appendix B

Panel process

The Panel	Sarah Raso (Chair), Michael Wheelahan, Jessica Tulloch
Directions Hearing	31 August 2022
Panel Hearing	17, 18, 19, 24, 25, 26, 27 and 28 October 2022
Site inspections	Unaccompanied, 11 October 2022
Parties to the Hearing	Refer Appendix D
Citation	Melbourne Planning Scheme Amendment C384 [2022] PPV
Date of this report	20 December 2022

Executive summary

Amendment C384melb provides contemporary flood risk information for various City of Melbourne catchments by introducing new planning controls into the Melbourne Planning Scheme. Melbourne City Council prepared the Amendment in partnership with Melbourne Water Corporation.

The Amendment applies to land identified as being subject to inundation from riverine flooding in the Moonee Ponds Creek and Lower Yarra River waterways, and drainage flooding in the Arden, Macaulay and Moonee Ponds Creek, Elizabeth Street, Fishermans Bend, Hobsons Road and Southbank catchments. The Amendment proposes to either update the mapped extents of those catchments or introduce the Land Subject to Inundation Overlay and Special Building Overlay through specific schedules to land identified as being prone to riverine and drainage flooding, thereby triggering the requirement for a planning permit assessment for development in flood-prone areas.

The Amendment received 43 submissions. Key issues raised in submissions were:

- the accuracy of the flood modelling and whether it is fit for purpose
- the accuracy of the Land Subject to Inundation Overlay mapped areas
- whether it is appropriate to consider urban design outcomes when assessing planning permit applications triggered by the Land Subject to Inundation Overlay and Special Building Overlay
- whether it is appropriate for urban design requirements to be in the Land Subject to Inundation Overlay and Special Building Overlay schedules
- the status of the *Good Design Guide for Buildings in Flood Affected Areas in Fishermans Bend, Arden and Macaulay* in the Melbourne Planning Scheme
- Melbourne Water's exercise of discretion as a referral authority
- the relationship between the proposed Land Subject to Inundation Overlay and Special Building Overlay schedules and existing mandatory Design and Development provisions
- whether transitional provisions are appropriate
- impacts on property values, rates, land tax and insurance costs
- planning and building processes and costs.

The accuracy of the modelling

The need for the Amendment and its strategic justification was not disputed.

The threshold issue is whether the technical basis for the nine Technical Reports (collectively referred to as Flood Studies) and flood modelling is adequate to inform the introduction of the proposed controls. That is, whether the modelling contained within the key Flood Studies is fit for purpose.

The Melbourne Planning Scheme and various State policies require planning authorities to implement planning controls that accurately identify environmental hazards, including flood risk, and to respond to climate change. Clause 13.03-1S 'Floodplain Management' underpins the strategic support for the Amendment and requires the identification of land affected by flooding, including land inundated by the 1 in 100-year flood event. This is referred to as the 1% Annual Exceedance Probability flood (AEP).

The adequacy of the flood modelling for the Lower Yarra River and the Moonee Ponds Creek (which underpin the proposed Schedule 3 to the Land Subject to Inundation Overlay) was the subject of considerable scrutiny. The fundamental criticism of the modelling was it is overly conservative and overestimates the likely flood extent because of its adopted assumptions.

The Panel has ultimately determined that while the Flood Studies and modelling might be conservative because of the assumptions adopted, it does not mean the proposed overlay schedules are founded on unreliable or inaccurate data. The Panel appreciates the scrutiny the Flood Studies attracted but is cognisant of the need to not lose sight of the importance of the Amendment and the practical realities for Melbourne Water. The Panel, while critical of some elements of the modelling and noting its high level of conservatism, is satisfied the modelling adequately identifies the 1% AEP flood event for translation into the proposed overlay schedules.

In coming to its conclusion, the Panel has had specific regard to:

- the Amendment does not set flood levels for any parcel of land – Melbourne Water will assess the relevant flood level when a planning permit is sought under the proposed overlay schedules
- the proposed overlay schedules provide the trigger for the assessment of a relevant flood level
- without the proposed overlay schedules land could be developed in a way that is inconsistent with the safety and protection of life and property.
- application of the overlay schedules to land notifies landowners or purchasers an assessment of flood risk will be required for any proposed development of their land.

The application of the conservative assumptions means that some properties may be 'caught' and subjected to the proposed controls unnecessarily. This goes against State policy which does not require land outside the 1% AEP flood event area to be identified and trigger the proposed flood overlay schedules.

However, the Panel considers the conservatism adopted in the technical work which underpins the Amendment does not justify a recommendation that the proposed overlays be abandoned or deferred until a new study is prepared, or the modelling is re-run and updated. To not support the proposed controls would leave substantial areas in the Lower Yarra River and the Moonee Ponds Creek precincts without acceptable flood risk controls. This would not be an ideal outcome, nor would it achieve the outcome sought by the Amendment.

Site Specific issues

Specific issues raised in relation to three key landholdings included whether:

- the proposed overlay schedules will unreasonably restrict urban design outcomes
- it is appropriate and justified to apply the proposed overlay schedules now
- a precinct wide approach to floodway management and the development of a Floodplain Development Plan is necessary before the proposed overlay schedules can be appropriately considered and applied
- the Amendment ought not proceed because it fails to provide for fair and orderly planning.

In considering these issues, the Panel concludes there is no justified reason to find the proposed overlay schedules should not proceed or be supported.

Urban Design

Melbourne Water did not support the inclusion of urban design outcomes in the proposed overlay schedules, whereas Council considered urban design considerations to be central to the operation of the controls. The Panel has determined that while it is appropriate to consider urban design outcomes when assessing planning permit applications triggered by the proposed overlay schedules, urban design requirements do not ‘live’ in the land management overlays. The Panel is satisfied the Melbourne Planning Scheme contains sufficient guidance on urban design matters in flood affected areas.

Council sought to have the *Good Design Guide for Buildings in Flood Affected Areas in Fishermans Bend, Arden and Macaulay* included as a background document in all three proposed schedules. The Panel concluded this document should not be listed as a background document, or an incorporated document (as was suggested by Council’s planning witness), because:

- it was not drafted or exhibited as an incorporated document
- it did not inform the Amendment and as such is not a background document
- its geographical area differs from that covered by the Amendment.

Building heights

Several submitters considered building height limits within the overlay schedule areas should be increased to account for the need for higher floor levels due to inundation. The Panel does not agree and considers interactions with separate height controls and other mandatory controls are not relevant considerations in the context of the introduction of updated flood controls.

Refining the controls

The Panel recommends the proposed schedules be refined in response to submissions, in particular:

- urban design requirements should not be contained within the overlay schedules
- the purposes of the Land Subject to Inundation Overlay and Special Building Overlay in the parent provisions are different and the objectives and decision guidelines in the schedules should be updated to reflect only those purposes from the parent provisions
- the objectives in both the Land Subject to Inundation Overlay and Special Building Overlay Schedules should be reworded to allow greater flexibility
- a Decision Guideline should not reference a Background Document.

The Panel concludes:

- The proposed flooding controls are strategically justified and are required to assist in the identification of land subject to inundation and flooding, and to minimise the impact associated with floods on the community.
- The Flood Studies form an acceptable basis for the flood mapping in the Amendment which is to provide the trigger for the assessment of a relevant flood level.
- The technical basis for the Flood Studies and modelling is fit for purpose and adequate to inform the introduction of the overlay schedules into the Melbourne Planning Scheme.
- The proposed overlay schedules will not unreasonably restrict urban design outcomes.
- A precinct wide approach to floodway management and the development of a Floodplain Development Plan is not necessary before the overlay schedules can be appropriately considered and applied.

- There is no strategic basis to contend the Amendment should not proceed because it fails to provide for fair and orderly planning.
- Building height limits within the overlay areas should not be increased to account for the need for higher floor levels due to inundation.
- Urban design requirements should not be contained within the overlay schedules.
- A decision guideline should not reference a background document.
- The *Good Design Guide for Buildings in Flood Affected Areas in Fishermans Bend, Arden and Macaulay* did not inform the Amendment and should not be listed as a background document in Clause 72.08.
- It is appropriate to list the nine technical reports, *Planning for Sea Level Rise Guidelines* and *Guidelines for Development in Flood Affected Areas* as background documents in Clause 72.08 as they specifically informed the Amendment.
- The purposes of the Land Subject to Inundation Overlay and Special Building Overlay in the parent provisions are different and the objectives and decision guidelines in the schedules should be updated to reflect only those purposes from the parent provisions.
- The objectives in both the Land Subject to Inundation Overlay and Special Building Overlay Schedules should be reworded to allow greater flexibility.

Based on the reasons set out in this Report, the Panel recommends that Melbourne Planning Scheme Amendment C384melbmelb be adopted as exhibited subject to the following:

- 1. Amend Schedule 2 to Clause 44.04 Land Subject to Inundation Overlay (LSIO2 – Flemington Racecourse) in accordance with the Panel’s preferred version in Appendix E1.**
- 2. Amend Schedule 3 to Clause 44.04 Land Subject to Inundation Overlay (LSIO3 – Moonee Ponds Creek and Lower Yarra River Waterways) in accordance with the Panel’s preferred version in Appendix E2 to:**
 - a) delete any Objectives and Decision Guidelines relating to urban design**
 - b) delete reference to the *Good Design Guide for Buildings in Flood Affected Areas in Fishermans Bend, Arden and Macaulay* (City of Melbourne, Melbourne Water and City of Port Phillip, 2021) in the Decision Guidelines**
 - c) delete reference to the *Guidelines for Development in Flood Affected Areas* (the Department of Environment, Land, Water and Planning, 2019) in the Decision Guidelines**
 - d) amend the wording of the Objectives and Application Requirements.**
- 3. Amend Schedule 2 to Clause 44.05 Special Building Overlay (SBO2 - Melbourne Water Main Drains) and Schedule 3 to Clause 44.05 Special Building Overlay (SBO3 - Council Drains) in accordance with the Panel’s preferred version in Appendix E3 and E4 to:**
 - a) delete any Objectives and Decision Guidelines relating the to ‘risk to life or property’**
 - b) delete any Objectives and Decision Guidelines relating to urban design**
 - c) delete reference to the *Good Design Guide for Buildings in Flood Affected Areas in Fishermans Bend, Arden and Macaulay* (City of Melbourne, Melbourne Water and City of Port Phillip, 2021) in the Decision Guidelines**

- d) delete reference to the *Guidelines for Development in Flood Affected Areas* (the Department of Environment, Land, Water and Planning, 2019) in the Decision Guidelines
 - e) amend the wording of the Objectives and Application Requirements.
- 4. Amend the Schedule to Clause 72.08 (Background Documents) to delete:
 - a) the *Good Design Guide for Buildings in Flood Affected Areas in Fishermans Bend, Arden and Macaulay* (City of Melbourne, Melbourne Water and City of Port Phillip, 2021).

1 Introduction

1.1 The Amendment

(i) Amendment description

Melbourne City Council (Council) is the Planning Authority for Amendment C384melb (Amendment) to the Melbourne Planning Scheme (Planning Scheme). While Council is the Planning Authority for the Amendment, the Amendment has been prepared in partnership with Melbourne Water Corporation (Melbourne Water).

The purpose of the Amendment is to provide contemporary flood risk information.

The Amendment proposes to either update the mapped extents or introduce new schedules to the Land Subject to Inundation Overlay (LSIO) and Special Building Overlay (SBO) to land identified as being prone to riverine flooding and drainage flooding, respectively, thereby triggering the requirement for a planning permit assessment for development in flood-prone areas.

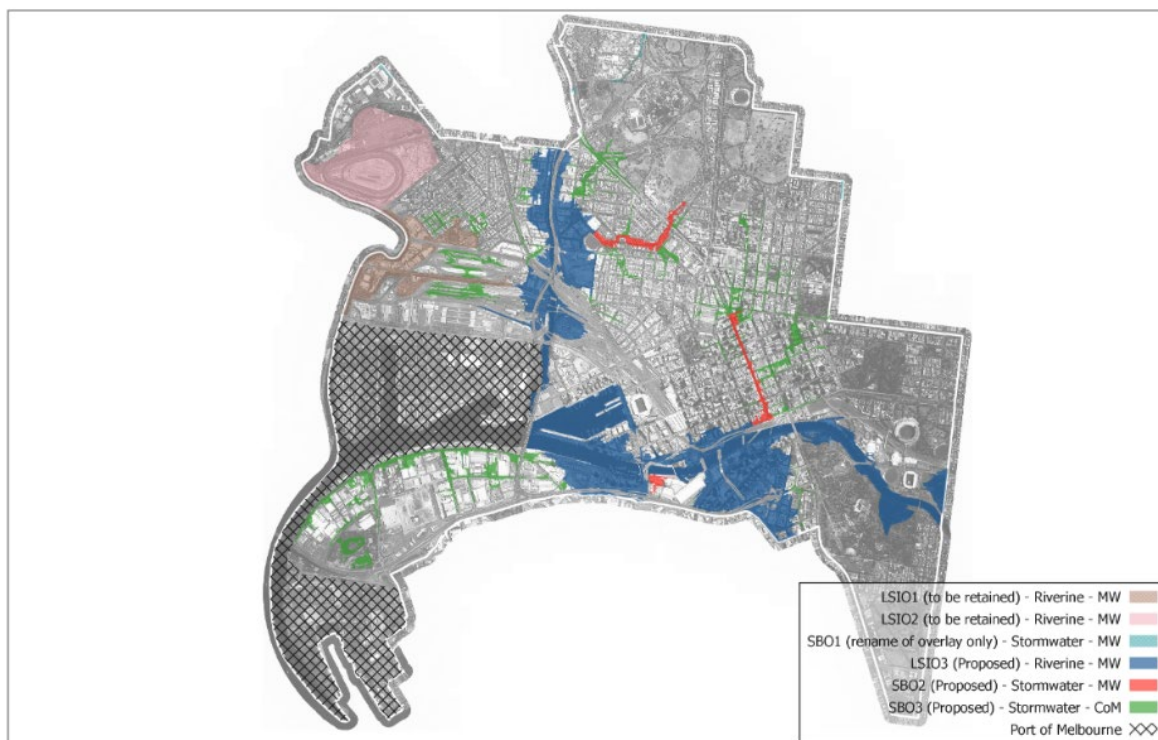
At the ordinance level, the exhibited Amendment proposes to:

- Amend Schedule 1 (Maribyrnong River Environs) and Schedule 2 (Flemington Racecourse) of Clause 44.04 Land Subject to Inundation (LSIO1 and LSIO2) to update the format to comply with the requirements of the *Ministerial Direction, Form and Content of Planning Schemes*. This is an administrative change and the mapping of the existing LSIO1 and LSIO2 is unchanged.
- Introduce a new Schedule 3 'Moonee Ponds Creek and Lower Yarra River Waterways' to Clause 44.04 Land Subject to Inundation (LSIO3) which includes land subject to inundation objectives, a statement of risk, permit requirements, application requirements and decision guidelines.
- Introduce a new Schedule 1 'Melbourne Water Main Drains' to Clause 44.05 Special Building Overlay (SBO1) to update the format to comply with the requirements of Ministerial Direction, Form and Content of Planning Schemes. This is an administrative change and the mapping extent of the existing SBO is unchanged. The existing SBO maps require deletion and identical maps have been prepared which are named SBO1 to comply with the new naming convention of the Schedule which is a form and content change.
- Introduce a new Schedule 2 'Melbourne Water Main Drains - Elizabeth Street, Arden, Macaulay and Moonee Ponds Creek, Fishermans Bend and Southbank catchments' to Clause 44.05 Special Building Overlay (SBO2) which includes flood management objectives, statement of risk, permit requirements, application requirements and decision guidelines.
- Introduce a new Schedule 3 'Council Drains - Elizabeth Street, Arden, Macaulay and Moonee Ponds Creek, Hobsons Road, Fishermans Bend and Southbank catchments' to Clause 44.05 Special Building Overlay (SBO3) which includes flood management objectives, statement of risk, permit requirements, application requirements and decision guidelines.
- Amend the Schedule to Clause 72.03 to update the list of maps that form part of the Planning Scheme.

- Amend the Schedule to Clause 72.08 (Schedule to Background Documents) to introduce the following new background documents:
 - *Technical Report 01: Australian Rainfall Runoff Sensitivity Analysis* (Engeny Water Management dated 22 July 2020)
 - *Technical Report 02: Southbank Flood Modelling Update and Climate Change Scenarios* (Water Modelling Solutions dated 21 April 2020)
 - *Technical Report 03: Southbank Stormwater Infrastructure Assessment: Final Report* (BMT WBM dated August 2015)
 - *Technical Report 04: Elizabeth Street Melbourne Flood Modelling Report* (Water Technology, dated August 2017) including the Memorandums dated 9 April 2020 and 13 February 2020
 - *Technical Report 05: Arden Macaulay Precinct & Moonee Ponds Creek Flood Modelling* (Engeny Water Management dated August 2020) (Moonee Ponds Creek Flood Study)
 - *Technical Report 06: Lower Yarra River Flood Mapping* (GHD dated 24 September 2020) (Yarra River Flood Study)
 - *Technical Report 07: Hobsons Road Catchment Flood Mapping Update* (Venant Solutions dated 17 June 2020) including the review response dated 22 April 2020
 - *Technical Report 08: Fishermans Bend Flood Mapping* (GHD dated November 2020)
 - *Technical Report 09: Overlay Delineation Report* (Engeny Water Management dated 27 October 2020) (cumulatively referred to as the Flood Studies)
 - *Guidelines for Development in Flood Affected Areas* (Department of Environment, Land, Water and Planning, 2019) (Flood Guidelines)
 - *Planning for Sea Level Rise Guidelines* (Melbourne Water, 2017)
 - *Good Design Guide for Buildings in Flood Affected Areas in Fishermans Bend, Arden and Macaulay* (City of Melbourne, Melbourne Water and City of Port Phillip, 2021) (Good Design Guide).

(ii) The subject land

The Amendment applies to land shown in Figure 1. It applies to land identified as being subject to inundation from riverine flooding in the Moonee Ponds Creek and Lower Yarra River waterways, and drainage flooding in the Arden, Macaulay and Moonee Ponds Creek, Elizabeth Street, Fishermans Bend, Hobsons Road and Southbank catchments.

Figure 1 Indicative map showing subject land and proposed overlays

1.2 Background

Council and Melbourne Water provided a detailed background to the Amendment in their joint Part A submission, including a chronology of events which the Panel has summarised in Table 1.

Table 1 Amendment C384melb chronology of events

Date	Event
31 May 2001	The SBO was introduced into the Planning Scheme through Amendment C012. Amendment C012 defined land affected by the SBO as identified by Melbourne Water as being subject to natural overland flows during a severe storm of 1 in 100 year intensity
10 February 2011	The LSI0 was last updated through Amendment C153. Amendment C153 was a site-specific amendment (affecting the Flemington Racecourse at 500 Epsom Road Flemington) which, amongst other things, introduced a Schedule to the LSI0
February 2018	Council finalises the Flood Management Plan for City of Melbourne and Melbourne Water, February 2018 (Flood Management Plan). It outlines roles and responsibilities and describes at a high level, Council and Melbourne Water's key flood management activities.
16 August 2019	Council declares a climate and biodiversity emergency
April 2020	Southbank catchment – Model completed
April 2020	Elizabeth Street catchment – Model completed
June 2020	Hobson Road catchment – Model completed

Date	Event
August 2020	Arden and Macaulay and Moonee Ponds Creek catchment – Model completed
September 2020	Lower Yarra River catchment – Model completed
November 2020	Fishermans Bend catchment – Model completed
3 August 2021	Council resolves to: - endorse the Good Design Guide - seek authorisation from the Minister for Planning to prepare and exhibit Amendment C384
4 August 2021	Council seeks authorisation to prepare and exhibit Amendment C384
18 August 2021	Minister for Planning authorises Council to prepare and exhibit Amendment C384
24 August 2021	Council commences advising permit applicants of Amendment C384 and new flood modelling affecting some areas in the municipality
28 July 2022	Amendment C407 gazetted which implemented the Arden Structure Plan, July 2022 (Arden Structure Plan) by introducing new planning controls into the Scheme. Amendment C407 amended the Schedule to Clause 72.08 to include the Arden structure Plan and the Arden Precinct Flood Management Policy, June 2022 as background documents
14 October – 29 November 2022	Amendment C384 is formally exhibited, and 43 submissions are received
2 August 2022	Council resolves to refer all submissions to an Independent Panel in accordance with Section 23 of the Planning and Environment Act 1987 (PE Act)
9 August 2022	Council formally requests the appointment of a Panel
16 August 2022	Minister for Planning appoints a three-person Panel to hear and consider submissions
29 August 2022	Council advises Panel that a late submission (#44) is accepted and referred to the Panel and submission #10 is withdrawn
31 August 2022	Directions Hearing for the Amendment is held

1.3 Procedural issues

All significant procedural issues are outlined in Table 2.

Table 2 Procedural issues

Date	Event
26 August 2022	Submitters 17 and 19 emailed Planning Panels Victoria advising that there are several matters they wish to raise at the Directions Hearing
30 August 2022	Submitters 17 and 19 provided Planning Panels Victoria with a written submission expanding on the issues identified in the email of 26 August 2022

Date	Event
31 August 2022	Directions Hearing Submitters 17 and 19 raised several procedural matters: - clarification of relevant matters - misleading notification of the Amendment, including the need for an Adjournment and re-notification - improper purpose of the Amendment - insufficient modelling. Council and Melbourne Water were given an opportunity to respond. The Panel considered the form of notice was sufficient and indicated it would not be making any Directions about what can and can't be ventilated at the Hearing, nor would it be making a Direction about what is a relevant matter. The Panel indicated the Directions Hearing is not an opportunity for the Panel to make a recommendation about the relevance of any aspect of the Amendment. This includes: - whether matters such as insurance, rates, property values, accuracy of the mapping etc are relevant - whether the purpose of the Amendment is the Council seeking to avoid upgrading its stormwater system - whether the modelling relied upon is sufficient - whether all relevant precincts have been modelled. The Panel noted these are all matters which can be ventilated at the main Hearing.
24 October 2022	Hearing Day 4 One landholder, Crown Resorts Limited sought leave from the Panel to file a hydrology memorandum prepared by Mr Swan of Hydrology and Risk Consulting. The memorandum was provided to the Panel and all parties on the afternoon of 21 October 2022. Crown submitted: - the memorandum provides no new information other than to state the same findings as the previously filed expert report of Mr Swan filed in relation to land owned by another submitter to the hearing, ESR Real Estate (Australia) Pty Ltd - it did not object to Mr Bishop (Melbourne Water's hydrological expert) being given leave to prepare a reply to the memorandum - Mr Swan could be cross-examined on the memorandum - the memorandum should be accepted as an attachment to the Crown submission. Council and Melbourne Water objected to the Panel receiving the memorandum given it provides no new material, was not filed with the other expert witness reports or in advance of the expert witness conclave. The Panel did not receive the memorandum for the following reasons: - the memorandum was filed after the circulation of expert evidence and the witness conclave

Date	Event
	- Crown gave no indication it was to be filed and sought no prior leave from the Panel to file it - the memorandum provided the Panel with nothing new in terms of Mr Swan's evidence and will not provide any additional benefit in the Panel's consideration of the issues.
28 October 2022	Hearing Day 8 On the final day of the Hearing Melbourne Water tabled Document Number 122 which responded to questions raised by the Panel on Day 6 of the Hearing. The Panel asked Melbourne Water why the Moonee Ponds Creek and the Lower Yarra River Flood Studies were not calibrated with available data. Melbourne Water advised a formal calibration process was not undertaken: - for the Lower Yarra model as there was insufficient information from flood events - for the Moonee Ponds Creek model as there was not sufficient data of a high enough quality from recent flood events. Two landholders, RSA Holdings Pty Ltd and Rockford Constant Velocity Pty Ltd raised concerns about the lateness of the submission and submitted: - tabled Document Number 122 should be treated as a technical document produced by Melbourne Water given it is not filed as part of Melbourne Water's Part C submission and is unauthored - their expert witness, Prof Coombes, identified several alleged inaccuracies and should be given an opportunity to respond to the technical matters raised - if Prof Coombes had had an opportunity to consider this earlier, he could have addressed the matters whilst giving evidence - they will be prejudiced if Prof Coombes is not afforded an opportunity to respond. Melbourne Water responded: - the document provides a response to the Panel questions, and directly to tabled Document 108 (the slideshow presentation prepared by Prof Coombes and referenced in his evidence in chief) - Prof Coombes was given an opportunity to respond to the matters raised in cross examination so there should be no prejudice suffered. The Panel made the following ruling: - it did not require a further response from Prof Coombes - while tabled Document Number 122 is unauthored and its material is not included as part of Melbourne Water's Part C submission, it is not a technical document, rather it responds to the Panel's direct questions - the Panel understands each party's position on calibration and the position taken on calibration by each hydrological expert witness and no further submissions or evidence is required.

1.4 The Panel's approach

Key issues raised in submissions were:

- the accuracy of the hydrological modelling and whether it is fit for purpose
- the accuracy of the LSIO mapped areas
- the modelled assumptions and whether calibration of the hydrological modelling is necessary
- whether it is appropriate to consider urban design outcomes when assessing planning permit applications triggered by the LSIO and SBO
- the status of the Good Design Guide in the Planning Scheme
- Melbourne Water's exercise of discretion as a referral authority
- the relationship between the proposed LSIO and SBO and existing mandatory Design and Development provisions
- whether transitional provisions are appropriate
- impacts on property values, rates, land tax and insurance costs
- planning and building processes and costs.

The Panel has assessed the Amendment against the principles of net community benefit and sustainable development, as set out in Clause 71.02-3 'Integrated decision making' of the Planning Scheme.

The Panel considered all written submissions made in response to the exhibition of the Amendment, observations from site visits, and submissions, evidence and other material presented to it during the Hearing. It has reviewed a large volume of material and has had to be selective in referring to the more relevant or determinative material in the Report. All submissions and materials have been considered by the Panel in reaching its conclusions, regardless of whether they are specifically mentioned in the Report.

This Report deals with the issues under the following headings:

- Strategic issues
- Flood study methodology
- Specific flooding issues
- Site specific issues
- Urban design considerations
- Other issues
- Form and content of the Amendment.

2 Strategic issues

(i) The issue

The issue is whether the Amendment is strategically justified.

(ii) Planning context

Council and Melbourne Water submitted the Amendment is supported by various clauses in the Planning Policy Framework, which the Panel has summarised below.

Table 3 Planning context

	Relevant references
Victorian planning objectives	Section 4 of the PE Act
Planning Policy Framework	Clause 11.02-1S (Supply of urban land) Clause 11.03-6L (Arden Precinct) Clause 12.03-1S (Fishermans Bend Employment Precinct) Clause 13.01-1S (Natural hazards and climate change) Clause 13.03-1S (Floodplain management) Clause 15.01-1S (Urban design) Clause 15.01-2S (Building design) Clause 19.03-3S (Integrated water management)
Other planning strategies and policies	Plan Melbourne Direction 4.3, Policy 4.3.1, Direction 6.2, Policies 6.2.1 and 6.2.2 and Direction 6.3, Policies 6.3.2 and 6.3.3
Planning scheme provisions	Land Subject to Inundation Overlay Special Building Overlay
Relevant planning scheme amendments	Melbourne Planning Scheme Amendment C407
Ministerial directions	Ministerial Direction on the Form and Content of Planning Schemes Ministerial Direction 9 (Metropolitan Planning Strategy) Ministerial Direction 11 (Strategic Assessment of Amendments)
Planning practice notes	Planning Practice Note 12: Applying the Flood Provisions in Planning Schemes Planning Practice Note 46: Strategic Assessment Guidelines, August 2018

Appendix A provides further details regarding relevant provisions and policies.

Table 4 lists the planning evidence.

Table 4 Planning evidence

Party	Expert	Firm	Area of expertise
Council	Mr David Barnes	Hansen Partnership	Strategic planning
Melbourne Water	Ms Coleen Peterson	Ratio Consultants	Strategic planning

(iii) Evidence and submissions

There was no dispute amongst the parties that the Amendment is strategically justified. The Explanatory Report provides a clear strategic basis for the Amendment, noting it is required:

- to identify land within the LSIO and SBO areas as being highly likely to be subject to inundation in the event of a flood
- to apply risk appropriate controls and measures to manage new development in a way that minimises potential flood damage through the planning permit process
- to provide clarity and certainty to landowners, developers and prospective purchasers that flood hazard must be considered early in the development feasibility, engineering, planning and design processes.

Council submitted the Amendment is clearly supported by State Policy including the:

- Flood Guidelines
- Floodplain Strategy.

The Flood Guidelines provide guidance relevant to the issues of drainage and flooding. They provide that land affected by flooding should be identified by a flood overlay (unless it is zoned for flood purposes) to ensure that flood risk is clearly identified and to provide the necessary trigger for development proposals to be referred to a floodplain management authority.

Importantly, the Flood Guidelines provide that floodplain management planning through the introduction of flood zones and overlays is about planning for an acceptable level of risk (rather than representing the full extent of flooding). It provides that the relevant flood related overlays, including the LSIO and SBO, should define what is considered an acceptable threshold for managing flood risk. Ms Peterson said:

The application of the controls provides clarity for landowners, developers and prospective purchasers of the presence of the flooding hazard, which is required to be addressed through the planning permit process.

The Floodplain Strategy endorses the use of planning controls to manage potential flood risk. Council submitted the Amendment reflects the requirements of the strategy by applying risk appropriate controls and measures to manage development in a way that will minimise potential flood damage.

Melbourne Water submitted the Amendment:

- seeks to update the Planning Scheme by identifying land at risk of flooding having regard to climate change factors
- identifies land that is suitable for a flood risk assessment, and this is essential for the preservation of public safety and to minimise risk to life and property
- will update maps that are several decades old and are outdated.

Council submitted the strategic justification for the Amendment is firmly grounded in the Planning Policy Framework. Relevantly, the Amendment:

- identifies land in Arden, the Fishermans Bend Employment Precinct and the Fishermans Bend Urban Renewal Area, which is at risk of flooding, and triggers the need for proposed buildings and works to consider and respond to that risk (Clause 11.03-6L-01 'Arden Precinct', Clause 11.03-6L-05 'Fishermans Bend Employment Precinct' and Clause 11.03-6L-06 'Fishermans Bend Urban Renewal Area')
- enables the identification, prevention, and minimisation of harm to the environment, human health, and amenity and prepares for and responds to the impacts of climate change (Clause 12.03-1S 'River corridors', Clause 13 'Environmental Risks and Amenity' and Clause 19.03-3S 'Integrated Water Management')
- identifies at risk areas using the best available data and climate change science (Clause 13.01 'Climate Change')
- identifies land affected by flooding, including land inundated by the 1 per cent AEP flood (Clause 13.03 'Floodplain Management')
- seeks to introduce design guidelines to ensure good urban design outcomes (Clause 15.01-1S 'Urban Design').

Council also submitted the proposed overlay controls, being the LSIO and SBO, are the appropriate tools within the Victoria Planning Provisions. Clause 44.04 appropriately identifies and seeks to minimise risk from riverine flooding, and Clause 44.05 identifies and seeks to minimise risk from overland flows from the urban drainage system. Both overlay schedules trigger the need for a planning permit for buildings and works and for subdivision, including the referral of applications to the floodplain management authority.

Ms Peterson also identified Clause 13 'Environmental Risks and Amenity' which includes the objective that planning should prepare for and respond to the impacts of climate change. She noted the strategies reflect the shifting nature of projections regarding the effects of climate change and quantify the potential effects. Specifically, the strategies include *"identify at risk areas using the best available data and climate change science"* and *"develop adaptation response strategies for existing settlements in risk areas to accommodate change over time"*.

The Explanatory Report also discusses how the Amendment meets the relevant requirements of Ministerial Directions and Planning Practice Notes. That discussion is not repeated here, albeit to comment briefly on *Planning Practice Note 12: Applying the Flood Provisions in Planning Schemes* (PPN12).

PPN12 provides guidance about applying the flood provisions in planning schemes including the preparation of policy, identifying land affected by flooding, preparing a local floodplain development plan and the application and operation of the flood provisions, including the preparation of schedules. Council submitted the Amendment was guided by PPN12 in the identification and mapping of flooding extents and in the selection and preparation of suitable flood provisions.

Specifically, Council submitted:

In accordance with PPN12, the 100-year ARI (Average Recurrence Interval) Design Flood Event was used as the flood standard in the Amendment. This is the basis for declaring flood levels and flood areas under the Water Act and for setting minimum building floor levels under the Building Act 1993.

As set out in PPN 12, there are four different types of flood provisions available. The selection by Council and Melbourne Water of the LSIO and SBO as the appropriate tools for the Amendment is based on the type of flooding and the potential level of risk to life and property.

PPN12 says:

- The LSIO applies to mainstream flooding in both rural and urban areas. In general, areas covered by the LSIO have a lower flood risk than UFZ or FO areas.

With respect to the SBO, PPN12 states:

- The SBO applies to stormwater flooding in urban areas only.
- Before 1975, drainage systems were designed to a lower standard than those used today. Often they were designed for a five-year ARI storm capacity, and sometimes for a lesser standard. Usually no provision was made for overland flows, so land is often flooded when the capacity of the underground drainage system is exceeded.
- With the redevelopment of existing urban areas and the proposed development of new areas, there will be pressure to develop within overland flow path areas. The purpose of the SBO is to manage development in these areas.

Council submits the Amendment is consistent with PPN12.

How the flood modelling underpinning the Amendment and the Overlay maps was carried out, what standards were followed and what assumptions were made is discussed in Chapter 3.

(iv) Discussion

The Panel finds there is overwhelming support under the PE Act, the Planning Scheme and other strategic reports and documents that justifies the strategic basis for the Amendment. There is consistent and cascading policy support for flood management across State and local strategies and in the Planning Scheme, particularly at Clause 13. The Amendment is responsive to this policy content and has been prepared in accordance with relevant Ministerial Directions and Practice Notes. It is consistent with the directions from the Floodplain Strategy and the Flood Guidelines. PPN12 supports the use of the LSIO and SBO schedules. The selection of the overlays is considered suited to the local flooding conditions experienced in Melbourne.

The Amendment will allow the Council and Melbourne Water to better manage flood and climate change impacts by identifying the likely risk and thereby ensuring flood impacts are minimised to protect life, property, assets and the environment.

An important feature of the LSIO and SBO schedules in the Amendment is that they do not prohibit development. Any new development will require a permit under the overlay schedules and would be assessed to determine if such development would impact on or be impacted by flooding.

The Panel is satisfied the Amendment should proceed subject to addressing the more specific issues raised in submissions as discussed in the following chapters.

(v) Conclusions and recommendations

The Panel concludes that the Amendment:

- Flooding controls are required to assist in the protection of life, property, community infrastructure and the environment from the hazards associated with floods.

- The Amendment implements the Planning Policy Framework and is consistent with the relevant Ministerial Directions and Planning Practice Notes.

3 The accuracy of the modelling

3.1 Background

The Panel had the benefit of expert evidence from five experts in the field of hydrology, flooding, and drainage as shown in Table 5.

Table 5 Summary of experts

Party	Expert	Firm	Area of expertise
Council	Mr Luke Cunningham	Rain Consulting	Hydrologic/hydraulic modelling
Melbourne Water	Mr Warick Bishop	Water Technology	Hydrologic engineering
RSA Holdings Pty Ltd and Rockford Constant Velocity Pty Ltd	Prof Peter Coombes Mr Chris Beardshaw	Urban Water Cycle Solutions Allux Consulting	Drainage and hydrology Drainage and hydrology
ESR Real Estate (Australia) Pty Ltd	Mr Robert Swan	Hydrology and Risk Consulting	Hydrology and flood management

Mr Cunningham gave evidence for Council on hydrologic and hydraulic matters relating to the proposed SBO schedules. Mr Bishop gave evidence for Melbourne Water on hydrological matters including whether the Flood Studies are adequate to inform the introduction of the proposed overlay schedules into the Planning Scheme.

Prof Coombes, Mr Beardshaw and Mr Swan gave evidence for landowners who criticised the modelling underpinning application of the LSIO3 because it overestimates the likely flood extent and opposed the consequential application of the LSIO3 on the relevant land parcels. Specifically:

- Prof Coombes and Mr Beardshaw gave evidence for two landholders, RSA Holdings Pty Ltd (RSA) and Rockford Constant Velocity Pty Ltd (Rockford) who own land in Arden
- Mr Swan gave evidence for ESR Real Estate (Australia) Pty Ltd (ESR) who owns land in Southgate.

Consequently, the adequacy of the flood modelling for the Lower Yarra River and the Moonee Ponds Creek was the subject of considerable evidence, submissions, and questions at the Hearing.

To narrow the areas of dispute and difference, the Panel directed the witnesses to meet to prepare a statement of agreed opinions and facts. A report of the conclave was tabled (Expert Conclave Report). The Panel appreciates the efforts of the experts and acknowledges the usefulness of the report.

The Expert Conclave Report records the following general points of agreement in relation to the Moonee Ponds Creek Flood Study¹:

It is appropriate for Moonee Ponds Creek floodplain to include overlays

¹ It was acknowledged that not all experts were briefed to review the flood modelling for Moonee Ponds Creek. Where relevant, this is noted using each experts' initials.

For those who had reviewed the model, there was concern regarding some of the modelling assumptions including lack of calibration to known events and historical data and downstream tidal boundaries (WB, CB, PC, RS)

Where appropriate data exists, best practice modelling requires calibration of models. It was agreed that this data exists for Moonee Ponds Creek

Hydrologic and hydraulic models appear to be well constructed notwithstanding the above concerns regarding assumptions made within the modelling (WB, CB, PC)

The Expert Conclave Report records the following general points of disagreement in relation to the Moonee Ponds Creek Flood Study:

There is potential to adopt the LSIO3 as proposed with an attached appropriate Local Floodplain Development Plan which talks to future mitigation works that are proposed (RS agree, CB, WB, PC disagree)

Existing conditions or future (2100) mitigated conditions may be a suitable LSIO3 (RS, CB, PC agree, LC, WB disagree) PC noted subject to corrections of currently available models and overlays.

The LSIO3 as proposed for Moonee Ponds Creek is an adequate overlay to trigger flood risk related planning referrals (LC, WB agree, PC, CB disagree)

Moonee Ponds Creek modelling should have been completed with the pumps working (CB, RS, PC agree, LC, WB disagree)

It is more appropriate to adopt a 2100 climate change-based flood overlay that includes capital works that are committed to by government in the interim (CB, RS, PC agree, LC, WB disagree)

PC commented that there are probably two perspectives on the above issue (1) we should trust key government agencies to deliver a planned flood mitigation, but we are not sure what solutions will be delivered but can include mitigation in overlays (2) we don't know what the solutions are and can only include in flood modelling/overlays when committed in budgets.

The Expert Conclave Report records the following general points of agreement in relation to the Yarra River Flood Study²:

The Lower Yarra requires appropriate overlays

For those who had reviewed the model, there was concern regarding some of the modelling assumptions including lack of calibration to known events, bathymetry of the Yarra River and adopted tidal data (WB, RS, PC)

Where appropriate data exists, good practice modelling requires calibration to historic events.

Appropriate calibration data exists for the Lower Yarra River.

Calibration to known events was not undertaken for Lower Yarra River.

Hydraulic models appear to be well constructed notwithstanding the above concerns regarding assumptions made within the modelling (WB). RS agrees that the model is well constructed generally, however the results of the model are not fit for purpose. PC agrees with RS

The Expert Conclave Report records the following general points of disagreement in relation to the Yarra River Flood Study:

² It was acknowledged that not all experts were briefed to review the flood modelling for Lower Yarra River. Where relevant, this is was noted using each experts' initials.

The LSIO3 as proposed for the Lower Yarra River is an adequate overlay to trigger flood risk related planning referrals (LC, WB agree, RS, PC, CB disagree)

The use of the underlying model results, used to define the flood extents in the LSIO3 for the Lower Yarra for planning purposes, should not be supported by the Panel (RS, PC, CB agree, WB Disagree)

3.2 Technical basis for the modelling

(i) Introduction

The Planning Scheme and various State policies require planning authorities to implement planning controls that accurately identify environmental hazards, including flood risk, and to respond to climate change.

Clause 13.03-1S 'Floodplain Management' provides strategic support for the Amendment. It includes the strategy:

Identify land affected by flooding, including land inundated by the 1 in 100 year flood event (1 per cent Annual Exceedance Probability) or as determined by the floodplain management authority in planning schemes.

This is referred to as the 1% Annual Exceedance Probability (AEP) flood.

The Floodplain Strategy endorses the use of planning controls to manage potential flood risk and requires the identification of the 1% AEP flood event within the Planning Scheme, through Accountability 13a:

LGAs are accountable for ensuring that their Planning Schemes correctly identify the areas at risk of a 1% Annual Exceedance Probability flood, and contain the appropriate objectives and strategies to guide decisions in exercising land use controls in regard to flooding.

Policy 13a of the Floodplain Strategy of the provides:

The 1% Annual Exceedance Probability (AEP) flood will remain the design flood event for the land use planning and building system in Victoria.

...

Technical work underpinning the Amendment

Flooding provisions such as the LSIO and SBO are based on technical flood studies and modelling that analyse and predict flood risk and behaviour. Floodplain management authorities use flood studies to determine the extent of the 1% AEP flood.

The Flood Studies are proposed to be included as background documents under the Schedule to Clause 72.08 of the Planning Scheme and were carried out between 2015 and 2021.

The Floodplain Strategy notes flood studies:

- define the nature of the flood hazard across the floodplain by providing information on the extent, depth and velocity of floodwaters, and on the distribution of flood flows
- provide new flood mapping for inclusion in the planning scheme and a preliminary assessment into possible flood mitigation measures.

Flood studies are updated periodically as they depend on the best available data at the time of their preparation.

Climate Change

In addition to estimating the extent of the 1% AEP flood, it is State policy to estimate the future impacts of climate change on flood extent. There are two key impacts climate change is expected to have on floods:

- rising sea levels
- more intense rainfall.

The Amendment seeks to introduce new LSIO and SBO schedules to reflect updated flood modelling carried out in accordance with *Australian Rainfall and Runoff 1987* (ARR 1987). The Flood Studies were all based on the ARR 1987 methodology rather than the current Australian Rainfall and Runoff (ARR 2019) methodology. This was principally due to most of the studies starting and some cases being completed before ARR 2019 was completed or widely adopted.

The models factor in climate change considerations, particularly in relation to the likely impacts on rainfall intensity and have been re-run with the climate change information from ARR 2019. In particular, the ARR 2019 Guidelines include an assumption of an 18.5 per cent increase in rainfall intensity by 2100.

The *Victorian Coastal Strategy 2014* sets out government policy on planning for climate induced sea level rise and requires authorities to plan for possible sea level rise of not less than 0.8 metres by 2100. This policy is reflected in clause 13.01-2S 'Coastal inundation and erosion':

Objective

To plan for and manage coastal hazard risk and climate change impacts.

Strategies

Plan for sea level rise of not less than 0.8 metres by 2100

One matter the five experts agreed on was the appropriateness of taking climate change into account in the Flood Studies. The Expert Conclave Report said:

All agreed that climate change considerations are important

....

It was generally agreed that it is appropriate to plan for climate change conditions...

To estimate the extent of a 1% AEP flood under climate change conditions in 2100, the Flood Studies seek to estimate the flood extent of a 1% AEP flood under today's climatic conditions, and then add in the effect of an increase in:

- rainfall intensity of 18.5 per cent by 2100, and
- sea level of 0.8 metres by 2100.

The hydrology experts agreed on the process of adding in the effect of increased rainfall and increased sea level under climate change conditions in 2100. However, what they disagreed on was the Flood Studies' estimation of flood extents of a 1% AEP flood under today's climatic condition due to the assumptions about tides, pumps, and lack of calibration.

(ii) The issues

The issue is whether the technical basis for the Flood Studies, specifically, the Yarra River Flood Study and the Moonee Ponds Creek Flood Study, are adequate to inform the introduction of the

LSIO3 into the Planning Scheme. That is, whether the modelling contained within both Flood Studies:

- adequately considered tidal behaviour
- was adequately calibrated or verified
- appropriately addressed joint probability
- appropriately assumed flood pumps would not operate during a flood in Moonee Ponds Creek
- is fit for purpose.

(iii) Evidence and Submissions

The fundamental question is whether the modelling which underpins the Amendment unacceptably overestimates the likely flood extent and forms an improper basis for flood mapping for the purpose of the LSIO and SBO schedules.

Melbourne Water submitted that given the very real risk to life and property posed by flood risk, the evidentiary burden to be met to make out such a proposition is very high. Melbourne Water's submissions, evidence and cross examination of witnesses aimed to confirm the suitability of the modelling for its purpose in mapping the extent of likely future flooding to trigger a flood risk assessment at the planning permit stage. Mr Bishop supported this and said the models, the input data and assumptions applied in the Flood Studies were appropriate.

The key submitters challenged the decisions made by Melbourne Water about the adopted assumptions which underpin the modelling. RSA and Rockford challenged the Moonee Ponds Creek Flood Study, and ESR challenged the Yarra River Flood Study.

Tidal behaviour

A key issue is whether the 10% AEP tide levels adopted in the Moonee Ponds Creek and Lower Yarra River Flood Studies appropriately identify the 1% AEP flood extent. Melbourne Water adopted a 10% AEP tide in conjunction with the 1% AEP flood in the Moonee Ponds Creek and the Yarra River Flood Studies. The 10% AEP tide was variously referred to in evidence and submissions as a boundary condition, or a tailwater condition. The effect of this assumption is that it increases the modelled flood extent compared to the scenario where an average, or 50% AEP tide, is used.

Melbourne Water submitted it is "*common industry practice*" to set the tailwater level at the level of a 10% AEP event. Mr Bishop supported Melbourne Water's adoption of this boundary condition and said the modelling does not overestimate the flood extents and the results are reasonable.

RSA and Rockford submitted the joint probability of 1% AEP flood and the 10% AEP tide adopted in the Flood Studies:

- has not been calibrated against real world conditions
- is overly conservative and does not correctly identify the 1% AEP flood extent.

Prof Coombes said "*[i]t cannot be assumed that a 10% AEP maximum tide will occur at the same time as maximum flood levels from a 1% AEP flood event.*" He said that using the total probability theorem, assuming a 10% AEP maximum tide coinciding with 1% AEP design storm event provides a 10% times 1% = 0.1% AEP (1 in 1,000 year) design outcome.

ESR submitted tidal behaviour has not been appropriately considered because there has been “*no analysis of the joint probability of coincident tide and flood events and the tidal boundaries adopted are not consistent with tidal behaviour in the Yarra and recorded storm surge events*”.

Mr Swan considered real tidal data and concluded there are two key issues with the joint probability assessment:

- real tides revert back to a normal tidal cycle relatively quickly after the conclusion of a surge event - this is known as ‘decay’ and is typical of all storm surges
- the modelling uses the wrong tide timing and misses one additional high and low tide event.

Mr Swan said:

The use of this elevated sea level in the modelling has significant impacts on the expected flood levels in the Lower Yarra. In their modelling, GHD has adopted a timing that matches the peak of the tide to when flows are 30% of the total peak of the flood event. The peak of the flood occurs more than 50 hours after the peak of the tide, at which time the tidal levels should be significantly lower.

Effectively, the GHD results for the existing conditions have an inbuilt sea level rise component of approximately 0.5-0.6 metres under present day conditions and 1.3-1.4 m rise under the 2100 conditions, in the absence of storm surge at the time of peak flood flows in the Yarra. This is well in excess of the required 0.8 m sea level rise required to be considered under the Victorian Coastal Strategy and by Melbourne Water’s own guidelines.

To determine the impact of the modelled tidal behaviour, Mr Swan chose to analyse the data and found the adoption of the tides in the modelling contributes to an increase in peak flood level of approximately 300 millimetres at Spencer Street and 200 millimetres at Princes Bridge compared to his analysis.

In its closing submission, Melbourne Water submitted:

Mr Bishop provided a sound basis upon which the Moonee Creek Ponds modelling assumptions ought to be accepted as reasonable, noting the complexity of modelling a constrained waterway where a change in the inputs (such as flow rate) will not necessarily generate significantly different outputs. Mr Bishop stated that even if a lesser flow rate was adopted, for example, it is possible to consider circumstances where a major blockage might occur and the type of results contemplated by the modelling might eventuate.

Mr Bishop also expressed the view that the modelling does not overestimate the flood extents and the results are reasonable. Mr Bishop was comfortable with the assumptions made about tide and peak flows in the Moonee Ponds Creek catchment and the timing of peak flows relative to that of maximum tides.

Mr Bishop explained that conservatism in the modelling arises from the nuance associated with the application of accepted principles, such as assumptions associated with joint probability issues. Different experts will have different opinions about those matters of nuance.

Melbourne Water submitted the Panel must recognise it is the floodplain manager charged with serious and important statutory responsibilities in relation to the management of flood risk. It said it is the body best placed to make decisions about the nuances inherent in flood modelling, and submitted:

That is not to be flippant or to seek to avoid scrutiny, but to recognise that when charged with protecting life and property it is reasonable to make decisions based on a preference for conservatism.

Joint Probability

ARR 2019 explains that in many applications of flood simulation, it is necessary to understand and apply the basic probability concepts involved when a range of factors combine to produce a flood event or when different events occur jointly. Relevantly, this might include tides, pump operation and other flood events.

The Moonee Ponds Creek, the modelling has assumed that during the design flood event which determines the extent of the LSIO:

- there is a static tail water level in Port Phillip Bay of 1.4 metres
- there is 1% AEP flood event in Arden Macaulay
- it is peak high tide, and the peak spring tide

all at the same time.

RSA and Rockford submitted the joint probability of this series of cascading “*unlikely events*” has not been determined, and the data has not been calibrated against real world conditions.

Prof Coombes said available resources to determine joint probability more accurately were not utilised. As a result, he said the flood modelling underpinning the Amendment assumes dependence between rare floods and tides that don’t exist.

Mr Bishop said he was comfortable with the assumptions made in the Moonee Ponds Creek catchment and the timing of peak flows relative to that of maximum tides.

In response to questions from the Panel, Mr Bishop said in relation to the techniques available for considering questions of joint probability, more sophisticated analytical techniques, such as ‘Monte Carlo’ techniques (referred to in ARR 2019), are not part of common flood modelling practice as they can be complex, difficult, and expensive, and are therefore impractical to implement. The ‘Monte Carlo’ risk management technique analyses thousands of combinations of data input and generates probabilities of outcomes.

In response to this, Melbourne Water submitted:

Instead, statutory authorities make decisions about statistical method based upon a range of legitimate factors, including the timeframe for completion of the modelling, the purpose of the modelling and the simplicity of the adopted assumptions. This approach is valid and appropriate in the context of flood mapping for planning scheme overlays, having regard to both the need to generate information in a timely manner and the resource constraints under which all statutory authorities operate.

The benefits of undertaking a more detailed modelling exercise may be significantly outweighed by countervailing factors, such as the need to ensure that the best available information is conveyed to the community in a timely manner.

Calibration

Flood studies are a sophisticated estimation of flood behaviour and do not represent any actual past or future flood. To ensure they are fit for purpose, flood studies calibrate the outputs from flood models with past floods where data to enable this is available.

ESR submitted calibration of a model against known historical events is standard industry practice, and ARR 2019 provides the following advice to hydrologists:

Once a site-specific model has been developed it must be calibrated and, where possible, validated to ensure that it is capable of providing a reliable description of the flow characteristics within the area of interest. This is described in the following section.

Mr Swan said the:

- failure to undertake model calibration and validation against real flood events means that the modelled flood flows and levels are subject to significant uncertainty
- lack of calibration is not consistent with good modelling practices recommended in ARR 2019
- despite the flow and tide series data being available, no calibration has been attempted for any recorded storm event, including for the 1934 flood event
- the lack of calibration and the apparent overprediction of flood levels in nominal 1% AEP events means that the extent of the overlay is likely to be overestimated, and, more importantly, the levels used to assess development controls will also be overestimated.

ESR submitted the failure to calibrate the model:

- represents a fundamental flaw which calls into question the veracity of the calculations
- results in significant uncertainty as to the reliability of the modelled flood levels
- does not follow best practice modelling and is not an acceptable basis for amendments to the Planning Scheme which have significant implications for built form (whether through the planning or building process).

In the Expert Conclave Report, the experts who had reviewed the Lower Yarra data (that is, all the experts but Mr Cunningham who specialises in stormwater hydrology) agreed that:

... there was concern regarding some of the modelling assumptions including lack of calibration to known events, bathymetry of the Yarra River and adopted tidal data.

Where appropriate data exists, good practice modelling requires calibration to historic events.

Appropriate calibration data exists for the Lower Yarra River.

In relation to this, ESR submitted:

Melbourne Water's own expert, Mr Bishop, agreed to these propositions but appears to conclude that he has no concerns because although the modelling is conservative (by which it is assumed that he agrees the modelling appears to over-estimate expected flood levels) it only supports a permit trigger which leads to further assessment. Mr Bishop "doesn't see [an] issue with [a] conservative overlay."

Given Mr Bishop is a hydrologist and not a town planner, urban designer or lawyer, he understandably assesses the overlay mapping from the point of view of a hydrologist and adopts the position that conservative flood mapping (or flood mapping which over estimates the risk) is not problematic because he places emphasis on the fact that all the potentially "at risk" properties will be included in the permit trigger, and places little weight on imposing the permit trigger on properties which will not, in fact, be exposed to the risk.

RSA and Rockford submitted the absence of calibration where the data is available in such an important area as Arden Macauley cannot be defined as good practice.

Prof Coombes said:

The model and reports describing the inputs and assumptions in the model are not available for consideration. Importantly, no information is provided about the calibration of this model to observed data from Moonee Ponds creek gauges which is an essential process for determining the critical storm duration and pattern.

Melbourne Water acknowledged calibration of flood modelling represents best practice. The Panel asked Melbourne Water to directly address it on the issue of calibration and why the models (for the Moonee Ponds Creek and Lower Yarra) were not calibrated. In short, Melbourne Water

submitted there was not sufficient data of a high enough quality from recent flood events to enable an accurate and reliable calibration to be undertaken³.

Melbourne Water submitted, however, the calibration process was not disregarded entirely. It said it undertook a degree of calibration in relation to historical flood events. Specifically, in relation to the Moonee Ponds Creek, Melbourne Water submitted:

- the existing conditions flows were validated to the results a flood frequency analysis which provided a range for the 1% AEP and not an exact estimate
- using a flood frequency analysis to validate the results of a hydrology model is consistent with best practice modelling methodologies
- a review of online photos and photos provided by Council were used as a high-level form of validation, with the areas subject to flooding shown in the photos being consistent with the flood prone areas as defined by the model.

Melbourne Water submitted in relation to the Lower Yarra model:

Despite this significant effort was made to ensure the model outputs were validated against known information and that the model outputs were reflective of best practice for a flood study of this size. This includes the use of gauged data to understand the likely flood levels and the use of flood frequency analysis – both of which are outlined in the Lower Yarra Study.

Mr Bishop supported the principle that calibration is important to achieve the most accurate outcome in flood studies. In the case of the two Flood Studies in question, Mr Bishop observed these were quasi-calibrated or validated for the extent of flood mapping. Mr Bishop said all flood studies could be improved, however, the Flood Studies are adequate for the purpose of flood extent mapping in the Amendment.

Pumps

In the Moonee Ponds Creek catchment there are six flood pumps designed to pump water out of flooded areas into Moonee Ponds Creek. This function is described in the Moonee Ponds Creek Flood Study:

In significant storms events the performance of City of Melbourne's drainage system in the parts of the model extent is dependent on six pump stations to lift and discharge flow from low lying areas into Moonee Ponds Creek. The pump stations are required as the flood level of Moonee Ponds Creek often exceeds the flood level of the local drainage system, meaning that the drainage system's conventional gravity outlets to Moonee Ponds Creek are not able to discharge local catchment flows into the creek.

The report went on to say:

Pump stations have the potential to be unreliable in storm events if they lose power. A key objective of the flood related planning scheme overlays is to manage the setting of floor levels for future developments in flood prone areas. Due to potential unreliability of the pump stations, Melbourne Water and City of Melbourne intend to set floor levels on the assumption that the pump stations have failed.

Based on this, the modelling used for the basis of delineating the planning scheme overlays reflects that the pumps fail to operate in the 1 % AEP storm event.

³ Document 122.

There is some uncertainty in the pump station operating levels (i.e. the flood levels that result in the pumps turning on and off) and further investigation of these levels is recommended prior to using the model with the pumps operational.

The Moonee Ponds Creek Flood Study described this assumption as conservative. The effect of this assumption is to increase the flood depth and extent in the areas served by the pumps in the models, including the area that covers the land owned by RSA and Rockford Constant Velocity.

Mr Bishop said because of the pumps off assumption, *“modelled flood levels represent a ‘worst-case’ scenario and are a conservative estimate”*, and:

Due to the potential for pump stations to fail and the significant flood and safety consequences, this assumption is considered reasonable for setting the extent of planning scheme flood overlays.

Like Mr Bishop, Mr Cunningham said the pumps off assumption was sound, recognising the important role the pumps play in the precinct and the seriousness of the consequences of failure. Mr Cunningham noted the existing pumps have issues and should not be relied on to operate.

Prof Coombes said the assumption the pump at the end of Gracie Street (nearest to the RSA and Rockford land) would fail increased flood levels by 0.2 to 0.3 metres. Prof Coombes said *“given that the pumps are specified to manage stormwater runoff and flooding, this assumption does appear to be unrealistic as it is counter to the design function of the pumps...”*.

Fit for Purpose

Melbourne Water submitted the modelling is the best available information and *“must be incorporated into the Planning Scheme without delay”*. It highlighted the existing planning maps are out of date and need to be amended to reflect the modelled extent of land identified as prone to flooding. Melbourne Water submitted the modelling is fit for purpose and suitable for flood mapping under the LSIO and SBO. That is, the modelling is an adequate representation of the extent of a 1% AEP flood.

Further, Melbourne Water submitted:

The updated modelling has confirmed that there is a significant risk that flooding will affect the City of Melbourne within the areas the subject of the flood studies with the potential for flood waters to impact on important facilities including rail stations and corridors, roads and schools.

Flood extents as represented by the Amendment have resulted in flood levels, flood velocities and flood depths changing as new assumptions have been included in the modelling which now has regard to the increased rainfall intensity of 18.5% by 2100.

Having regard to the policy considerations outlined in this submission, the updated flood modelling which underpins the Amendment is appropriate and fit for purpose. That is, the flood modelling, as reflected in updated LSIO and SBO extents within certain catchments in the City of Melbourne, will provide the necessary trigger for development proposals to be referred to the floodplain management authority. In this way, risk appropriate controls and measures can be applied to manage development in a way that minimises potential flood damage through the planning permit application process.

Melbourne Water relied on the evidence of Mr Bishop in support of the modelling which underpins the Amendment. Mr Bishop said the models, input data, methods and assumptions applied in the Flood Studies which have informed the overlay maps are considered appropriate for the Amendment.

Mr Cunningham, who was called by Council, supported the modelling as a reliable basis for the proposed SBO3 control and attested the efficacy of each of the technical reports that underpin the Amendment. He gave evidence the modelling is fit for purpose because it follows industry standards, was completed over a period, and relied upon the Melbourne Water flood modelling specifications. He said while each of the Flood Studies differ, they follow widely accepted methodologies and have verified they are a reasonable indication of how overland flows move.

More particularly, Melbourne Water submitted the flood modelling was an adequate representation of the 1% AEP flood extent. It submitted the models were prepared consistently with the methods defined in ARR 1987 and factor in climate change considerations, particularly in relation to the likely impacts on rainfall intensity and sea level rise. Melbourne Water said the models utilised accepted contemporary modelling techniques and practices and were re-run with the latest climate change information from ARR 2019.

Several submitters raised concerns with respect to the modelling, such as:

- whether the modelling is accurate and reliable
- whether the modelling provides a sound basis for the extent of the overlays
- whether it is appropriate to rely on the modelling given further work needs to be undertaken with respect to climate change inputs
- whether the geographical extent of the modelling is sufficient to reliably inform related planning controls.

ESR submitted the imposition of an additional permit trigger upon land is a matter of gravity which warrants consideration of data based on best practice methodology.

In response, Melbourne Water submitted that to the extent modelling flaws were identified, those flaws do not undermine the reliability of the modelling such that it ought to be disregarded, particularly having regard to the purpose to which the modelling is used in this Amendment. Melbourne Water submitted the Amendment does not set flood levels for any parcel of land, rather Melbourne Water assesses flood levels when a planning permit is sought under the LSIO or SBO. The overlays provide the trigger for the assessment.

Council agreed and submitted:

There is, however, a broader point to be made. The purpose of the proposed LSIO and SBO controls is not to prevent the future use and development of land for urban purposes. It is, rather, to require that a flood risk assessment be undertaken to ensure that the design of the proposed use and development will be safe to an acceptable standard.

Melbourne Water further submitted:

Modelling is an expensive, time consuming and resource intensive exercise. In making decisions about the conduct of flood modelling, Melbourne Water has regard to the need to balance the benefit of improved methods against the cost. In some instances, there may not be sufficient justification to re-run modelling, or to embark upon a whole new study just because aspects of the modelling may fall short of the stringent application of best practice. For example, reliance on the 1987 ARR rather than the 2019 version does not produce such a consequential difference in modelling outputs to justify discarding work already done; work that is useful and fit for purpose.

Melbourne Water submitted the importance of the Planning Scheme being updated now to ensure known flood risks are properly reflected in the applicable planning controls and communicated to current and prospective landowners. It highlighted the importance of

considering the purpose of the flood mapping exercise in the strategic planning context, which is to ensure that flood risks are identified by planning controls. Specifically:

It is not necessary, nor appropriate to achieve a 'counsel of perfection' in order to effectively and expertly implement the important hazard identification objective of defining flood overlay extents. In light of the purpose of the Amendment – as a planning marker to trigger further detailed consideration of flood risk – it is also entirely appropriate to adopt a level of conservatism in the modelling.

In the Expert Conclave Report, all five hydrology experts agreed flood overlays are important, and there is a strong need for the overlays in the City of Melbourne, including for Moonee Ponds Creek and the Lower Yarra River.

Ms Peterson, Melbourne Water's planning expert witness, emphasised the importance of addressing flood risks in the planning scheme.

(iv) Discussion

The key issue for the Panel is whether the technical basis of the Flood Studies is fit for purpose to support the introduction of the LSIO3 into the Planning Scheme. That is, whether the conservative assumptions in the modelling form an improper basis for flood mapping for the purpose of the LSIO3.

The issues regarding the adequacy of the Flood Studies identified principally by Prof Coombes and Mr Swan were not in the Panel's view minor or trivial. They raised significant criticisms about aspects of the Moonee Ponds Creek and Yarra River Flood Studies. Both concluded the effect of the modelling deficiencies mean the flood extents do not adequately represent the extent of a 1% AEP flood. These criticisms included the:

- tide levels used in the flood studies were too high
- the pumps off scenario was unjustified
- lack of a joint probability assessment
- flood models were not calibrated with historic floods.

In contrast, Melbourne Water and Mr Bishop described the Flood Studies as conservative and suitable for use in the Planning Scheme.

The Panel has come to the view that the shortcomings identified by the parties and experts in relation to the acceptability or adequacy of the Flood Studies are significant but not fatal to the Amendment.

Tidal behaviour, pumps off scenario, joint probability

The parties and the flooding experts held different opinions in relation to the 10% AEP tide levels adopted and whether this appropriately identifies the 1% AEP flood extent. The Panel accepts this assumption may increase the modelled flood extent, and therefore increase the area and number of properties subject to the LSIO3, compared to where an average, or 50% AEP tide, is used. However, the Panel also accepts Mr Bishop's evidence that modelling is complex, and a change of inputs may not necessarily generate significantly different outputs.

The parties and hydrological experts disagreed in relation to whether it is acceptable for the Flood Studies to assume the pumps off scenario in the Moonee Ponds Creek catchment. Nonetheless, there was no evidence provided about the reliability of the pumps during a 1% AEP flood event. Identification of 1% AEP flood is a probabilistic assessment of the flood extent. As such, the Flood

Studies would benefit from including information on the probability of whether the pumps fail or not in a flood event.

The Panel did not have the benefit of this information when considering the issue and instead the discussion amongst the experts was about the reasonableness or otherwise of the pumps off scenario. However, due to the potential that pumps might fail and the significant flood and safety consequences, the Panel considers this assumption reasonable for setting the extent of flood overlays. The overlays are a trigger for planning referral and the floodplain authority has the discretion to consider what floor heights and pump failure scenarios are appropriate when assessing a planning application. The Panel agrees with Mr Bishop that it is reasonable for the purpose of setting the extent of planning scheme flood overlays to make this assumption.

The Panel accepts the Moonee Ponds Creek and Lower Yarra River Flood Studies did not assess the joint probability of different events which contribute to the flood extent. Instead, they used fixed assumptions, such as the 10% AEP tide level. The Panel accepts Mr Bishop's evidence regarding the impracticality of complex probabilistic modelling of joint probability using Monte Carlo methods. Equally, the Panel accepts Prof Coombes' evidence that rare peak tides and rare flood events (as adopted in the modelling) may not coincide and are independent of each other. Similarly, other joint events, such as whether the pumps in the Moonee Ponds catchment work or not in a flood, can be assessed using relatively simple probability calculation methods.

The submissions and evidence of the submitter parties' amount to a criticism that the modelling has been undertaken on a basis that is too conservative. However, this does not mean the modelling is not fit for purpose, or inaccurate. Indeed, the evidence of Mr Swan which was critical of the flood modelling and the approach adopted by Melbourne Water, acknowledges that *"from a risk perspective, the adoption of an overlay that is likely to be larger than the real flood extent is considered acceptable provided it is not significantly outside the realms of likely inundation"*. The Panel does not consider the assumptions adopted would result in a flood extent which is significantly outside the realms of likely inundation.

Calibration

The Panel notes the lack of calibration to known events which ordinarily might be undertaken as part of the Flood Studies. It is clear from the Expert Conclave Report the five expert hydrologists agreed they were concerned about the lack of calibration. They agreed that where appropriate data exists, good practice modelling requires calibration, and they agreed this data existed for Moonee Ponds Creek and the Lower Yarra River.

Melbourne Water's submission that calibration to a limited number of events could lead to systemic errors in model estimates is contrary to the statement in ARR 2019 that model calibration is typically carried out on the single largest flood for which reliable water level data is available.

The Panel considers the lack of calibration misses an opportunity to carry out a 'reality check' on the model and could undermine confidence in the modelled results. During the calibration stage, when the modelled flood differs from the measured historic flood, key parameters in the model, notably the roughness of the channel, are typically adjusted until the modelled flood more closely matches the historic flood.

While a fulsome calibration exercise was not undertaken, the Panel is comforted by the 'validation' undertaken by Melbourne Water against known information.

Fit for Purpose

The Panel, while critical of some elements of the modelling and noting the level of conservatism, is satisfied the modelling adequately identifies the 1% AEP flood event for translation into the proposed LSIO3.

The Panel has ultimately concluded that while the Flood Studies might be conservative because of the assumptions adopted, it does not mean the LSIO3 is founded on unreliable or inaccurate data. The Panel appreciates the scrutiny the Flood Studies have attracted but is cognisant of the need to not lose sight of the big picture, the importance of the Amendment and the practical realities for Melbourne Water.

The Panel agrees with all parties and experts that implementing planning controls which accurately identify flood risk is very important. The five hydrology experts agreed on the importance of identifying flood risk and including flood overlays for Moonee Ponds Creek and the Lower Yarra River. This is consistent with both the Planning Scheme and State policy which require planning authorities to implement planning provisions that accurately identify flood risk, including the long-term implications of climate change.

Importantly, flood studies and models are not perfect. They are sophisticated estimates of the likely extent of the 1% AEP flood. Predictive modelling is inherently uncertain and imprecise. Independent qualified experts may legitimately disagree about the weight to be given to modelling and reliability of certain inputs. Regardless of the methodology adopted this will commonly be the case because experts may have differing views on the impact and reliability of certain inputs.

In coming to its conclusions, the Panel has had regard to:

- the fact the Amendment does not set flood levels for any parcel of land – Melbourne Water will assess the relevant flood level when a planning permit is sought under the LSIO3 or SBO2 and SBO3
- the LSIO3, SBO2 and SBO3 provide the trigger for the assessment of a relevant flood level
- without the overlays, land could be developed in a way that is inconsistent with the safety and protection of life and property
- application the LSIO3, SBO2 and SBO3 to land notifies landowners or purchasers an assessment of flood risk will be required for any proposed development of their land
- Melbourne Water will apply the Flood Guidelines, which provide discretion primarily in relation to the extent of freeboard to be applied to a particular site (whether the application of this discretion is a relevant consideration is discussed in Chapter 8.1) – it is open to the landowner/developer to prepare a risk assessment and to provide an evidentiary basis to Melbourne Water that would justify it concluding a departure from the Guidelines.

This contextual analysis has informed the Panel's consideration of the modelling and the question of whether it is ultimately fit for purpose. To the extent flaws in modelling were identified, the Panel does not consider those flaws undermine the reliability of the modelling such that it ought to be disregarded, having regard to the purpose for which the modelling is used in this Amendment.

The Panel notes that none of the witnesses challenged the modelling underpinning SBO2 and SBO3. The main issue for the Panel to consider is the modelling which determined the extent of LSIO3, noting LSIO1 already applies to some land surrounding the Moonee Ponds Creek. The key

advantage of adopting the LSIO3 is it will inform current and future landowners that their land has been identified as subject to inundation and, in the event of development that requires a planning permit, the development will need to consider flooding risks. Without the proposed LSIO3, the trigger for a flood assessment will not occur until the building permit stage of development.

Clearly the assumptions within the Flood Studies represent a conservative estimate of the 1% AEP flood extent and will apply the proposed flooding controls to a greater number of properties compared to what might have been the case had the assumptions been less conservative. This provides the Panel with comfort that all properties subject to flood risk have essentially been 'caught' by the proposed flood extent.

However, the disadvantage to this outcome is that some properties may be 'caught' and subjected to the proposed controls unnecessarily. This goes against State policy which does not require land outside the 1% AEP flood event area to be identified and triggered by the proposed LSIO3.

The Panel accepts Melbourne Water's submissions in relation to the time consuming and resource intensive exercise that is flood modelling, and the need to balance the benefit of improved methods against the cost. Melbourne Water submitted it will be embarking on a flood modelling reform program that will likely result in further refinements to the flood modelling. The disadvantage of adopting the LSIO3 means for property owners who consider their property is unreasonably captured by the conservatism of the current flood extent mapping, there is no certainty in the timing of when this modelling will be carried out and the flood extents revised.

In the circumstances, the Panel considers the conservatism adopted in the technical work which underpins the Amendment does not justify a recommendation that the LSIO3 be abandoned or deferred until a new study is prepared, or the modelling is re-run and updated. To not support the proposed LSIO would leave substantial areas in the Lower Yarra River and the Moonee Ponds Creek precincts without acceptable flood risk controls. This is certainly not an ideal outcome, or the big picture outcome that is sought by the Amendment.

On balance, taking these considerations into account, the Panel concludes it is preferable to include the LSIO3 in the Amendment. The Panel accepts Melbourne Water's submission that it has a statutory duty to convey to the community information about flood risk, and despite its shortcomings, the LSIO3 and the Flood Studies which inform the control represent what is currently the best available information. Until updated information is produced, the current information should be used.

In conclusion, the Panel encourages Melbourne Water to undertake its rolling modelling reform program in a manner which addresses the shortcomings identified in this Report. For example, future flood modelling might, as relevant:

- identify any assumptions or boundary conditions that influence the flood extent
- explain how the assumptions support the identification of the 1% AEP flood
- explain how the tidal boundary condition selected should be described and how it supports the identification of the 1% AEP flood
- identify and justify any assumption regarding the pumps in Moonee Ponds Creek
- identify and justify any assumptions such as a 1% AEP flood occurring in the waterway at the same time as a 1% flood in the local catchment
- calibrate all models where appropriate data exists.

(v) Conclusions

The Panel concludes:

- State planning policy requires future planning for areas liable to flooding through the identification of the 1% Annual Exceedance Probability flood in the Planning Scheme.
- The Flood Studies form an acceptable basis for the flood mapping in the Amendment which is to provide the trigger for the assessment of a relevant flood level.
- The technical basis of the Flood Studies, whilst conservative, is fit for purpose and adequate to inform the introduction of the LSIO3 into the Planning Scheme.
- The LSIO3 is needed to inform current and future landowners that their land has been identified as subject to inundation and, in the event of development that requires a planning permit, the development will need to consider flooding risks.

4 Specific flooding issues

(i) The issues

The issues are whether it is appropriate for the Flood Studies and modelling to:

- assume infrastructure delivery in the flood modelling
- consider recent flood mitigation works
- delete the application of the overlays from properties with no history of flooding
- consider a precinct wide approach to flood mitigation instead of the targeted area approach adopted in the Amendment.

(ii) Background

The *Arden Structure Plan*, which was considered through Amendment C407, recognises that parts of the Arden and Macauley precincts are subject to flooding, and contemplates measures to reduce the impact of flooding, including:

- designating land to be used as a retarding basin,
- upgrading the flood pumps,
- raising and extending the Moonee Ponds Creek flood levees,
- installing underground tanks at North Melbourne football ground,
- pipes to convey stormwater to Moonee Ponds Creek, and
- designing overland flow paths into the road network.

Some local drainage improvement works have already been implemented while others are envisaged to be implemented at a future date.

(iii) Evidence and submissions

RSA and Rockford submitted in determining the extent of the LSIO3, it should be fair to assume the proposed works in the *Arden Structure Plan* will proceed alongside the proposed urban development.

Melbourne Water submitted it is critical that modelling for the purpose of updating the LSIO and SBO maps is based on existing conditions, as it would be inappropriate for Melbourne Water to make any assumptions about the delivery of major drainage infrastructure.

Submitter 33, whose property is subject to SBO3, submitted there is no history of flooding at his property and sought its removal from the SBO3 area.

Mr Cunningham said it cannot be assumed that flooding will not occur on land because there is no known record or recollection of it having flooded in the past. Further, the presence of a past event occurring does not change the statistical likelihood that another event can happen the next year, or any other year.

Submitter 23 submitted recent drainage works in the vicinity of his property would reduce the flood extent, meaning his property would no longer be caught by the 1% AEP flood extent.

Submitter 18 similarly presented a detailed submission at the Hearing and submitted:

- the stormwater system in the sub-catchment area should be upgraded and included in the modelling

- retention tanks in the sub-catchment area should be used to smooth out peak flows and be included in the modelling.

Mr Cunningham said as flood mitigation and drainage works are completed, flood modelling and overlays in the Planning Scheme would need to be updated at that point in time.

Submitter 18's property is in Carlton and is proposed to be included in the SBO3.

Submitter 18 went to considerable lengths to analyse the level of the ground in the lane behind the property where the flood study supporting the SBO3 indicates potential for inundation due to stormwater in a 1% AEP flood event. Submitter 18 submitted the flood level at the property boundary and on the property was only marginally above the level that would support the imposition of the SBO3, and sought the removal of the SBO3 from the property.

Mr Cunningham, on behalf of Council, said that given the local terrain and the presence of private stormwater connections to the laneway, the laneway would be subject to flooding in a large storm event. He said the application of the SBO3 will allow Council to respond to any future proposed development at the subject site and make an appropriate assessment based on the available flood advice, and that the existence of current fill or the raising of a property does not eliminate a future flood risk if site conditions were to change.

Many submitters considered a precinct wide approach to flood risk management should be adopted and questioned why the Amendment only applied to six 'targeted' areas.

(iv) Discussion

The Panel agrees with Melbourne Water that flood modelling and flood overlay maps must be based on existing conditions. There is no certainty about the nature or timing of the delivery of any flood mitigation infrastructure in the precinct. It is the consistent practice of flood modelling that informs planning schemes to model the status quo and not to anticipate potential future flood mitigation infrastructure. If flood mitigation measures are implemented in the precinct in the future, the flood extent should be remodelled, and any necessary changes made to the Planning Scheme then. If flood mitigation measures are implemented, they can also be considered where relevant in Melbourne Water's assessment of individual planning permit applications that are triggered by the LSIO or SBO.

The Panel agrees with Mr Cunningham it cannot be assumed flooding will not occur, or that flood models are incorrect, because there is no record or recollection of flooding having occurred in the past. The Panel also agrees with Mr Cunningham that not every individual drainage improvement can be considered in the flood mapping. This is due to the time flood mapping takes to complete, and the fact local drainage works are improved frequently. Moreover, local drainage work improvements can be considered at the planning permit application stage.

In relation to Submitter 18, the Panel accepts Mr Cunningham's evidence and supports the SBO3 as exhibited applying to the property.

The Panel is not convinced the Amendment ought not proceed in the absence of a precinct-wide approach to flood management. The Panel does not consider development should proceed without any form of flood mitigation measures. Of course, consideration should be given to all flood management options. However, flood risk in relation to development applications ought to

be considered now and should proceed with appropriate regard to flood risk that is assessed on a site-by-site basis.

(v) Conclusions

The Panel concludes:

- It is not appropriate for the Flood Studies and modelling to:
 - assume infrastructure delivery in the flood modelling
 - consider recent flood mitigation works in the flood modelling
 - delete the application of the overlays from properties with no history of flooding.
- The Amendment should not be delayed or replaced with a precinct-wide approach to flood management.

5 Site specific issues

5.1 The ESR and Crown position

(i) The issue

The issues are whether:

- the proposed LSIO3 will unreasonably restrict urban design outcomes
- it is appropriate and justified to apply the LSIO3 to Lots 2 and 3 on Plan of Subdivision 328901G (ESR Land) at this time
- a precinct wide approach to floodway management and the development of a Floodplain Development Plan is necessary before the LSIO3 can be appropriately considered and applied.

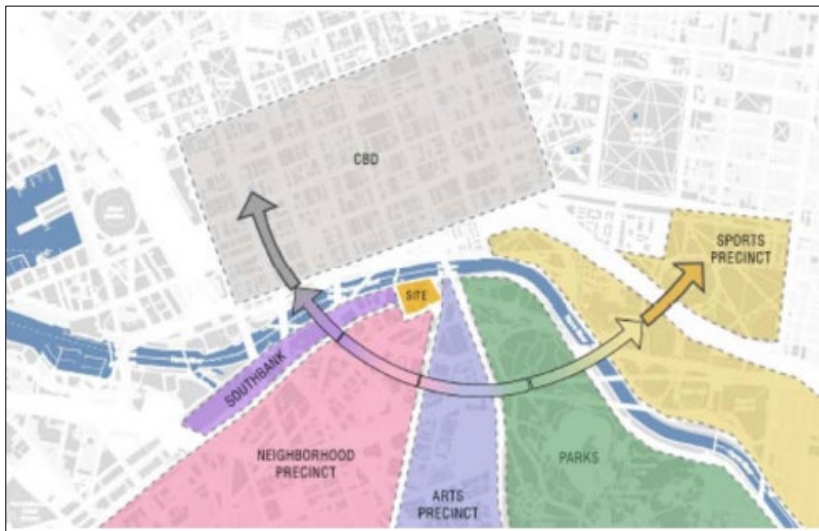
(ii) Background

ESR manages two properties at Southbank comprising approximately 2 hectares and described as ESR Land. The street address for the ESR Land is:

- 3 Southgate Avenue, Southbank
- 16-60 City Road, Southbank.

The ESR Land sits on the Southbank Promenade and adjacent to the Arts Precinct. It comprises an interface of 160 metres with the Promenade.

Figure 2 ESR Land Location Plan



Source: ESR Submission

Figure 3 Aerial image of ESR Land

Source: ESR Submission

Amendment C390 applied a Specific Control Overlay to the ESR land, and inserted an Incorporated Document titled 'Southgate Redevelopment Project – 3 - 2 - Southgate Avenue, Southbank – September 2021' into the Planning Scheme. Amendment C390 and the Incorporated Document are intended to facilitate the Southgate Redevelopment Project on the ESR land.

Crown Resorts Limited (Crown) is the owner of or has an interest in several properties in Southbank, including 8 Whiteman Street, Southbank, 57-91 Clarendon Street, Southbank, 1-13 Whiteman Street, Southbank and 1-29 Queens Bridge Street, Southbank (Crown Resorts land).

Figure 4 Aerial image of Crown properties

Source: Crown submission

(iii) Evidence and submissions

ESR submitted:

- the flood modelling which supports LSIO3 is not fit for the purpose of determining the extent of the mapped area for LSIO3
- the modelling should be calibrated to determine its reliability prior to the Amendment proceeding any further.

These are matters which are separately considered and addressed in other chapters of this Report.

Relevant to this Chapter is the ESR submissions and evidence which explore the design principles which underpin the proposed redevelopment of the ESR land, and the question of whether the LSIO3 should be included in the Amendment at this time.

The ESR position has proceeded on the basis that a Nominal Flood Protection Level (NFPL) of 4.04 metres Australian Height Datum (AHD) will be applied to the Southgate Redevelopment Project and Ms Drobis was instructed to consider the impact of that numerical level on the design quality of the proposal.

Ms Drobis expressed concern that the application of the worst-case flood levels would require a compromise in terms of urban design quality. She said:

To meet Melbourne Water's recommended Nominal Flood Protection Level (NFPL) on the Southgate Redevelopment site, level transitions along the subject site's northern promenade boundary (along the promenade public realm) will range between 1.14m - 1.55m.

These height transitions pose a significant challenge to street activation and universal accessibility requirements. The raised levels compromise the ability to relate to the human scale along the promenade public realm, which is a requirement stipulated within the endorsed Incorporated Document

While she accepted that a compromise in the urban design quality of the proposal may be required to ensure public safety, she was concerned about the inability of the floor to ceiling heights associated with the food and beverage offer to meet 'best practice'. Ms Drobis also affirmed that she opposed any level change at the promenade frontage.

Melbourne Water submitted the evidence of Ms Drobis revealed:

- (a) Ms Drobis was instructed to consider the impact of the numerical flood levels set by Melbourne Water for the Southgate site and mistakenly proceeded on the basis that the Amendment set those levels;
- (b) Aside from the vertical connections within the development as depicted at Figure 20 of the slides filed by Ms Drobis, no consideration was given by Ms Drobis to an alternative design solution or reconfiguration of the lower levels that complied with the numerical flood levels - Ms Drobis's evidence focussed solely upon the detrimental impact of the flood levels on the plans the subject of the Incorporated Document;
- (c) Ms Drobis acknowledged that although challenging, the site could be redeveloped in compliance with the flood levels, even adopting a freeboard of 600mm;
- (d) No analysis was undertaken that considered the impact of a reduction in the 600mm freeboard but even a small reduction would render the floor to ceiling heights compliant with the national construction code;
- (e) The lower levels could be put to an alternative use to food and beverage if the floor to ceiling heights were unsuitable; and

- (f) The external interface with the promenade and surrounding land could be designed to incorporate a successful urban design outcome notwithstanding a level change between the promenade and the site.

Melbourne Water submitted ESR was not able to identify any consequence arising from the application of the LSIO3 that warrants the rejection of the Amendment insofar as it applies to the ESR Land. Melbourne Water referred to the evidence of Ms Drobis who said that even adopting a 4.04mm AHD freeboard, the development of the ESR land was not impossible or impracticable but that it was 'challenging'.

Melbourne Water submitted:

Taken as a whole, the submitters seek to effectively contest the need to respond to flood levels applicable to their landholdings. That position is unjustified and is liable to give rise to development that does not have proper regard for climate change impacts on flood risk. None of the submitters have pointed to any real or substantive harm or injustice arising from the application of the Amendment to their landholdings.

On the contrary, the obvious pathway forward for ERS is to provide to Melbourne Water information that might justify the exercise of its discretion in relation to the extent of freeboard to be applied to the Southgate site – as it was invited to do in December 2021.

ESR also submitted a precinct-wide approach to flood mitigation for the Southbank Promenade and surrounds is justified based on:

- the significant period to realisation of the risk which the Amendment seeks to address
- the status of the ESR Land and the Southgate Promenade as an important area of public and private space adjacent to the internationally renowned Southbank Arts Precinct
- the complexity of the ESR Land in terms of adjacent landholdings, existing built form, pedestrian entries, linkage typologies and vertical connectors
- the Amendment results in an ad hoc approach to flood mitigation which is not suited to an urbanised precinct such as Southbank.

Mr Swan described the risk horizon as follows:

Assuming the 1934 flood levels are indicative of the current 1% AEP levels, there is still between 30 and 40 years before sea level rise impacts would cause overtopping at Southgate.

ESR submitted there is plenty time for a precinct-wide approach to be taken for the Southbank Promenade and such an approach is warranted given:

- the importance of the public promenade and associated private spaces to the Council
- the high level of public access by residents and visitors
- the status of these areas as pedestrian and cycling connections, including as connections to the adjacent internationally renowned Victorian Arts Precinct and the CBD
- the location as an interface to the Yarra River and the amenity it provides.

Mr Swan said there is a need for a wider flood mitigation scheme for the lower Yarra that is not reliant on planning controls to provide flood protection. He recommended the preparation of a Local Floodplain Development Plan for the Lower Yarra area. ESR supported this approach and submitted the Panel should recommend that, before the Amendment proceeds further, a Local Floodplain Development Plan be prepared to assess and consider precinct-wide flood risk mitigation and management in a similar manner to the Fishermans Bend and Arden redevelopment areas. Alternatively, ESR submitted transitional provisions should be included in the LSIO3 to accommodate existing approvals.

In response, Melbourne Water submitted:

ESR advances the proposition that a precinct wide approach to flood risk management ought to be adopted for the Southbank promenade. ESR submits that there is 'ample' time for the adoption of such an approach, however ESR does not venture to explain how development should proceed in the meantime. It is unclear whether ESR suggests that development ought to be permitted without flood mitigation measures in reliance on the delivery of such infrastructure at a later, unspecified time. Melbourne Water does not dispute that that consideration ought to be given to the full ambit of flood management options.

The Crown submissions largely echoed the submissions made by ESR, particularly with respect to the flood modelling and the need for a precinct wide approach. In addition, Crown submitted the LSI03 should be amended to better recognise the highly urbanised and densely developed nature of the Southbank precinct, such that:

- precinct-wide floodplain planning occurs and is considered in the Decision Guidelines
- appropriate flexibility is provided for in the Decision Guidelines to balance the urban design implications of imposing finished floor level requirements with the ability to implement other flood risk works and procedures
- the Good Design Guide is amended or given the status of a Background Document unless and until it is updated to properly apply to and consider the Southbank precinct in a similar manner to that afforded to the Fishermans Bend precinct and the Arden precinct.

(iv) Discussion

The ESR submissions and evidence explore in detail the design principles that underpin the proposed redevelopment of the ESR land. The evidence of Ms Drobis sought to preserve a high-quality urban design outcome for the ESR land. Ms Drobis when questioned acknowledged that while it might certainly be challenging and indeed more complex than other less complicated sites, the land could be redeveloped in accordance with the flood levels. Clearly, compromises will need to be made. However, the Panel is confident it will be possible to incorporate a successful urban design outcome notwithstanding a level change between the promenade and the land. Of course, Ms Drobis and ESR would prefer that the development's design remains unchanged, however such a desire cannot guide the Panel's decision making in this case.

Equally, the Panel is not convinced the Amendment ought not proceed in the absence of a floodplain development plan or a precinct-wide approach to flood management. The Panel agrees with Melbourne Water's criticism of ESR's submission and its lack of an explanation as to how development should proceed in the meantime. The Panel does not consider development should proceed without any form of flood mitigation measures and to rely on certain infrastructure to be delivered at some point in the future. Of course, consideration should be given to all flood management options. However, flood risk in relation to development applications ought to be considered now and should proceed with appropriate regard to flood risk that is assessed on a site-by-site basis.

The Panel notes that the inclusion of the LSI0 or SBO schedules on a property does not preclude development but is used to identify that flooding may be an issue for any development on that land and therefore requires further investigation via the planning permit process. The purpose of the LSI03 is not, and will not, prevent the future use and development of the ESR land. Its purpose

is to require a flood risk assessment be undertaken to ensure that the design of the proposed use and development will be safe to an acceptable standard.

Matters relating to transitional provisions, Melbourne Water's exercise of discretion, the accuracy of the flood modelling and the drafting of the LSI03 including the status of the Good Design Guide are discussed in other chapters.

(v) Conclusions

The Panel concludes:

- The proposed overlays will not unreasonably restrict urban design outcomes.
- It is appropriate and justified to apply the LSI03 to the ESR land and to the Crown Resorts land at this time.
- A precinct wide approach to floodway management and the development of a Floodplain Development Plan is not necessary before the proposed overlays can be appropriately considered and applied.

5.2 The Rockford Velocity and RSA position

(i) The issue

The issue is whether the Amendment should not proceed because it fails to provide fair and orderly planning.

(ii) Background

RSA own land at 49-51 Henderson Street, North Melbourne (RSA land) and Rockford own land at 62-70 Gracie Street, North Melbourne (Rockford land).

Figure 5 RSA land

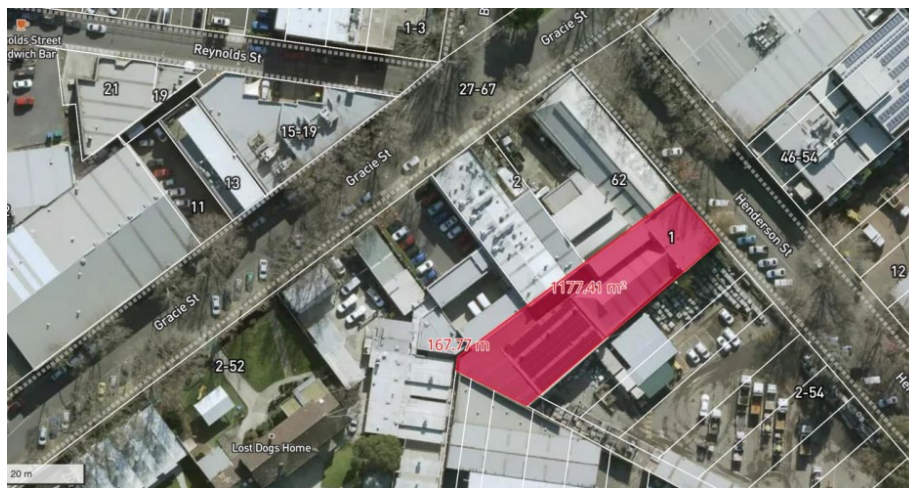
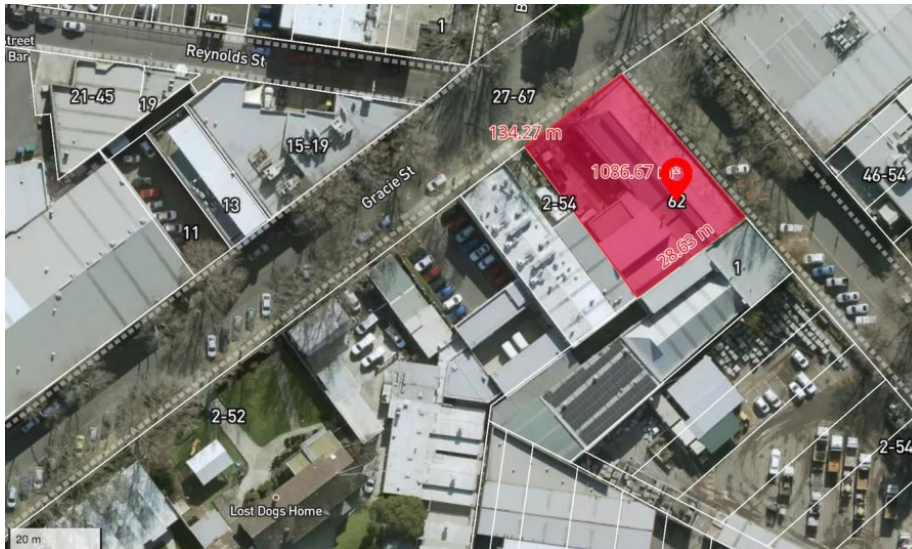


Figure 6 Rockford land

Both parcels of land are subject to the Industrial 3 Zone, Schedule 1 to the LSIO and a Public Acquisition Overlay. Relevantly, Amendment C407 sought to retain the current zoning for the RSA land and the Rockford land, and to apply a Public Acquisition Overlay (PAO9) over both land holdings, for the purposes of drainage and the provision of public open space.

The Amendment seeks to delete Schedule 1 to the LSIO which currently applies to the RSA land and Rockford land and apply the LSIO3 to both land parcels.

(iii) Evidence and submissions

RSA and Rockford made a joint submission and jointly relied on the expert evidence of Mr Beardshaw and Prof Coombes. It was submitted:

- the proposed LSIO3 is wrong to have no regard to improvements in flood mitigation works
- calibration should be insisted upon
- existing conditions rely on overly conservative assumptions
- data underpinning the flood modelling should have been made publicly available at an earlier stage of proceeding.

These are all matters which are separately considered and addressed in other chapters of this Report.

Relevant to this Chapter is the submissions which go to the issue of fair and orderly planning. RSA and Rockford submitted fair and orderly planning pursuant to section 4 of the PE Act would not impose the proposed LSIO3 on their land. It was submitted:

Modifying the developable capacity of the land will, in future, be the basis of a fair outcome in the compensation process when the Arden Structure Plan is implemented. This demonstrates the need for the Amendment to be considered together with the Arden Structure Plan.

As explained in the submissions made on behalf of RSA and Rockford in amendment C407, an alleged necessity to address a drainage problem that is not justified on the expert evidence will give rise to disorderly planning and an unfair outcome.

...

Similarly, an LSIO imposed based upon an alleged necessity to address drainage over land that is proposed to eventually be acquired for public open space in the implementation the Arden Structure Plan, will be disorderly planning and unfair to the landowners subject to this outcome

RSA and Rockford criticised the application of the LSIO3 as being a “*blanket approach*” and relied on the evidence of Prof Coombes who said:

The former planning overlays for LSIO and SBO covers a wide area but the flooding itself is largely contained within road reserves. The blanket approach to setting overlays can obscure additional information such as depth, hazard or direction of flow, and opportunity.

RSA and Rockford submitted the LSIO should be nuanced and adopt an area by area approach.

Melbourne Water submitted the RSA and Rockford case failed to place any real weight on the responsibility of planning authorities to consider environmental impacts under section 12 of the PE Act and other obligations with respect to ensuring public safety. Melbourne Water submitted the following context is important to consider:

- the development and use of the land is already highly constrained by the existing planning controls (both landholdings are zoned Industrial 3) and not by any change brought about by this Amendment
- the landholdings are already subject to an LSIO (since about 2009) meaning submissions about additional expense and burden arising from the Amendment lack merit as no new planning control will be applied to the land
- the landholdings are subject to the PAO9 imposed by Amendment C407 for the purpose of drainage and open space - the Integrated Stormwater Management Open Space (ISMOS).

Specifically, in relation to the PAO9 Melbourne Water submitted:

Amendment C407 has been gazetted, including the Structure Plan that identifies the ISMOS on the land. The Department of Transport is the acquiring authority. The location of the ISMOS on the land has effectively been endorsed by Amendment C407 and there is no argument remaining about that issue.

Melbourne Water submitted that considering these facts, there is no basis to assert the Amendment is unfair or puts RSA and Rockford at an unreasonable disadvantage.

RSA and Rockford submitted it is a “*total furphy*” to suggest that just because there is a PAO on its landholdings, or because the land has always been subject to an LSIO, that its considerations ought not be given the same weight as other land holders.

Mr Beardshaw was critical of the Amendment and the extent of the LSIO based on the modelling undertaken. However, he also:

- accepted the Arden precinct is within a floodplain
- affirmed that flood overlays are critically important and did not support the removal of the existing LSIO from the land holdings.

Mr Beardshaw said if the extent of the flood mapping is considered as a development or planning “*flag*” only, then this is an appropriate floodplain management tool.

Questions of Mr Beardshaw also revealed he was not aware that the RSA land and Rockford land was already subject to an LSIO when he formed his view that the Amendment would unreasonably impact the land.

RSA and Rockford also submitted the LSIO3 represents a “*blanket approach to implementing planning overlays*” and relied on Prof Coomes who said:

A blanket approach to making the planning overlays for LSIO3, SBO2 and SB3 has also masked the strong spatial variations in estimated flood depths. There is significantly deeper inundation of stormwater on roads than on private property. At many locations, such as at 60 – 72 Gracie Street and 49 – 51 Henderson Street North Melbourne, independent flood modelling shows that flooding is mostly excluded from private property. The reporting underpinning the proposed C384melb Amendment should recognise that roads and streets are also major stormwater infrastructure.

(iv) Discussion

In coming to its conclusions, the Panel has considered the following important contextual features of the RSA and Rockford land holdings. Both land parcels are subject to:

- the Industrial 3 Zone which constrains any future development to relatively limited uses permissible under this zone
- an existing LSIO schedule meaning there is no additional burden arising from the application of proposed LSIO3
- the PAO9, imposed by Amendment C407 for the purpose of drainage and open space – this Amendment has been gazetted, including the *Arden Structure Plan* that identifies the ISMOS on the land.

Taking this context into account, the Panel is not convinced RSA and Rockford have any real basis to contend the Amendment fails to provide for fair and orderly planning. In relation to the PAO9 in particular, any modification to the developable capacity of the land holdings because of the PAO9 will be considered through the compulsory acquisition process. This is not a relevant matter which should come into play in this Panel’s consideration of the Amendment, nor is the effect of the introduction of the LSIO3 on any future compensation claim.

In addition, the Panel has considered Mr Beardshaw’s own modelling and evidence which confirmed the need for the Rockford and RSA land to be subject to a flood risk assessment at the planning permit stage. Mr Beardshaw affirmed that overlays are critically important and expressed the view that the LSIO should not be removed from the land.

The Panel has come to the same conclusion it did in relation to the ESR position and the question of whether the Amendment ought to proceed now. The Panel considers the Amendment should not be delayed in favour of a site-by-site or precinct wide response. In any event, the RSA and Rockford land is already covered by an LSIO so again this argument holds little merit in the Panel’s view.

(v) Conclusions

The Panel concludes:

- There is no basis to contend the Amendment should not proceed because it fails to provide for fair and orderly planning.

6 Urban design and the Good Design Guide

6.1 Is urban design in scope?

(i) The issues

The issues are whether:

- it is appropriate to consider urban design outcomes when assessing planning permit applications triggered by the LSIO or SBO
- a land management overlay can contain urban design requirements
- the Planning Scheme currently contains sufficient guidance for good urban design at the ground level interface with the public realm.

(ii) Evidence and submissions

Council submitted it is appropriate to consider urban design outcomes when assessing planning permit applications triggered by the LSIO or SBO, and the flooding overlays should therefore contain urban design requirements. Specifically, Council submitted:

- given the purpose and objectives of the proposed LSIO and SBO provisions, urban design considerations are central to the operation of the proposed controls
- consideration of urban design matters will enhance rather than undermine the key objectives of protecting human life and safety in flood events by ensuring that land is specifically designed for that purpose whilst still making a positive contribution to the public realm and the wellbeing of its occupants.

Mr Barnes's evidence was that it is important to consider urban design outcomes that respond to flood risk, especially at the ground level interface with the public realm. Mr Barnes cautioned against removing the urban design requirements from the proposed schedules and said:

It would be a poor and regressive planning outcome to dismiss the important link between built form responses to flooding and good urban design and equitable access considerations from the amendment, by removing those provisions from the proposed schedules.

Mr Barnes and Council did not believe it was beyond the scope of the LSIO and SBO parent provisions to include urban design requirements. Council said that the proposed schedules *“seek to address precisely those urban design outcomes directly consequent upon the need to ensure that development acceptably responds to flood risk”*.

Crown submitted:

Crown supports Council's position and submits that it is entirely lawful, appropriate, and indeed necessary for the objectives of the overlay to allow consideration of urban design and equitable access arising from proposed flood mitigation works, such as raising finished floor levels.

Specifically, it submitted the LSIO3 should be amended to better recognise the highly urbanised and densely developed nature of the Southbank precinct. Crown said this could be done by providing flexibility in the Decision Guidelines to balance the urban design implications of imposing finished floor level requirements with the ability to implement other flood risk works and procedures.

Melbourne Water submitted the urban design requirements should be removed from the Decision Guidelines on the basis that it is not the role of land management overlays:

... land management provisions of the Planning Scheme ought seek to achieve just that outcome – land management. They should not address matters of built form, which are contained in policy and DDO provisions in the built form provisions.

Melbourne Water submitted the provisions of the LSIO and SBO should not stray into built form matters because:

- (a) That approach lends itself to unnecessary duplication within the Planning Scheme, insofar as there are already DDO's that apply to the urban renewal areas and specifically deal with built form outcomes arising from Melbourne Water requirements with respect to the need for raised floor levels and the need for good urban design outcomes;
- (b) The purposes of the parent provisions of the LSIO and SBO are entirely unrelated to urban design matters – it is inappropriate to weave into the schedules subject matter [which] is directed to something that is irrelevant to the purposes of the head clauses (even if those provisions do not expressly exclude the inclusion of urban design matters, as if they ever would);
- (c) The average reader of the Planning Scheme would not expect to have to reconcile built form policy and related DDO provisions (where they apply) with similar built form provisions in the LSIO and SBO – a proposition that adds an unnecessary layer of complexity to the Planning Scheme.

Ms Peterson said there was no question that urban design issues are real and important. She acknowledged the design challenges and tension between mitigating flood risk and achieving activation and interaction at the street level. However, she didn't think the schedules to the SBO or LSIO were the appropriate location for these requirements:

The purpose of these controls is confined to the flooding risk management and waterway protection. It does not include built form and urban design considerations.

Ms Peterson's view was that urban design would still be a consideration during the planning permit process through requirements in other parts of the planning scheme:

Decision making will include urban design consideration through the guidelines of Clause 65, other policies of the Melbourne Planning Scheme, and the Capital City Zone and Design and Development Overlay.

She said that urban design generally is prioritised by way of the objectives in clause 02.03-4 'Built environment and heritage'. In questioning, she explained that much of the land in the Amendment is already covered by a Design and Development Overlay and the requirements in clause 15.01-1L-04 'Urban Design' apply to entire municipality.

Mr Barnes, although advocating for urban design requirements in the LSIO and SO schedules, noted that:

There is strong policy support in the planning scheme for design excellence and for good urban design generally within the City of Melbourne, particularly within the Central City and its surrounds.

(iii) Discussion

The *Practitioner's guide to Victoria's planning schemes* (Practitioner's Guide) sets out that there are four different flood provisions available to the planning authority to "identify flood affected land in the planning scheme", the Urban Floodway Zone, the Floodway Overlay, the LSIO and the SBO. Each are slightly different to reflect the type of flooding and the potential risk to life and property.

Rule 5 of the Practitioner's Guide ensures that requirements in schedules can only address the matters specified in the parent provision:

RULE 5: A provision must be consistent with the operational provisions of the scheme, any parent provision and any relevant Ministerial Direction

The Panel agrees with Ms Peterson and Melbourne Water that the schedule to the SBO and LSIO should not include requirements for urban design. The flood overlays are Land Management Overlays and are intended to identify flood affected land, not the urban design response.

In coming to this conclusion, the Panel does not discount the importance of achieving good urban design responses at the ground level interface especially when the floor levels need to be increased.

In addition to guidance in Clauses 02.03-4 'Built environment and heritage' and 15.01-1L-04 'Urban Design', and many of the DDO's, the Panel notes that detailed policy guidance on urban design outcomes in flood affected areas that already exists for the Arden and Fishermans Bend precincts:

- Clause 11.03-6L-01 'Arden Precinct'
- Clause 11.03-6L-05 'Fishermans Bend Employment Precinct'
- Clause 11.03-6L-06 'Fishermans Bend Urban Renewal Area'

The relevant parts of these policies are provided in Appendix A2.

The Panel is comforted by Ms Peterson's assessment that there is sufficient guidance in the current Planning Scheme for urban design to be considered.

(iv) Conclusions and recommendations

The Panel concludes:

- Urban design requirements should not be contained within the Land Management Overlays (specifically the LSIO or SBO).
- It is appropriate to consider urban design outcomes when assessing planning permit applications triggered by the LSIO or SBO and the Planning Scheme contains sufficient guidance on urban design matters in flood affected areas.

The Panel recommends:

Amend Schedule 3 to Clause 44.04 Land Subject to Inundation Overlay, Schedule 2 to Clause 44.05 Special Building Overlay and Schedule 3 to Clause 44.05 Special Building Overlay in accordance with the Panel's preferred versions in Appendix E2, E3 and E4 to delete any Objectives and Decision Guidelines relating to urban design.

6.2 Geographical areas of the Good Design Guide

(i) The issue

The issue is whether the Good Design Guide should be amended to include areas beyond Fishermans Bend, Arden and Macaulay.

(ii) Evidence and submissions

Mr Barnes highlighted an inconsistency between the geographical area described in the Good Design Guide and the extent of land covered by the Amendment. The Good Design Guide was

drafted to apply to the areas of Fishermans Bend, Arden and Macaulay (Figure 7). In the Amendment as exhibited, it is referenced in the Decision Guidelines of LSIO3, SBO2 and SBO3 which apply to a much greater area. To address the inconsistency, he said:

I assume the Good Design Guide is intended to apply to all of the areas covered by the schedules. I consider that it is appropriate for it to do so. If that is the case, the title of the document and its introductory paragraphs should be modified to avoid this confusion.

Mr Campbell came to the same conclusion.

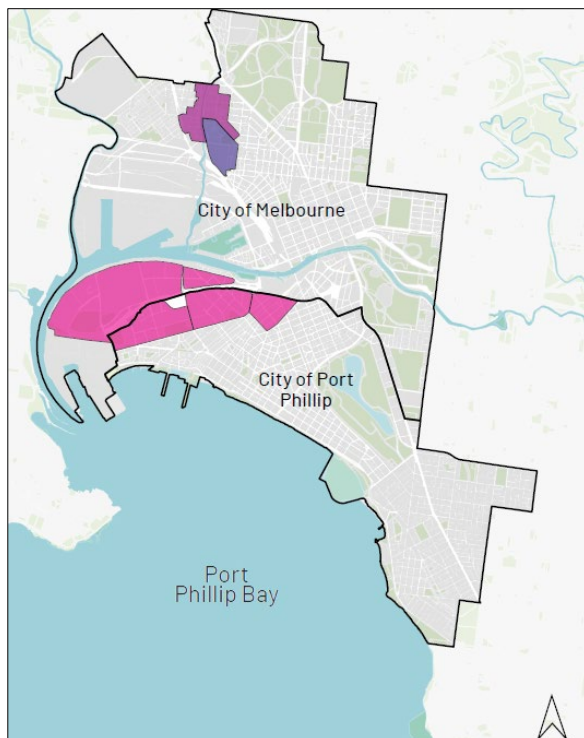
Melbourne Water disagreed and highlighted that the Good Design Guide was drafted to apply to the three urban renewal areas. Melbourne Water said:

That proposition has not been sufficiently tested in this process and the Council has not sought to advance any substantive basis upon which the Panel could conclude that the Guidelines ought apply equally or without qualification to land outside of the urban renewal areas to which the Guidelines are directed.

ESR agreed and submitted the Good Design Guide could expand its application to other areas such as Southbank, but should be updated so that it:

- is expressly applicable to areas other than Arden and Fishermans Bend (as it is currently expressed);
- provides a similar provision in relation to precinct works in the Southgate area as is included for Fishermans Bend so as to enable such works to reduce requirements for freeboard; and
- encompasses further consideration of the particular challenges faced when carrying out refurbishment of existing structures such as those located in renewal areas which have already been the subject of relatively intensive development (compare the relatively undeveloped state of Arden, Macaulay and Fishermans Bend with the relatively intensely developed state of Southbank).

Figure 7 Map of the urban renewal areas where the Good Design Guide applies



Good Design Guide for Buildings in Flood Affected Areas in Fishermans Bend, Arden and Macaulay, (page 5, Figure1)

(iii) Discussion

The Panel is not convinced the Good Design Guide can simply be updated to expand its scope to the entire municipality. It was not drafted in that way, nor was it exhibited that way.

The Panel agrees with ESR's submission that it would be useful for the Good Design Guide to provide specific guidance to other precincts such as Southbank. However, the guide would need to be drafted accordingly to respond to the specific issues relevant to any new precinct.

It would not be appropriate for the Panel to recommend significant changes to the Good Design Guide without the appropriate notice to parties.

(iv) Conclusions

The Panel concludes:

- It is not appropriate to expand the Good Design Guide to include other areas in the municipality as part of this Amendment.

6.3 Background or incorporated document?**(i) The issue**

The Good Design Guide is proposed to be included as a background document in the LSIO3, and the SBO2 and SBO3. The issue is whether the Good Design Guide should be a background or incorporated document.

(ii) Evidence and submissions

Mr Barnes acknowledged that initially he thought it would be appropriate to list the Good Design Guide as a background document. He provided three examples of guideline documents that are background documents in the planning scheme:

- Planning for Sea Level Rise Guidelines, Port Phillip and Westernport Region, Clause 13.01-2S
- Urban Design Guidelines for Victoria, Clause 15.01-1S
- Apartment Design Guidelines for Victoria, Clause 15.01-2s.

However, on review of the Practitioner's Guide Mr Barnes preferred making the Good Design Guide an incorporated document. He concluded that the Good Design Guide is a *"critical part of the amendment and is essential to realising good urban design and equitable access outcomes"*, and it needs to be included in the planning scheme. He said:

The Guide is very much drafted as a set of guidelines applying well accepted design principles. It does not contain any requirements and would be most unlikely to be construed otherwise;

Mr Campbell supported the Good Design Guide being identified in the Decision Guidelines:

The Guide is a complementary design guideline document which seeks to assist and demonstrate appropriate design solutions to address these overlapping and some-what competing requirements for increased finish floor height, provision of equitable access and good relationships between new buildings and the public realm.

Council agreed the Good Design Guide was *"more"* than a background document and it better fits within the description of an incorporated document. Council supported Mr Barnes' suggestion to

make the Good Design Guide an incorporated document but, if that was not accepted it was equally supportive of it remaining as a background document and included in the Decision Guidelines as exhibited.

Ms Peterson, also referencing the Practitioner's Guide, formed the view that the Good Design Guide did not inform the *"development of the applied controls to warrant its listing within the LSIO and SBO schedules"*. Ms Peterson observed the Guidelines *"seek to guide stakeholders as to design possibilities in responding to the control itself"*.

She further noted that *"it is not appropriate to reference it in decision guidelines or to raise it to a level of prominence where it could be afforded too great a consideration in determining permit applications."* Ms Peterson concluded the *Good Design Guide should be deleted from the provisions of the LSIO3, SBO2 and SBO3 and should be listed in the Schedule to 72.08 only.*

Melbourne Water supported Ms Peterson's position and submitted a straightforward analysis compels the finding that the role of the Good Design Guide is properly limited to a background document. Melbourne Water submitted:

It is Melbourne Water's position that the land management provisions of the Planning Scheme ought seek to achieve just that outcome – land management. They should not address matters of built form, which are contained in policy and DDO provisions in the built form provisions. Melbourne Water supports Ms Peterson's view that the Guidelines should be included in cl 72.08 only, on this basis Including the Guidelines in cl 72.08 helpfully signals that there are likely to be several existing policies or DDO provisions that are properly informed by the Guidelines, as distinct from including the document in the LSIO and SBO which may confine their application to those provisions.

Mr Barnes considered an alternate option which would see the Good Design Guide translated into policy or other controls in the planning scheme. He said:

This is the approach that was adopted when the *Central Melbourne Urban Design Guide*, which was generally translated into DD01 of the planning scheme.

Melbourne Water asked Mr Campbell if he would oppose urban design requirements being located elsewhere in the Planning Scheme (not in the LSIO or SBO). He preferred the urban design requirements being integrated in the flooding control, fearing if they are located elsewhere *"it might be hard to coordinate the assessment or urban design might be overlooked"*.

Melbourne Water asked Mr Barnes if it would be possible to extract parts of the Good Design Guide into a Design and Development Overlay (DDO). He said it would be possible but that many elements could be lost. When asked by the Panel about his alternate option Mr Barnes acknowledged that it would be a complex task that would need an Amendment in its own right.

Melbourne Water also raised the approach taken for the Central Melbourne Design Guide (C308melb) noting that along with it being translated into DD01, the document was listed as a background document at Clause 72.08. Melbourne Water said:

This is precisely what should occur – a background document that guides built form supports and informs built form provisions that are directed at built form outcomes.

(iii) Discussion

The Practitioner's Guide provides the appropriate guidance in relation to incorporated and background documents. Section 6.3.5 sets out both *"may be referenced in the text of the MPS where a document has directly informed the creation of a strategic direction"*.

Background documents “*provide information to explain the context in which a particular policy has been framed*”. Specifically:

A background document may explain why particular requirements are in the planning scheme, substantiate a specific issue or provide background to a provision.

...

Because background documents are not part of the planning scheme, the substantive planning elements of the document (such as built form guidelines or the like) will have been included in the planning scheme in either a local policy or a schedule.

Incorporated documents form part of the Planning Scheme and need to be considered by the responsible authority in decision making. Specifically:

Policy (and other provisions) should generally be self-contained and include the information necessary to assess and decide an application. Where additional, more detailed guidance is absolutely necessary, it can be provided through an incorporated document.

If a policy relies on an incorporated document then it must be referenced in the policy as a policy document and a decisionmaker must consider it when making a decision.

The Good Design Guide was not drafted or exhibited as an incorporated document. The disclaimer on the report itself says:

This is not an Incorporated Document...

The Panel does not agree with Mr Barnes that it would be appropriate for this Panel to recommend the Good Design Guide be elevated in status to an incorporated document, particularly given it was not exhibited in this way.

The Panel observes the decision to reference the Good Design Guide as a background document was at the Future Melbourne Committee meeting on 3 August 2021 when Council agreed to seek authorisation for the Amendment. It appears to have been added to the Amendment as an afterthought, after the Amendment had been prepared.

The Panel does not consider the Good Design Guide informed the Amendment. It is dated June 2021, well after the technical reports, and it did not have a role in determining the extent of the overlays. Other than listing the document as a decision guideline, no other changes to the Planning Scheme (notably the Planning Policy Framework) are proposed.

The 3 August 2021 report to the Future Melbourne Committee says:

It is referenced in the overlay schedules to ensure consideration as part of the planning permit process.

Contrary to this, listing the Good Design Guide as a background document does not enable the decision maker to consider it during the permit process. A background document provides background or context for policy, but it does not form part of the Planning Scheme for the purposes of decision making.

Regarding the use of background documents in Decision Guidelines, the Practitioner’s Guide clearly states that:

A decision guideline should not refer to a background document.

The Panel was not provided any examples of a background document being referenced as a decision guideline. The Panel notes the three examples of guideline documents in the Planning Scheme which are background documents provided by Mr Barnes. The Panel observes that none of these documents were listed as a decision guideline, rather they are under the heading ‘Policy

documents’. This is entirely consistent with the approach set out in the Annexure 1 in the Ministerial Direction on the Form and Content of Planning Schemes which states:

Policy document[s]

“Consider as relevant:

- [Insert relevant incorporated document]
- [Insert relevant background document]”

The Panel agrees with Ms Peterson and Mr Barne’s interpretation of the Practitioner’s Guide, unequivocally a background document should not be listed as a decision guideline as it cannot be relied upon for decision making.

Ms Peterson concluded that the Good Design Guide did not inform the Amendment and the Panel agrees. The Panel is of the view that the Good Design Guide is not a background document and, on this basis, it is not convinced by Ms Peterson’s suggestion that it could simply be listed in Clause 72.08. Without it being referenced somewhere in the Planning Scheme, it serves no point to list it at Clause 72.08.

The Panel agrees with Melbourne Water’s view on the approach taken in Amendment C308melb. If, as Council suggested, the Good Design Guide was designed to inform decision making, then it and the Amendment should have been drafted accordingly. The Panel agrees with Ms Peterson it could be appropriate for the Good Design Guide to be translated into policy at by way of a future Amendment. This could be at Clause 15.01-1L-04 as she suggested, or translated in a Design and Development Overlay, or drafted as an Incorporated Document.

The Panel does not agree that urban design requirements need to be embedded in the flood controls to ensure they are considered. There are many examples of relevant considerations throughout the Planning Scheme that need to be taken into account for any given permit application. The Practitioner’s Guide specifically addresses this:

In some circumstances, it may be necessary to regulate an aspect or a particular class of development for different purposes under separate controls (such as buildings and works under both a zone and a Land Subject to Inundation Overlay). These requirements will each seek to achieve different objectives (such as neighbourhood character and flood risk mitigation). In some cases, these objectives may have the potential to conflict and the decision will need to be balanced by the responsible authority to achieve an overall outcome that is acceptable.

Regarding the existing policy guidance in the Planning Scheme for Arden and the Fishermans Bend precincts (refer to Chapter 6.1), the Panel finds it curious that the Good Design Guide appears not to have informed these policies.

Noting the Panel’s conclusions in Chapter 6.2 of this Report, if the Good Design Guide was amended to include other precincts, such as Southbank, the Panel thinks it would be logical for new policy to be developed on a precinct-by-precinct approach.

The Panel has not reviewed the content of the Good Design Guide in detail. It notes that the intent of the document appears to be sound, but it would be more appropriate for a comprehensive review to be undertaken of any subsequent version if Council pursue an Amendment in the future.

(iv) Conclusions and recommendations

The Panel concludes:

- The correlation between the Good Design Guide and the Amendment is tenuous because:
 - It was not drafted or exhibited as an incorporated document
 - It did not inform the Amendment and as such is not a background document
 - Its geographical area differs from that covered by the Amendment (Chapter 6.2).
- A decision guideline should not reference a background document.
- A background document should only be listed in the Schedule to Clause 72.08 if it informed an Amendment and/or is referenced in the Planning Scheme.
- The Good Design Guide did not inform the Amendment and should not be listed in the Schedule to Clause 72.08
- Council may wish to consider elevating the role of the Good Design Guide in decision making by way of a future Amendment.

The Panel recommends:

Amend Schedule 3 to Clause 44.04 Land Subject to Inundation Overlay, Schedule 2 Clause 44.05 Special Building Overlay to and Schedule 3 to Clause 44.05 Special Building Overlay to delete reference to the *Good Design Guide for Buildings in Flood Affected Areas in Fishermans Bend, Arden and Macaulay* (City of Melbourne, Melbourne Water and City of Port Phillip, 2021) in the Decision Guidelines.

Amend the Schedule to Clause 72.08 Background Documents to delete the *Good Design Guide for Buildings in Flood Affected Areas in Fishermans Bend, Arden and Macaulay* (City of Melbourne, Melbourne Water and City of Port Phillip, 2021).

7 Technical and background documents

(i) The issues

The issues are whether the:

- *Planning for Sea Level Rise Guidelines* should be listed as a background document
- Yarra River Flood Study should be listed as a background document
- Flood Guidelines should be listed as a background document and/or in the Decision Guidelines.

(ii) Evidence and submissions

Mr Swan was instructed to consider whether the following documents should be removed from the list of background documents:

- *Planning for Sea Level Rise Guidelines*
- Yarra River Flood Study.

Mr Swan raised concerns about both reports being background documents because of the data assumptions and the modelling not being an appropriate representation of the Yarra River.

He said the *Planning for Sea Level Rise Guidelines*

... is not technically consistent with other data sources regarding the expected sea level rise conditions in Port Phillip Bay. The document adopts levels at St Kilda that are not appropriate for the Yarra River, including additional consideration of wave action and setup.

In relation to the Yarra River Flood Study Mr Swan said:

Whilst the report may be a reasonable representation of flooding under the conditions modelled, they do not appear to be consistent with the actual existing behaviour of the Yarra River in a current day 1% flood events. Without calibration of the model for a floodplain like the Yarra, and the likelihood that the levels are significantly overestimated, the use of the report as a background document that properly describes the flood behaviour of the Yarra cannot be supported.

...the document does not provide any sufficient details of expected flood levels or flows at key locations along the floodplain, again limiting its use as a planning document.

Ms Peterson said that it was appropriate to reference the modelling documentation in Clause 72.08 and that:

The technical reports provide the basis for the mapping of the LSIO and SBO and accordingly they are appropriate background documents as they provide additional information to explain how a control and associated policy was formulated.

Council highlighted in the exhibited version of the proposed controls the Flood Guidelines is listed as a background document at Clause 72.08, and in the Decision Guidelines.

Comparing it to the Good Design Guide, Ms Peterson said:

The Guidelines for Development in Flood Affected Areas (DELWP, February 2019), in comparison, more broadly addresses flooding matters, providing additional detail to explain controls and policy within the planning scheme.

(iii) Discussion

As discussed in Chapter 6, the Practitioner's Guide provides the necessary guidance and description of a background document.

Mr Swan raised issues with the accuracy of both the Yarra River Flood Study and the *Planning for Sea Level Rise Guidelines* as the basis for not listing them as background document. In deciding if a document is a background document, the Panel needs to be satisfied that the documents informed the Amendment. If the strategic justification for an Amendment (such as the accuracy of the modelling) is found to be lacking, then the overlay ought not apply which has greater implications than not listing a document as a background report.

In Chapter 3 of this Report, the Panel concludes the flood modelling in Yarra River Flood Study (and the other technical reports) is appropriate for the purposes of applying the LSIO3.

Regarding the *Planning for Sea Level Rise Guidelines*, the Panel notes Melbourne Water has adopted a higher sea level compared to other technical sources. State policy is to “*plan for possible sea level rise of not less than 0.8 metres by 2100⁴*” and the *Planning for Sea Level Rise Guidelines* is consistent with that.

As for sea levels at St Kilda not being appropriate for the Yarra River, the Panel is not convinced by this. Mr Swan said the St Kilda tide gauge is not appropriate for the Yarra River. On the other hand, Prof Coombes said the Williamstown gauge is affected by Yarra River floods and therefore may overestimate tides. The Panel is satisfied that for the purpose of the Flood Studies, the use of the *Planning for Sea Level Rise Guidelines*, which use tide data from the St Kilda gauge, is appropriate.

The Panel believes the nine technical reports (including the Yarra River Flood Study) and *Planning for Sea Level Rise Guidelines* are appropriate to be listed as background documents given they informed the extent of the proposed overlays, and as a result the Amendment as exhibited.

In a similar vein, the Flood Guidelines is proposed to be a background document and listed as a decision guideline. The Panel agrees with Council and Ms Peterson that the document informed the preparation of the Amendment, and it is suitable to be listed as a background document at Clause 72.08.

As discussed in Chapter 6.3, a decision guideline should not reference a background document. On this basis, and to ensure compliance with the Practitioner’s Guide, the Flood Guidelines should be deleted from the Decision Guidelines.

(iv) Conclusions and recommendations

The Panel concludes:

- The nine technical reports, *Planning for Sea Level Rise Guidelines* and Flood Guidelines are appropriate to be listed as background documents.
- A decision guideline should not reference a background document.
- Council may wish to consider elevating the role of the Flood Guidelines in decision making by way of a future Amendment.

The Panel recommends:

Amend Schedule 3 to Clause 44.04 Land Subject to Inundation Overlay, Schedule 2 to Clause 44.05 Special Building Overlay and Schedule 3 to Clause 44.05 Special Building

⁴ The Victorian Coastal Strategy, 2014

Overlay to delete reference to the *Guidelines for Development in Flood Affected Areas* (Department of Environment, Land, Water and Planning, 2019) in the Decision Guidelines.

8 Other issues

8.1 Melbourne Water's exercise of discretion

(i) The issue

The issue is whether Melbourne Water's exercise of discretion in relation to the nominal flood protection level (NFPL) requirements under the Flood Guidelines is a relevant consideration.

(ii) Evidence and submissions

The relevant discretion arises under both the planning and building regimes. Although the LSIO itself does not set a minimum floor level or the NFPL, ESR submitted it is common for Melbourne Water to include minimum floor levels based on the NFPL in conditions it imposes on planning approvals.

Under the building regime, the discretion arises under the 'report and consent' process. The Flood Guidelines state⁵:

Regulation 153 requires the consent of the council for a building permit if a site is subject to inundation. The council must specify a minimum floor level for the proposed building in consultation with the relevant floodplain management authority and assess the flood risk associated with the site. The council must not consent to a permit if it believes that there is a likely danger to the life, health and safety of the occupants of the building due to flooding of the site.

The Council must specify a minimum floor level with a freeboard margin of at least 300 mm above the 1% AEP flood level, unless the floodplain management authority consents to a lower level. The regulations do not apply to a Class 10 building (non-habitable garage, carport or shed), an unenclosed floor area of a building or an extension to an existing building which is less than 20 square metres.

In relation to floor levels, the Flood Guidelines state⁶:

Raising floors higher than the flood levels is the easiest way to reduce flood damage. When floors are overtopped valuable contents such as carpets, furniture, electrical appliances and furnishings are damaged.

When determining a minimum floor level, freeboard is added to the flood level estimate to provide certainty that the floors won't be inundated. The level obtained by adding freeboard to the flood level is called the Nominal Flood Protection Level (NFPL). The cost or inconvenience of raising the floors of minor buildings or building alterations may need to be weighed against the flood damage prevented.

In relation to freeboard, the Flood Guidelines state⁷:

Freeboard is added to the 1% AEP flood level to provide reasonable certainty of a desired level of service. Floodplain management authorities will apply a range of freeboards, based on their assessment of flood behaviour and uncertainties in flood level estimates.

For a building not requiring a planning permit, the building regulations prescribe a minimum of 300 mm freeboard. The regulations do not apply to a Class 10 building (non-habitable

⁵ Flood Guidelines, page 22

⁶ Flood Guidelines, page 36

⁷ Flood Guidelines, page 36

garage, carport or shed), an unenclosed floor area of a building or an extension to an existing building which is less than 20 square metres.

If a planning permit is required, the floodplain management authorities apply a range of freeboard, typically 300 mm to 600 mm, depending on their assessment of flood behaviour. The higher freeboards can be a result of poor reliability of flood information, a steep and narrow catchment (the flood profile is steep), wave action or an allowance for long-term climatic effects.

Freeboard may be reduced for buildings with a low flood damage potential.

Melbourne Water rejected the notion it will not exercise its discretion in relation to consideration of alternative solutions. ESR welcomed this position and took it to mean Melbourne Water does not interpret the Flood Guidelines as restricting its discretion on the basis that they do not provide any specific guidance on or quantitative information as to what discretionary measures should or could be implemented.

Melbourne Water submitted that despite the submissions and evidence of the parties not one witness has provided verifiable credible evidence of Melbourne Water's alleged rigid application of the Flood Guidelines. Melbourne Water said the way it exercises its discretion is irrelevant to any matter before the Panel in any event. Melbourne Water submitted that if it is applying its discretion in a manner that is unreasonably rigid, landowners may seek a review of its decisions at the Victorian Civil and Administrative Tribunal.

(iii) Discussion

The Amendment is required to designate land within the LSIO and SBO areas that modelling has identified as being highly likely to be subject to inundation in the event of a flood. It then applies risk appropriate controls and measures to manage new development in a way that minimises potential flood damage through the planning permit process.

Melbourne Water's exercise of discretion at the planning permit application stage is not a relevant consideration in the context of the introduction of updated flood controls. This exercise will be undertaken at the permit application stage.

How Melbourne Water exercises its discretion or uses and interprets the application of the Flooding Guidelines is not a matter for this Panel. As Melbourne Water has indicated, if it refuses to exercise any discretion in relation to a particular application (presumably on an evidentiary basis) then there is a right of review to the Victorian Civil and Administrative Tribunal.

(iv) Conclusions

The Panel concludes:

- Melbourne Water's exercise of discretion in relation to NFPL requirements under the Flood Guidelines is not a relevant consideration.

8.2 Floor levels and building heights

(i) The issue

The issue is whether building height limits within the overlay areas should be increased to account for the need for higher floor levels due to flood controls.

(ii) Evidence and submissions

Several submissions were made in relation to the impact of the Amendment on the development potential of sites subject to building height controls, particularly mandatory height controls. If the introduction of the LSIO or the SBO requires an increase to the height above ground of the ground floor area of a building, the building may not be able to accommodate the same number of storeys as it could have, prior to an overlay being introduced.

The relationship between the increased floor levels required under the proposed controls and the height restrictions in the relevant DDO differs. The majority of the DDOs have discretionary height controls, such as DDO8, DDO9, DDO10 and DDO28 and much of the land subject of these controls is not covered by the Amendment. DDO60 Special Character Areas – Built Form (Southbank) however includes mandatory height restrictions of between 14 metres and 70 metres maximum height and a permit cannot vary these restrictions.

Evolve Development / Evolve No.22 Pty Ltd (Evolve) and Cedar Woods both own properties in in Sturt Street, Southbank. The issue for both submitters is the mandatory height controls in DDO60.

In relation to one of the properties, at 131-139 Sturt Street, it was submitted:

- based on the flood level information provided by Melbourne Water in November 2021, the flood level is 2.4 metres to AHD (the 2100 1% AEP flood level)
- the conditions required by Melbourne Water would 'raise' the ground level of the approved development by 600 millimetres
- this would raise the building above the mandatory maximum building height
- there is no ability to 'absorb' a 600 millimetres ground floor rise and this would have significant implications for the development.

Evolve and Cedar Woods offer the following preferred definition of 'total building height' under DDO60:

total building height means the vertical distance between the footpath or natural surface level at the centre of the site frontage and the highest point of the building, with the exception of non-habitable architectural features not more than 3.0 metres in height and building services setback at least 3.0 metres behind the façade.

If the land is in a Special Building Overlay, Land Subject to Inundation Overlay or is land liable to inundation, the total building height is the vertical distance from the minimum floor level determined by the relevant drainage authority or floodplain management authority to the roof or parapet at any point, with the exception of non-habitable architectural features not more than 3.0 metres in height and building services setback at least 3.0 metres behind the façade.

It was submitted this approach retains the mandatory maximum building height approach of DDO60, yet accepts there may be instances where flood levels need to be considered.

Ms Peterson said that insofar as there is a small area of land in the southern portion of the land subject of DDO60 and the Amendment, there should be an allowance for heights to be taken from the increased ground floor level as provided for in the residential zone provisions. Melbourne Water did not oppose this recommendation.

Council submitted that submissions in relation to separate height and mandatory provisions in the Planning Scheme are not relevant considerations for the Panel with respect to this Amendment.

Mr Barnes said it is appropriate that exemptions from building height requirements are located in the specific clause that contains the building height requirement, rather than within the flood overlay itself.

Mr Campbell wasn't concerned with any impact on building heights resulting from the Amendment and said it would be inappropriate to seek to vary any mandatory heights.

(iii) Discussion

The Panel notes that overlays such as DDO60 do not allow additional building height to be added to increased floor levels. This differs from, for example, the residential zones which include the following exemption:

Building height if land is subject to inundation

If the land is in a Special Building Overlay, Land Subject to Inundation Overlay or is land liable to inundation the maximum building height specified in the zone or schedule to the zone is the vertical distance from the minimum floor level determined by the relevant drainage authority or floodplain management authority to the roof or parapet at any point.

The purpose of this Amendment is to update the LSIO and SBO extents in certain catchments in the Planning Scheme to reflect updated flood modelling and current and future flooding risk in these areas. Interactions with separate height controls and other mandatory controls are not relevant considerations in the context of the introduction of updated flood controls.

Changes to maximum building heights in existing overlays should be considered through a separate process to properly consider potential consequences. The Panel agrees with Council that such a change is beyond the scope of the Amendment. The impact of applying a NFPL on each mandatory element needs to be considered individually and it may be that it is not appropriate to increase the maximum height when its purpose is to, for example, protect views.

(iv) Conclusions

The Panel concludes:

- Building height limits within the overlay areas should not be increased to account for the need for higher floor levels due to inundation.

8.3 Heritage considerations

(i) The issue

The issue is whether heritage considerations are relevant when deciding to apply a LSIO or SBO.

(ii) Evidence and submissions

The Urban Development Institute of Australia submitted the proposed ordinances do not clearly outline the requirements when converting an existing building for re-use, especially a building subject to a Heritage Overlay. The Parkville Association raised similar concerns in relation to works undertaken to heritage properties and questioned the appropriateness of the proposed controls given there is no evidence of flooding in the area.

Mr Campbell gave evidence on this issue and said:

I consider this to be a valid consideration, but to be one best addressed on an individual application basis. I appreciate that it would be too difficult to identify and address the potential numerous permutations of existing heritage conditions, types of heritage fabric, existing relationships to the public realm and draft appropriate design guidelines to suitably respond to the latest flood levels.

(iii) Discussion

The purpose of the proposed Amendment is to identify land that may be subject to flooding in a 1 in 100 AEP flood event to facilitate orderly planning and the proper assessment of any development proposals on land covered by the SBO and LSIO. To modify or remove the proposed overlays due to an anticipated effect on the upkeep or re-use of heritage properties would undermine the objective of the Amendment. Such considerations are not relevant to the consideration of the Amendment.

The Panel agrees with Mr Campbell that heritage is a valid consideration, but is one best addressed at the permit application stage.

(iv) Conclusions

The Panel concludes:

- Issues relating to impacts on heritage properties from the application of the LSIO and SBO over a property are not relevant when considering the introduction of the proposed Amendment.

8.4 Property value and financial implications values

(i) The issue

The issue is whether property value and financial implications are relevant when deciding to apply a LSIO or SBO.

(ii) Evidence and submissions

Several submissions raised concerns that the Amendment would reduce property values and impact on the ability to sell property or obtain financing. Others raised concerns about the potential increase in insurance premiums or difficulty in obtaining insurance coverage, because the properties would be identified as subject to potential inundation and flooding risk. They were also concerned about higher costs associated with the redevelopment of properties due to the requirements of the LSIO and SBO.

Council's response to these issues was that the mapping and Amendment seeks to identify land that is liable to flooding to facilitate orderly planning and appropriate assessment of proposed development. Flooding constraints should not be ignored just because they may affect land values, insurance premiums, or create additional development costs.

(iii) Discussion

The purpose of the proposed Amendment is to identify land that may be subject to flooding in a 1% AEP flood event to facilitate orderly planning and the proper assessment of any development

proposals on land covered by the SBO and LSIO. To modify or remove the proposed overlays due to an anticipated effect on insurance for the properties would undermine the objective of the Amendment.

Property value is influenced by many complicated and dynamic variables and it would be difficult to single one out. The Panel was not presented with any information or evidence demonstrating the Amendment would impact property values.

There are several previous Planning Panels Victoria reports in which the issue of land value has been considered in detail. Examples include Bass Coast Amendment C82, South Gippsland Amendment C81 and Mornington Peninsula Amendment C216. These panels have consistently found that the application of an LSIO or SBO does not impede development, and that land values, insurance premiums and rates are not relevant planning considerations. No evidence was provided to this Panel that persuaded it that this long held position should be re-examined.

(iv) Conclusion

The Panel concludes:

- Issues relating to impacts on land values, insurance and development costs from the application of the LSIO and SBO over a property are not relevant when considering the Amendment.

8.5 Maintenance and upgrading of drainage and flooding infrastructure

(i) The issue

The issue is whether the Amendment inappropriately shifts responsibility for managing flood risk to landowners.

(ii) Evidence and submissions

Several submitters submitted the Amendment inappropriately shifts responsibility for managing flood risk to landowners and that new drainage infrastructure, as well as better maintenance of existing infrastructure would potentially lessen the need for the Amendment.

Rockford and RSA submitted the “*proposed LSIO is wrong to have no regard to improvements in flood mitigation works*”. It was submitted that there are numerous works proposed in Arden Macaulay, including:

- land to be used as a retarding basin
- upgrading of pumps
- levees raised and extended to provide additional protection
- underground storage tanks
- pipes to convey stormwater to Moonee Ponds Creek.

In determining the extent of the LSIO3, it was submitted that it should be fair to assume the proposed works in the *Arden Structure Plan* will proceed alongside the proposed urban development.

Melbourne Water identified its statutory role as maintaining and operating Melbourne's drainage system and minimising the impact of flooding where possible and within the resources available. It submitted this is done through:

- the maintenance of its drainage system through regular removal of debris and silt and the repair and replacement of infrastructure or parts of it when they are no longer fit for purpose
- managing flood risk and exposure through setting building and renovation criteria, providing flooding advice and updating flood information for the greater Melbourne area
- increasing the drainage network in locations of high risk, typically where buildings are inundated.

While Melbourne Water conceded new flood management infrastructure will need to be implemented over time to facilitate the urban renewal of the Arden precinct for example, it submitted that new drainage infrastructure is not a complete answer to flooding and the impacts of climate change.

Melbourne Water submitted:

Of critical importance is the need to identify flood prone land, and to be wholly transparent about those predictions. To the extent that certainty can be achieved in predictive climate analysis, it is essential that the community is appraised of the best available information so that land use and development proposals are properly considered and tailored to meet the risk.

Council submitted while there may be opportunities to refine and improve drainage maintenance practices and undertake capital works, drainage maintenance and on-ground mitigation works are not relevant to the application of LSIO and SBO.

(iii) Discussion

The Panel agrees that maintenance and the upgrade of drainage and flooding infrastructure is important in managing flood risk. Not all flood risk can be overcome with drainage maintenance and upgrades. The Panel considers it oversimplistic to suggest new drainage infrastructure might prevent the impacts of climate change.

(iv) Conclusions

The Panel concludes:

- While there will be opportunities to upgrade drainage and flooding infrastructure and improve drainage maintenance practices, these works are not relevant to the application of the LSIO and SBO. These works sit outside of the Planning Scheme Amendment process.

9 Form and content of the Amendment

9.1 Form and Content

The *Ministerial Direction on the Form and Content of Planning Schemes*, issued under section 7(5) of the PE Act, requires schedules to be drafted *in accordance “with the applicable style guide set out in Annexure 1 and written in plain English”*.

The Panel is satisfied the proposed SBO2, SBO3 and LSIO3 schedules have been drafted in accordance with Annexure 1 of the Ministerial Direction. The Panel also supports the translation of the LSIO1, LSIO2 and SBO1 schedules to the new format noting no change to the policy is proposed.

Annexure 1 of the Ministerial Direction on the Form and Content of Planning Schemes prescribes the template structure and headings for the SBO and LSIO Schedules. Except for the heading in Clause 1.0, the template is the same. The difference in Clause 1.0 being:

- LSIO - Land subject to inundation objectives to be achieved
- SBO - Flooding management objectives to be achieved.

9.2 LSIO2 schedule

Melbourne Water sought drafting changes to the LSIO2 (Flemington Racecourse) schedule including replacing ‘Nominated Flood Protection Level’ with ‘Nominal Flood Protection Level’. Council supported these changes. The Panel considers the changes are sensible and do not change the intent of the exhibited control.

(i) Conclusions and recommendations

The Panel concludes:

- Melbourne Water’s suggested changes to LSIO2 are appropriate.

The Panel recommends:

Amend Schedule 2 to Clause 44.04 Land Subject to Inundation Overlay, to make the changes shown in the panel’s preferred version in Appendix E1.

9.3 Multiple SBO schedules

As highlighted by Mr Barnes, other than their titles, schedules 2 and 3 to the SBO contain the same provisions:

- Schedule 2 relates to Melbourne Water Main Drains.
- Schedule 3 relates to Council drains and also includes the additional locality of “Hobsons Road” in its title.

Mr Barnes goes on to explain:

Clause 66.03 Referral of Permit Applications Under Other State Standard Provisions, identifies Melbourne Water as the only referral authority for the SBO. It does not make a distinction between drains managed by Melbourne Water and those managed by Council.

Council acknowledged that as it currently stands, a permit application within SBO3 would need to be referred to Melbourne Water as *“there are no special referral authority arrangements in place”*. However, Council said this is proposed to change in the future:

It is proposed that the City of Melbourne and Melbourne Water will, at a later date, enter into written arrangements to document the development proposals within SBO3 that will be managed by the City of Melbourne and not referred to Melbourne Water (in line with clause 44.05-6 of the Scheme).

The Panel’s preference would normally be for the schedules to be combined to avoid unnecessary duplication in the Planning Scheme. However, in this instance the Panel appreciates the desire for two schedules for ease of administration in the likely event that a written agreement between the parties is entered. The Panel agrees with Mr Barnes that having two schedules will not result in a poor planning outcome and is satisfied with the approach taken by Council.

(i) Conclusions

The Panel concludes:

- The approach taken by Council to have separate schedules for SBO2 and SBO3 is appropriate.

9.4 SBO2, SBO3 and LSIO3 schedules

As exhibited, the SBO2, SBO3 and LSIO3 were drafted identically with the exception of the schedule name. Through evidence and during of the Hearing, Melbourne Water, Council, ESR, and Crown put forward changes to the schedules as exhibited.

The Panel has prepared its preferred versions of each schedule in Appendix E based on the conclusions and recommendations in this Chapter of its Report.

9.4.1 Urban Design

The Panel has addressed the issue of urban design in the SBO and LSIO schedules in Chapter 6.1 of this report. In summary the Panel considers urban design requirements are not appropriate in the SBO and LSIO schedules. It is satisfied the Planning Scheme currently contains sufficient guidance for urban design outcomes at the ground level interface with the public realm.

9.4.2 Objectives

The Panel notes the purpose in the parent provision of the LSIO differs significantly from the SBO. This is logical given the overlays seek to achieve different outcomes. On this basis, the Panel does not support identical drafting of the schedules as exhibited. The schedules should be drafted to respond to the parent provisions in accordance with Rule 5 of the Practitioner’s Guide.

Notably the LSIO parent provision contains the following purpose:

To minimise the potential flood risk to life, health and safety associated with development.

This purpose is not in the SBO parent provision and the Panel does not consider it appropriate to include objectives to this effect.

The Practitioner’s Guide explains that of the four flooding overlays, only the Urban Floodway Zone is a restrictive zone which prohibits most types of development. The SBO and LSIO are lower order overlays based on flood risk mitigation and the Panel agrees with Evolve and Cedar Woods that

some of the proposed objectives could be read as restricting or prohibiting development. Mr Barnes in questioning observed the “*To ensure..*” drafting was very strong. Ms Peterson also in questioning said the intention of the objectives was sound but they could be reworded without seeking to guarantee an outcome.

The Panel agrees that some of the objectives have been drafted in a way that are not flexible enough to encourage a range of development responses that could be appropriate, particularly given the overlays seek to manage risk or minimise the impact associated with flooding. The Panel has sought to either remove the term ‘To ensure’ or reword objectives to provide greater flexibility.

(i) Special Building Overlay

The purposes in the SBO parent provision are⁸:

1. To implement the Municipal Planning Strategy and the Planning Policy Framework.
2. To identify land in urban areas liable to inundation by overland flows from the urban drainage system as determined by, or in consultation with, the floodplain management authority.
3. To ensure that development maintains the free passage and temporary storage of floodwaters, minimises flood damage, is compatible with the flood hazard and local drainage conditions and will not cause any significant rise in flood level or flow velocity.
4. To protect water quality and waterways as natural resources by managing urban stormwater, protecting water supply catchment areas, and managing saline discharges to minimise the risks to the environmental quality of water and groundwater.

Having regard for the purposes in the parent provision, the Panel has responded to Melbourne Water’s proposed changes to the objectives in Table 6.

Table 6 Summary of proposed changes to SBO objectives

Melbourne Water	Panel SBO Response
1. To identify land in areas that may be inundated by the combined effects of the 1% Annual Exceedance Probability (AEP) flood event incorporating an 18.5% increase in rainfall intensity due to climate change by the year 2100.	Supported by the first purpose.
2. To protect life, property, public health, assets and the environment from flood hazard.	There is no corresponding purpose in the SBO parent provision. Support deletion.
3. To minimise the impact of development on flood extent, depth and the flow velocity.	The Panel prefers the use of the term ‘minimise’ in this objective compared to ‘ensure’ in Melbourne Water’s objective 6 (below). The Panel has combined the third and sixth objective as follows: - To minimise the impact of <u>new</u> development on flood extent, depth and the flow velocity <u>to the detriment of surrounding properties.</u>

⁸ The Panel has numbered each purpose to aid the discussion in this report.

Melbourne Water	Panel SBO Response
4. <u>To ensure that the development prioritises the protection of human life, including emergency services personnel.</u>	There is no corresponding purpose in the SBO parent provision. The Panel does not support this objective.
5. <u>To ensure that the assessment of any new development considers whether the risk to life and property from flooding can be reduced to an acceptable level.</u>	There is no corresponding purpose in the SBO parent provision. The Panel does not support this objective.
6. <u>To ensure development does not increase flood levels and/or velocities to the detriment of surrounding properties.</u>	The Panel prefers its proposed version to the third objective as discussed above.
7. To ensure <u>that any</u> new development is suitably designed to be compatible with <u>the identified flood hazard and</u> local drainage characteristics. and identified flood hazard.	Council supports this change. The Panel agrees with the intent of this objective but prefers to reword it to remove the term 'ensure': - To ensure new development is suitably designed to be compatible with <u>appropriately responds to</u> the identified flood hazard and local drainage characteristics.
8. To ensure development simultaneously achieves safe access and egress, good urban design and equitable access.	Support deletion. Refer to discussion on urban design in Chapter 6.1.

(ii) Land Subject to Inundation Overlay

The purposes in the LSIO parent provision are⁹:

1. To implement the Municipal Planning Strategy and the Planning Policy Framework.
2. To identify flood prone land in a riverine or coastal area affected by the 1 in 100 (1 per cent Annual Exceedance Probability) year flood or any other area determined by the floodplain management authority.
3. To ensure that development maintains the free passage and temporary storage of floodwaters, minimises flood damage, responds to the flood hazard and local drainage conditions and will not cause any significant rise in flood level or flow velocity.
4. To minimise the potential flood risk to life, health and safety associated with development.
5. To reflect a declaration under Division 4 of Part 10 of the Water Act, 1989.
6. To protect water quality and waterways as natural resources by managing urban stormwater, protecting water supply catchment areas, and managing saline discharges to minimise the risks to the environmental quality of water and groundwater.
7. To ensure that development maintains or improves river, marine, coastal and wetland health, waterway protection and floodplain health.

Having regard for the purposes in the parent provision, the Panel has responded to Melbourne Water's proposed changes to the objectives in Table 7.

⁹ The Panel has numbered each purpose to aid the discussion in this report.

Table 7 Summary of Melbourne Water proposed changes to LSIO objectives

Melbourne Water	Panel LSIO Response
1. To identify land in areas that may be inundated by the combined effects of the 1% Annual Exceedance Probability (AEP) flood event incorporating an 18.5% increase in rainfall intensity due to climate change by the year 2100.	Supported by the first purpose.
2. To protect life, property, public health, assets and the environment from flood hazard.	The Panel supports this deletion noting its support for the reworded fourth objective below.
3. To minimise the impact of development on flood extent, depth and the flow velocity.	The Panel prefers the use of the term 'minimise' compared to 'ensure' in Melbourne Water's objective 6 (below). The Panel has combined the third and sixth objective as follows: - To minimise the impact of <u>new</u> development on flood extent, depth and the flow velocity <u>to the detriment of surrounding properties</u>.
4. <u>To ensure that the development prioritises the protection of human life, including emergency services personnel.</u>	The Panel agrees with the intent of this objective and notes it is supported by the fourth purpose in the parent provision. The Panel prefers to reword it to remove the term 'ensure': - To ensure that the development prioritises <u>prioritise</u> the protection of human life, including emergency services personnel.
5. <u>To ensure that the assessment of any new development considers whether the risk to life and property from flooding can be reduced to an acceptable level.</u>	The Panel generally agrees with the intent of this objective but that it should be deleted as it has been addressed in the Panel's version of the third objective above. The Panel notes: - the risk to life is addressed in the Panel version of the fourth objective above. - minimising flood damage is addressed in the Panel version of the third objective above.
6. <u>To ensure development does not increase flood levels and/or velocities to the detriment of surrounding properties.</u>	The Panel prefers its proposed version of the third objective as discussed above.
7. To ensure <u>that any</u> new development is suitably designed to be compatible with <u>the identified flood hazard and</u> local drainage characteristics. And identified flood hazard.	Council supports this change. The Panel agrees with the intent of this objective but prefers to reword it to remove the term 'ensure': - To ensure new development is suitably designed to be compatible with <u>appropriately responds to</u> the identified flood hazard and local drainage characteristics.

Melbourne Water	Panel LSIO Response
8. To ensure development simultaneously achieves safe access and egress, good urban design and equitable access.	Support deletion. Refer to discussion on urban design in Chapter 6.1.

The Panel has responded to ESR and Crown's proposed changes to the objectives in Table 8

Table 8 Summary of ESR and Crown proposed changes to LSIO objectives

Melbourne Water	Panel LSIO Response
To ensure new development simultaneously achieves safe access and egress, good urban design and equitable access. Where existing buildings are being refurbished, if safe access criteria cannot be achieved, alternative controls that reduce overall community flood risk should be considered. These could include structural protection measures, early warning systems and implementation of flood emergency response plans.	The Panel does not support this objective. Refer to discussion on urban design in Chapter 6.1.
To identify the land as being appropriate for the development of a local floodplain development plan so as to identify precinct scale works and any local drainage upgrades to assist with reduction of flood risk in the precinct and circumstances where safe access and floor levels can be modified.	The Panel does not support this new objective as it is beyond the scope of the parent provision.

The Panel concludes:

- The purposes of the Land Subject to Inundation Overlay and Special Building Overlay in the parent provisions are different and the objectives and decision guidelines in the schedules and the schedules should be updated to reflect only those purposes from the parent provisions.
- The objectives should be reworded to allow greater flexibility.

The Panel's preferred wording of each schedule is provided in its preferred versions in Appendix E2, E3 and E4.

9.4.3 Statement of risk

ESR and Crown sought changes to the last paragraph of 2.0 Statement of Risk in LSIO3:

To minimise the impact of such events [A combined 1% AEP riverine and storm surge flooding event that would overtop the Southbank promenade due to sea level rise is not likely to occur before sea levels have risen 500mm above 1990 levels \(likely no earlier than 2060\). Flood warning times for the Lower Yarra River are likely to be in the order of at least 24-48 hours.](#) This information is contained in the background documents listed in the Schedule to Clause 72.08 which is the source of mapping for this overlay.

The Panel does not believe it is appropriate to include the additional information as suggested given it does not correspond with the information in the background documents.

The Panel concludes:

- The Statement of risk for LSIO3 as exhibited is appropriate.

9.4.4 Permit requirement

ESR and Crown sought to add a permit exemption for “*outdoor dining and street furniture*” in LSIO3.

The Panel anticipates that most outdoor dining furniture would be temporary and would not trigger a planning permit. Any permanent structures might have an impact on the flow of water and should be assessed through the permit process.

For street furniture, Clause 62.02 already provides a permit exemption for the following unless specifically required by the Planning Scheme:

- Street furniture including post boxes, telephone booths, fire hydrants, bus shelters, shade sails, traffic control devices and public toilets.

The Panel notes the LSIO parent provision specifies that a permit is required for a public toilet.

The Panel concludes:

- The permit requirements for LSIO3 as exhibited are appropriate.

9.4.5 Application requirements

Melbourne Water sought to make changes to the application requirements for all three schedules (SBO2, SBO3 and LSIO3). Council responded and put forward its preferred wording. The Panel has responded to this in Table 9.

Table 9 Summary of proposed changes to application requirements (LSIO3, SBO2, SBO3)

Melbourne Water	Council	Panel response
An existing conditions survey plans taken by or under the direction and supervision of a licensed land surveyor showing boundaries and dimensions of the site, showing the layout and location of existing building and works with all relevant natural ground level, the current Flood Level, and the ground and finished floor levels to Australian Height Datum (AHD).	An existing conditions survey plans taken by or under the direction and supervision of as prepared by a licensed land surveyor showing boundaries and dimensions of the site, and the layout and location of existing buildings and works, with natural ground level, the current Flood Level, and the natural ground, and existing finished floor and surface levels to Australian Height Datum (AHD).	The Panel prefers Council’s version of the requirement.

Melbourne Water	Council	Panel response
<u>A development plan which includes:</u> - <u>layout and location of proposed building and works including all relevant dimensions of the site;</u> - <u>proposed finished natural surface levels, building floor levels, building entry points and basement ramps to Australian Height Datum (AHD); and</u> - <u>proposed overland flow paths to ensure overland flow paths are maintained</u>	<u>A site development plan which includes:</u> - <u>The layout and location of proposed buildings and works including building entry/exit points and basement ramp/s;</u> - <u>Existing survey levels to AHD;</u> - <u>The proposed finished building floor levels and finished surface levels, including in relation to building entry/exit points and basement ramps to AHD;</u> - <u>The 1% Annual Exceedance Probability (AEP) flood level and the Nominal Flood Protection Level (NFPL) as determined by the relevant floodplain management authority;</u> - <u>The location of proposed overland flow paths.</u>	The Panel prefers Council's version of the requirement.
Proposed, plans, <u>Cross section</u> elevations and section drawings (1:50 or 1:20) <u>to Australian Height Datum (AHD). The cross section elevations and section drawings are to include survey levels of the site including building floors, building entry points, basement ramps and ground levels along access and egress routes within the property boundary and flow paths for the passage of overland flows to Australian Height Datum (AHD). The elevations and section drawings must clearly show the Annual Exceedance Probability (AEP) Flood showing the proposed ground and finished floor Level and the Nominal ted Flood Protection Level (NFPL) of all new structures on the land as determined by the Floodplain Management Authority.</u>	Proposed, plans, Elevations and <u>cross-sectional drawings (1:50 or 1:20) to include:</u> - <u>The proposed finished building floor levels and finished surface levels, including in relation to building entry/exit points and basement ramps to AHD;</u> - <u>The 1% Annual Exceedance Probability (AEP) flood level showing the proposed ground and finished floor level and the Nominal ted Flood Protection Level (NFPL) as determined by the relevant floodplain management authority. of all new structures on the land.</u>	The Panel prefers Council's dot point approach to this requirement. The additional information in the Melbourne Water version is useful and should be included. The Panel has made amendments to this requirement in Appendix E2.

Melbourne Water	Council	Panel response
A written Flood Risk and Design Statement that <u>which</u> must include <u>the following</u> but not be limited to: - A flood assessment of the site which includes reference to the Design Flood Event (1%AEP) and other flood characteristics, including velocities and depths of flooding on the site and access routes, overland flood paths and the duration of flooding	A written Flood Risk and Design Statement that must include, but not be limited, to: - A flood assessment of the site which includes reference to the Design Flood Event (1% AEP) and other flood characteristics, including velocities and depths of flooding on the site and access routes, overland flood paths and the duration of flooding;	The Panel prefers Council's version of the requirement.
<u>A written description of the design response which demonstrates how the proposed development responds to the flood characteristics which affect the site and surrounds, including an assessment against the four objectives as defined in the Guidelines for Development in Flood Affected Areas (the Department of Environment, Land, Water and Planning, 2019).</u>	<u>A written description of the design response which demonstrates how the proposed development responds to:</u> - <u>the flood characteristics of the site and surrounds, including an assessment against the four objectives as defined in the Guidelines for Development in Flood Affected Areas (the Department of Environment, Land, Water and Planning, 2019); and</u> - <u>the design guidelines as contained in the Good Design Guide for Buildings in Flood Affected Areas in Fishermans Bend, Arden and Macaulay (City of Melbourne, Melbourne Water and City of Port Phillip, 2021) as applicable to the development and to the satisfaction of the responsible authority.</u>	The Panel does not support reference to either guidelines (refer to Chapters 6.3 and 7). Refer to the Panel's preferred version in Appendix E2.
A comprehensive description of the proposed plans, elevations and drawings stating the design of the lower levels of the building including entries, shop front design, ...	Council agrees	The Panel agrees.
A description of proposed actions, flood mitigation strategies or measures required, if any, to the siting and design of the buildings or works,...	Council agrees	The Panel agrees.

Surface levels

The Panel notes the term 'Surface Level' is used a number of times in the application requirements. The term is used in addition to 'Finished floor levels'. Surface level not defined in the schedule or in Clause 73.01. The Good Design Guide defines Finished floor levels as:

The Finished floor level (FFL) refers to the uppermost surface of a floor once construction has been completed but before any finishes or floor coverings have been applied.

The Panel prefers using the commonly used, and understood, term of 'Finished floor levels'.

The Panel's preferred wording of the application requirements is provided in Appendix E2, E3, and E4.

9.4.6 Decision guidelines

Melbourne Water sought changes to the Decision Guidelines for all three schedules (SBO2, SBO3 and LSIO3) which are outlined in Table 10.

Table 10 Melbourne Water proposed changes to the Decision Guidelines

Melbourne Water proposed changes	Panel response
<i>Guidelines for Development in Flood Affected Areas</i> (the Department of Environment, Land, Water and Planning, 2019).	The Panel does not support reference to this report in the Decision Guidelines. Refer to Chapter 7.
Good Design Guide for Buildings in Flood Affected Areas in Fishermans Bend, Arden and Macaulay (City of Melbourne, Melbourne Water and City of Port Phillip, 2021)	Support deletion. Refer to Chapter 6.3.
<u>The practicality and reliability, over the likely lifetime of a development, of any proposed strategies to minimise or mitigate risks of flood damage or safety hazards.</u>	Support addition.
<u>Whether the development will likely result in persons and property being exposed to unsafe flood depths and velocities.</u>	This decision guideline is not supported by SBO parent control. Support addition to the LSIO schedule.
<u>Whether the proposed development maintains existing flood storage capacity and flow paths.</u>	Support addition.
<u>The likely or modelled extent of any likely or modelled impact development on floodwaters, including the specific and cumulative nature and extent of impact on surrounding properties.</u>	Support addition.
Whether the proposal appropriately responds to the identified site specific flood risk to the satisfaction of the relevant floodplain management authority.	No change.
Whether development achieves good urban design and equitable access.	Support deletion. Refer to Chapter 6.1.
Whether the ground floor design of the building maintains good physical and visual connection between the street and internal ground floor.	Support deletion. Refer to Chapter 6.1.
Whether development activates the street edge and frontage.	Support deletion. Refer to Chapter 6.1.
Whether <u>the</u> development and design response manage the flood risk appropriately.	Support addition.

Melbourne Water proposed changes	Panel response
Whether the materials and finishes are resilient to damage in flood events.	Do not support deletion, decision guideline should be retained.

ESR/Crown sought to add an additional decision guideline to LSIO3 as shown in Table 11:

Table 11 ESR/Crown proposed changes to LSIO3 Decision Guidelines

ESR/Crown proposed changes to LSIO3	Panel response
<u>Whether precinct wide drainage upgrades or flood risk mitigation works or evacuation warning systems can reduce floor levels in commercial and retail spaces.</u>	Support addition.

The Panel concludes:

- A decision guideline should not reference a background document.
- The purposes of the LSIO and SBO in the parent provisions are different and the Decision Guidelines in the schedules should be drafted accordingly.

The Panel's preferred wording of the Decision Guidelines is provided in Appendix E2, E3, and E4.

9.4.7 Transitional Provisions

ESR and Crown sought to add transitional provisions in LSIO3 under a new heading 6.0 Transitional provisions. Evolve and Cedar Woods also submitted the LSIO3 should include transitional provisions.

The LSIO schedule template in Annexure 1 of the Ministerial Direction on the Form and Content of Planning Schemes does not provide for a heading of this nature, nor is it covered in the parent provision.

Ms Peterson and Mr Barnes agreed it was not appropriate to apply transitional provision as part of this Amendment.

Mr Barnes explained that the proposed Amendment is *"not introducing a new development control"* because Melbourne Water adopted the updated flood information on 29 July 2021.

Under the Building Act 1993:

...applications already in the planning system but not yet approved should, to the best of my understanding, already be being assessed against the new modelling. Accordingly, I am satisfied that there is no need to provide transitional provisions for applications lodged but not yet determined.

Ms Peterson was of the view that the *"issues associated with flooding can be distinguished from issues for which transitional provisions are commonly applied, as the risks are more critical and are concerned with risks to life and health, and physical damage to buildings."*

The Panel agrees with Mr Barnes and Ms Peterson.

The Panel concludes:

- It is not appropriate to include transitional provisions in the Amendment.

9.4.8 Background documents

Melbourne Water sought to add a new heading 6.0 Background documents in LSIO3, SBO2 and SBO3. Under this heading the Good Design Guide was proposed to be listed.

The LSIO and SBO schedule templates in Annexure 1 of the Ministerial Direction on the Form and Content of Planning Schemes does not provide for a heading of this nature.

As discussed in Chapter 6.3 of this report, the Good Design Guide is not considered to be a background document as it did not inform the Amendment.

The Panel concludes:

- It is not appropriate to include a new heading in LSIO3, SBO2 and SBO3 to list background documents.

9.4.9 LSIO3, SBO2, SBO3 summary and recommendations

A summary of the Panel's conclusion regarding the drafting of LSIO3, SBO2 and SBO3 is provided in Table 12.

Table 12 Summary of Panel conclusions for LSIO3, SBO2 and SBO3

Overlay heading	Summary of Panel conclusions
Objectives (general)	Delete objectives relating to urban design (refer to Chapter 6.1). Avoid the use of absolute terms such as 'to ensure'. The objectives should be drafted to correspond with the purposes of the LSIO and SBO parent provisions: - Delete reference to 'risk to life and property' from the SBO schedules. ESR and Crown suggestions are not supported.
2.0 Statement of risk	The text as exhibited is appropriate.
3.0 Permit requirements	No additional permit exemptions are appropriate.
4.0 Application requirements	In most cases, the Council response to the Melbourne Water additions is preferred. Refer to Appendix E for details. Delete reference to 'surface level' in favour of 'finished flood level'.
5.0 Decision guidelines	Delete Decision Guidelines relating to urban design (refer to Chapter 6.1). Delete the Good Design Guide and the <i>Guidelines for Development in Flood Affected Areas</i> (refer to Chapters 6.3 and 7). The Decision Guidelines should be drafted to correspond with the purposes of the LSIO and SBO parent provisions: - Delete reference to 'risk to life and property' from the SBO schedules. Melbourne Water and ESR/Crown additions are generally supported. Refer to Appendix E for details.
Transitional provisions (proposed new heading)	Not supported by Annexure 1.
Background documents (proposed new heading)	Not supported by Annexure 1. The Good Design Guide is not considered to be a background document.

The Panel recommends:

Amend Schedule 3 to Clause 44.04 Land Subject to Inundation Overlay in accordance with the panel's preferred version in Appendix E2.

Amend Schedule 2 to Clause 44.05 Special Building Overlay in accordance with the panel's preferred version in Appendix E3.

Amend Schedule 3 to Clause 44.05 Special Building Overlay in accordance with the panel's preferred version in Appendix E4.

Appendix A Planning context

A:1 Planning policy framework

(i) Victorian planning objectives

Section 4 of the PE Act sets out the objectives for planning in Victoria. The objectives relevant to the Amendment are:

- a) to provide for fair, orderly, economic and sustainable use and development of land
- b) to provide for the protection of natural and man-made resources and the maintenance of ecological processes and genetic diversity
- c) to secure a pleasant, efficient and safe working, living, and recreational environment for all Victorians and visitors to Victoria
- d) ...
- e) to protect public utilities and other assets and enable the orderly provision and coordination of public utilities and other facilities for the benefit of the community.
- f) to facilitate development in accordance with the objectives set out in paragraphs (a), (b), (c), and (e)
- g) to balance the present and future interests of all Victorians.

The Amendment implements the following objectives of the planning framework established in section 4 (2) of the PE Act:

- a) ...
- b) ...
- c) to enable land use and development planning and policy to be easily integrated with environmental, social, economic, conservation and resource management policies at State, regional and municipal levels
- d) to ensure that the effects on the environment are considered and provide for explicit consideration of social and economic effects when decisions are made about the use and development of land
- e) to ensure that the effects on the environment are considered and provide for explicit consideration of social and economic effects when decisions are made about the use and development of land
- f) to facilitate development which achieves the objectives of planning in Victoria and planning objectives set up in planning schemes
- g) to encourage the achievement of planning objectives through positive actions by responsible authorities and planning authorities.

(ii) Planning Policy Framework

Below is a summary of the State, regional and local planning policies relevant to the Amendment.

Clause 11 (Settlement)

The relevant sections of Clause 11.02-1S (Supply of urban land) are:

Strategies

Planning for urban growth should consider:

- Opportunities for the consolidation, redevelopment and intensification of existing urban areas.
- Neighbourhood character and landscape considerations.
- The limits of land capability and natural hazards and environmental quality.
- Service limitations and the costs of providing infrastructure.

The relevant sections of Clause 11.03-6L-01 (Arden Precinct) are:

Flooding mitigation objectives

To ensure the individual and combined impacts of sea level rise and flooding from storm events is managed through a combination of precinct wide and property specific management measures and physical infrastructure.

To safely manage the risk of flooding to future development of Arden through innovative and creative flood management solutions in the natural landscape and built environment.

Flood mitigation strategies

Ensure the redevelopment potential of the precinct through the delivery of, and development contributions towards, precinct-wide drainage and flood mitigation infrastructure to address flooding.

Integrate water sensitive urban design into streets and green links including along the Fogarty Street and Queensberry Street urban boulevards and Arden Street.

Ensure development responds to flooding ahead of the delivery of the precinct-wide flood management strategy and associated infrastructure being delivered.

Ensure development manages the risk of flooding through innovative and creative flood management solutions in the natural landscape and built environment.

Flood mitigation policy guidelines

Consider as relevant:

- Whether water sensitive urban design infrastructure is proposed within the street or on site and the associated management of that infrastructure.
- Locating new public streets, laneways or footpaths in flood affected areas outside of the flood area or be raised above the flood level.
- Providing a visual connection between the public realm and vertical, internal and external transitions of development in flood affected areas.
- Providing safe access and egress including for emergency services in flood affected areas.

The relevant sections of Clause 11.03-6L-05 (Fishermans Bend Employment Precinct) are:

Built environment and heritage strategies

...

Ensure that proposals for buildings and works within the precinct have regard to:

- flood mitigation.
- environmental features.
- the retention of native vegetation and other existing vegetation.

...

Integrate any level change required between street level and internal ground floor into the design of the building to maintain good physical and visual connection between the street and internal ground floor.

The relevant sections of Clause 11.03-6L-06 (Fishermans Bend Urban Renewal Area) are:

Achieving a climate adept, water sensitive, low carbon, low waste community objectives

...

To build resilience against the impacts of sea level rise and flooding from storm events without compromising the urban form at the ground level.

Achieving a climate adept, water sensitive, low carbon, low waste community strategies

...

Raise internal ground floor level above street level as a last resort, except where the implementation of other measures coupled with an evidence based approach to risk management reasonably necessitates raising internal floor levels above street level.

Where internal floor levels are raised, maintain a strong physical and visual connection between the street and internal floor levels through building design.

Clause 13 (Environmental Risks and Amenity)

The relevant sections of Clause 13.01-1S (Natural hazards and climate change) are:

Objective

To minimise the impacts of natural hazards and adapt to the impacts of climate change through risk-based planning.

Strategies

Respond to the risks associated with climate change in planning and management decision making processes.

Identify at risk areas using the best available data and climate change science.

Integrate strategic land use planning with emergency management decision making.

Direct population growth and development to low risk locations.

Develop adaptation response strategies for existing settlements in risk areas to accommodate change over time.

Ensure planning controls allow for risk mitigation and climate change adaptation strategies to be implemented.

Site and design development to minimise risk to life, health, property, the natural environment and community infrastructure from natural hazards.

The relevant sections of Clause 13.03-1S (Floodplain management) are:

Objective

To assist the protection of:

- Life, property and community infrastructure from flood hazard, including coastal inundation, riverine and overland flows.
- The natural flood carrying capacity of rivers, streams and floodways.
- The flood storage function of floodplains and waterways.
- Floodplain areas of environmental significance or of importance to river, wetland or coastal health.
-
-
- Strategies

Identify land affected by flooding, including land inundated by the 1 in 100 year flood event (1 per cent Annual Exceedance Probability) or as determined by the floodplain management authority in planning schemes.

Avoid intensifying the impact of flooding through inappropriately located use and development.

Plan for the cumulative impacts of use and development on flood behaviour.

Locate emergency and community facilities (including hospitals, ambulance stations, police stations, fire stations, residential aged care facilities, communication facilities, transport facilities, community shelters, child care centres and schools) outside the 1 in 100 year (1 per cent Annual Exceedance Probability) floodplain and, where possible, at levels above the height of the probable maximum flood.

Locate use and development that involve the storage or disposal of environmentally hazardous industrial and agricultural chemicals or wastes and other dangerous goods (including intensive animal industries and sewage treatment plants) outside floodplains unless site design and management is such that potential contact between such substances and floodwaters is prevented, without affecting the flood carrying and flood storage functions of the floodplain.

Ensure land use on floodplains minimises the risk of waterway contamination occurring during floods and floodplains are able to function as temporary storage to moderate peak flows and minimise downstream impacts.

Clause 15 (Built Environment and Heritage)

The relevant sections of Clause 15.01-1S (Urban design) are:

Objective

To create urban environments that are safe, healthy, functional and enjoyable and that contribute to a sense of place and cultural identity.

Strategies

Require development to respond to its context in terms of character, cultural identity, natural features, surrounding landscape and climate.

Ensure development contributes to community and cultural life by improving the quality of living and working environments, facilitating accessibility and providing for inclusiveness.

Ensure the interface between the private and public realm protects and enhances personal safety.

Ensure development supports public realm amenity and safe access to walking and cycling environments and public transport.

Ensure that the design and location of publicly accessible private spaces, including car parking areas, forecourts and walkways, is of a high standard, creates a safe environment for users and enables easy and efficient use.

Ensure that development provides landscaping that supports the amenity, attractiveness and safety of the public realm.

...

The relevant sections of Clause 15.01-2S (Building design) are:

Objective

To achieve building design and siting outcomes that contribute positively to the local context, enhance the public realm and support environmentally sustainable development.

Strategies

Ensure a comprehensive site analysis forms the starting point of the design process and provides the basis for the consideration of height, scale, massing and energy performance of new development.

Ensure development responds and contributes to the strategic and cultural context of its location.

Minimise the detrimental impact of development on neighbouring properties, the public realm and the natural environment.

...

Ensure the form, scale, and appearance of development enhances the function and amenity of the public realm.

Ensure buildings and their interface with the public realm support personal safety, perceptions of safety and property security.

...

Ensure development provides landscaping that responds to its site context, enhances the built form, creates safe and attractive spaces and supports cooling and greening of urban areas.

The relevant sections of Clause 19.03-3S (Integrated water management) are:

Objective

To sustainably manage water supply and demand, water resources, wastewater, drainage and stormwater through an integrated water management approach.

Strategies

Plan and coordinate integrated water management, bringing together stormwater, wastewater, drainage, water supply, water treatment and re-use, to:

- Take into account the catchment context.
- Protect downstream environments, waterways and bays.
- Manage and use potable water efficiently.
- Reduce pressure on Victoria's drinking water supplies.
- Minimise drainage, water or wastewater infrastructure and operational costs.
- Minimise flood risks.
- Provide urban environments that are more resilient to the effects of climate change.

Integrate water into the landscape to facilitate cooling, local habitat improvements and provision of attractive and enjoyable spaces for community use.

Facilitate use of alternative water sources such as rainwater, stormwater, recycled water and run-off from irrigated farmland.

Ensure that development protects and improves the health of water bodies including creeks, rivers, wetlands, estuaries and bays by:

- Minimising stormwater quality and quantity related impacts.
- Filtering sediment and waste from stormwater prior to discharge from a site.
- Managing industrial and commercial toxicants in an appropriate way.
- Requiring appropriate measures to mitigate litter, sediment and other discharges from construction sites.

Manage stormwater quality and quantity through a mix of on-site measures and developer contributions at a scale that will provide greatest net community benefit.

Provide for sewerage at the time of subdivision or ensure lots created by the subdivision are capable of adequately treating and retaining all domestic wastewater within the boundaries of each lot.

Ensure land is set aside for water management infrastructure at the subdivision design stage.

Minimise the potential impacts of water, sewerage and drainage assets on the environment.

Protect significant water, sewerage and drainage assets from encroaching sensitive and incompatible uses.

Protect areas with potential to recycle water for forestry, agriculture or other uses that can use treated effluent of an appropriate quality.

Ensure that the use and development of land identifies and appropriately responds to potential environmental risks, and contributes to maintaining or improving the environmental quality of water and groundwater.

(iii) Municipal Planning Strategy

The relevant sections of Clause 02.03-1 (Environmental risks and amenity) are:

In planning for climate change, the Council will:

- Encourage development that is resilient to heatwaves, water shortages, extreme storm events and sea level rise.

The relevant sections of Clause 02.03-4 (Built environment and heritage) are:

In managing the built environment, the Council will:

- ...
- Ensure a strong distinction between the built form scale of the Central City with that of surrounding areas.
- Improve public realm permeability, legibility and flexibility.
- Ensure that development in the Capital City, Docklands, Commercial and mixed use zoned areas provide active street frontages and minimise pedestrian disruption from car access.
- Design public and private open spaces to support wellbeing including physical movement, communal exercising, social interaction, quiet enjoyment and connections to the natural environment.

In promoting sustainable development, the Council will:

- ...
- Ensure the built environment resilient to heatwaves, water shortages, extreme storm events and sea level rise.

A:2 Other relevant planning strategies and policies

i) Plan Melbourne

Plan Melbourne 2017-2050 sets out strategic directions to guide Melbourne's development to 2050, to ensure it becomes more sustainable, productive and liveable as its population approaches 8 million. It is accompanied by a separate implementation plan that is regularly updated and refreshed every five years.

Plan Melbourne is structured around seven Outcomes, which set out the aims of the plan. The Outcomes are supported by Directions and Policies, which outline how the Outcomes will be achieved.

Table 13 Relevant parts of Plan Melbourne

Outcome	Directions	Policies
Outcome 4 Melbourne is a distinctive and liveable city with quality design and amenity	Direction 4.3 Achieve and promote design excellence	Policy 4.3.1 Promote urban design excellence in every aspect of the built environment
Outcome 6 Melbourne is a sustainable and resilient city	Direction 6.2 Reduce the likelihood and consequences of natural hazard events and adapt to climate change	Policy 6.2.1 Mitigate exposure to natural hazards and adapt to the impacts of climate change Policy 6.2.2 Require climate change risks to be considered in infrastructure planning
	Direction 6.3 Integrate urban development and water cycle management to support a resilient and liveable city	Policy 6.3.2 Improve alignment between urban water management and planning by adopting an integrated water management approach Policy 6.3.3 Protect water, drainage and sewerage assets

A:3 Planning scheme provisions

The Amendment proposes to apply the Land Subject to Inundation Overlay and the Special Building Overlay.

The purposes of the Land Subject to Inundation Overlay are:

To implement the Municipal Planning Strategy and the Planning Policy Framework.

To identify flood prone land in a riverine or coastal area affected by the 1 in 100 (1 per cent Annual Exceedance Probability) year flood or any other area determined by the floodplain management authority.

To ensure that development maintains the free passage and temporary storage of floodwaters, minimises flood damage, responds to the flood hazard and local drainage conditions and will not cause any significant rise in flood level or flow velocity.

To minimise the potential flood risk to life, health and safety associated with development.

To reflect a declaration under Division 4 of Part 10 of the Water Act, 1989.

To protect water quality and waterways as natural resources by managing urban stormwater, protecting water supply catchment areas, and managing saline discharges to minimise the risks to the environmental quality of water and groundwater.

To ensure that development maintains or improves river, marine, coastal and wetland health, waterway protection and floodplain health.

The purposes of the Special Building Overlay are:

To implement the Municipal Planning Strategy and the Planning Policy Framework.

To identify land in urban areas liable to inundation by overland flows from the urban drainage system as determined by, or in consultation with, the floodplain management authority.

To ensure that development maintains the free passage and temporary storage of floodwaters, minimises flood damage, is compatible with the flood hazard and local drainage conditions and will not cause any significant rise in flood level or flow velocity.

To protect water quality and waterways as natural resources by managing urban stormwater, protecting water supply catchment areas, and managing saline discharges to minimise the risks to the environmental quality of water and groundwater.

A:4 Ministerial Directions and Practice Notes

Ministerial Directions

The Explanatory Report discusses how the Amendment meets the relevant requirements of Ministerial Direction on the Form and Content of Planning Schemes, Ministerial Direction 9 (Metropolitan Planning Strategy), Ministerial Direction 11 (Strategic Assessment of Amendments). That discussion is not repeated here.

An assessment against the Ministerial Direction on the Form and Content of Planning Schemes is provided in Chapter 9 of this report.

Planning Practice Notes

Planning Practice Note 12: Applying the Flood Provisions in Planning Schemes (PPN12) provides guidance about applying the flood provisions in planning schemes including the preparation of policy, identifying land affected by flooding, preparing a local floodplain development plan and the application and operation of the flood provisions, including the preparation of schedules. Council submitted the Amendment was guided by PPN12 in the identification and mapping of flooding extents and in the selection and preparation of suitable flood provisions.

Appendix B Submitters to the Amendment

No.	Submitter	No.	Submitter
1	Ben Stokes	24	Citywide Service Solutions Pty Ltd
2	Samantha Bartlett	25	RSA Holdings Pty Ltd
3	Chunxia Xiang	26	Parkville Association
4	Narelle Haralambous	27	Michael Rus
5	Heather McPhee and Bruce Strange	28	Ella Davies and Marissa Black
6	Christina Cregan and Jaynie Anderson	29	Neil Gabriel
7	Lee Hee Mong	30	ARA Australia
8	Lee Queenie	31	Robin Vowels
9	Evolve Development / Evolve No.22 Pty Ltd	32	Robin Vowels
10	Withdrawn	33	Tony Apostolou
11	Lee Choon Siau	34	Claric Ninety Nine Pty Ltd
12	Michael Beaconsfield	35	BA Glen Investments Pty Ltd
13	Urban Development Institute of Australia	36	Assemble Communities Pty Ltd
14	Mirvac	37	Property Council Australia
15	Yarra Park City Pty Ltd	38	Ian Billington
16	Victorian Planning Association	39	Beg Developments Pty Ltd
17	Julie McLennan	40	Assemble x HCA HA Ltd
18	Keat Lee	41	Annette and John Marsh
19	Anette Sloan and Sean McMahon	42	Richard Knowles
20	Susan Chan	43	Beulah
21	Nick Batzakis	44	Cedar Woods
22	Rockford Constant Velocity Pty Ltd	45	Crown Resorts
23	Rob Hagan		

Appendix C Parties to the Panel Hearing

Submitter	Represented by
Melbourne City Council	Ian Munt instructed by Anne-Maree Drakos of City of Melbourne, who called expert evidence on: - hydrologic/hydraulic modelling from Luke Cunningham of Rain Consulting - planning from David Barnes of Hansen Partnership - urban design from Alastair Campbell of Hansen Partnership
Melbourne Water Corporation	Marita Foley SC and Nicola Collingwood instructed by Allens who called expert evidence on: - planning from Colleen Patterson of Ratio Consultants - hydrologic engineering from Warwick Bishop of Water Technology
ESR Real Estate (Australia) Pty Ltd (previously ARA Australia)	Tiphonie Acreman instructed by Hall and Wilcox who called expert evidence on: - architecture/urban design from Nicky Drobis of Fender Katsalidis - hydrology from Robert Swan of Hydrology and Risk Consulting
Crown Resorts	Tiphonie Acreman instructed by Hall and Wilcox
Rockford Constant Velocity Pty Ltd	Simon Molesworth KC and Mathew Townsend instructed by HWL Ebsworth Lawyers who called expert evidence on: - drainage and hydrology from Peter Coombes of Urban Water Cycle Solutions - drainage and hydrology from Christopher Beardshaw of Afflux Consulting
RSA Holdings Pty Ltd	Simon Molesworth KC instructed by HWL Ebsworth Lawyers who called expert evidence on: - drainage and hydrology from Peter Coombes of Urban Water Cycle Solutions - drainage and hydrology from Christopher Beardshaw of Afflux Consulting
Evolve Development / Evolve No.22 Pty Ltd	Sarah Thomas of The Urban Planning Collective
Cedar Woods Properties Limited	Sarah Thomas of The Urban Planning Collective
Property Council of Australia	Lisa Julian
The Parkville Association	Robert Moore
Keat Lee	Ai Ling Lee
Julie McLennan	Did not appear. Filed further written submission.

Annette Sloan

Did not appear. Filed further written submission.

Appendix D Document list

No.	Date	Description	Provided by
1	12 Aug 22	Directions Hearing notification	Planning Panels Victoria (PPV)
2	24 Aug 22	Amendment C384melb Inundation Overlays - Submissions Map - August 2022 v3	City of Melbourne (Council)
3	26 Aug 22	Email from Submitters 17 and 19 to Panel – Request to be heard on five matters (communication, legal risk, modelling, underinvestment, precincts)	Ms Sloan, Ms McLennan and Mr Jorgensen
4	29 Aug 22	Email from Council to Panel – Providing late submission (s44) and withdrawal of submission (s10)	Council
5	29 Aug 22	Late submission to Melbourne C384melb - 151 Sturt Street Southbank (submission 44)	Council
6	30 Aug 22	Amendment C384melb Inundation Overlays - Submissions Map - updated 30 August 2022	Council
7	31 Aug 22	Directions Hearing submissions on Amendment C384 North Melbourne Inundation Overlays	Ms Sloan and Ms McLennan
8	5 Sep 22	Email from Council to Panel - Providing background strategic documents	Council
9	5 Sep 22	Health and wellbeing action plan 2021	Council
10	5 Sep 22	Asset plan 2021-31, City of Melbourne	Council
11	5 Sep 22	Built Environment Climate Change Adaptation Action Plan 2022-2026	Council
12	5 Sep 22	Climate change adaptation strategy refresh 2017	Council
13	5 Sep 22	Climate change mitigation strategy 2050 (2018)	Council
14	5 Sep 22	Docklands Waterways Strategic Plan (2009-2018)	Council
15	5 Sep 22	Elizabeth Street Catchment Integrated Water Cycle Management Plan	Council
16	5 Sep 22	Guidelines for Development in Flood affected areas	Council
17	5 Sep 22	Local Government Roles and Responsibilities for Adaptation under Victorian Legislation Guidance Brief (2020)	Council
18	5 Sep 22	Maribyrnong waterfront a way forward (2020)	Council
19	5 Sep 22	Melbourne Flood Management Plan (2018)	Council
20	5 Sep 22	Moonee Ponds Creek Strategic Opportunities-Plan (2019)	Council
21	5 Sep 22	Municipal integrated water management plan 2017	Council
22	5 Sep 22	Planning Practice Note 12 (PPN12) – Applying the Flood Provisions in Planning Schemes – June 2015	Council

No.	Date	Description	Provided by
23	5 Sep 22	Review of the 2010 2011 flood warnings and response	Council
24	5 Sep 22	a. Yarra River Birrarung Strategy (2019) - Part 1 b. Yarra River Birrarung Strategy (2019) - Part 2	Council
25	6 Sep 22	Melbourne C384melb - Directions, Distribution List and Hearing Timetable (version 1)	PPV
26	9 Sep 22	Letter from Claric Ninety Nine Pty Ltd to Panel - update on regarding participation in Amendment C384	Claric Ninety Nine
27	9 Sep 22	Email from Melbourne Water to Panel - confirmation of expert witness details (Direction 9)	Melbourne Water
28	9 Sep 22	Email from ARA Australia to Panel - confirmation of expert witness details (Direction 9) and Timetable change	ARA Australia
29	9 Sep 22	Email from Council to Panel - confirmation of expert witness details (Direction 9)	Council
30	9 Sep 22	Letter from Rockford Constant Velocity and RSA Holdings - confirmation of expert witness details (Direction 9)	Rockford Constant Velocity and RSA Holdings
31	12 Sep 22	Email from PPV to parties - Changes sought to Hearing Timetable	PPV
32	12 Sep 22	Email from ARA Australia to Panel - confirmation of planning expert witness details (Direction 9)	ESR
33	13 Sep 22	Email from ARA Australia to Panel - Requested changes to Hearing Timetable	ARA Australia
34	14 Sep 22	Melbourne C384melb - Hearing Timetable (version 2)	PPV
35	15 Sep 22	Email from Keat Lee to Panel – site visit nominations and images (Direction 10)	Ms Lee for Keat Lee
36	15 Sep 22	Email from Council to Panel – site visit nominations (Direction 10)	Council
37	15 Sep 22	Email from Melbourne Water to Panel – site visit nominations (Direction 10)	Melbourne Water
38	15 Sep 22	Email from ARA Australia to Panel – site visit nominations (Direction 10)	ARA Australia
39	15 Sep 22	Email from Rockford Constant Velocity and RSA Holdings to Panel – site visit nominations (Direction 10)	Rockford Constant Velocity and RSA Holdings
40	21 Sep 22	Letter from Council to Panel – update on OneDrive, Documents and administrative error Good Design Guide	Council

No.	Date	Description	Provided by
41	29 Sep 22	Letter from Rockford Constant Velocity and RSA Holdings - confirmation of extra expert witness details (Direction 9)	Rockford Constant Velocity and RSA Holdings
42	3 Oct 22	Expert Witness Report of Colleen Peterson - Planning	Melbourne Water
43	3 Oct 22	Expert Witness Report of Warwick Bishop - Hydrology	Melbourne Water
44	3 Oct 22	Email from Council to Panel - Providing expert evidence (Direction 13) and Rain Consulting Reports	Council
45	3 Oct 22	Expert Witness Report of David Barnes - Planning	Council
46	3 Oct 22	Expert Witness Report of Alastair Campbell - Urban Design	Council
47	3 Oct 22	Expert Witness Report of Luke Cunningham - Hydrology and Hydraulics	Council
48	3 Oct 22	Rain Consulting flood reports – Detailed technical report: a. submission 10 b. submission 12 c. submission 18 d. submission 23 e. submission 31	Council
49	3 Oct 22	Rain Consulting flood reports - Simple technical report: a. submission 5 b. submission 6 c. submission 20 d. submission 33	Council
50	3 Oct 22	Rain Consulting flood reports – Standard Flood report: a. submission 2 b. submission 11 c. submission 17 d. submission 19 e. submission 21 f. submission 27 g. submission 28 h. submission 38 i. submission 40 j. submission 41 k. submission 42	Council
51	4 Oct 22	Email from PPV to Parties - Delivery of Part A Submission	PPV
52	4 Oct 22	a. Part A submissions with Attachments 1 and 2 b. Attachment 3a - Melbourne Waters Panel version of LSIO Schedule 3	Council

No.	Date	Description	Provided by
		c. Attachment 3b - Melbourne Waters Panel version of LSIO Schedule 2	
		d. Attachment 3c - Melbourne Waters Panel version of SBO Schedule 3	
		e. Attachment 3d - Melbourne Waters Panel version of SBO Schedule 2	
53	5 Oct 22	Letter from Rockford Constant Velocity and RSA Holdings - Request for expert conclave in hydrology issues	Rockford Constant Velocity and RSA Holdings
54	5 Oct 22	Email from ESR Real Estate (Australia) Pty Ltd (ESR) to Panel – Support for expert conclave in hydrology issues	ESR Real Estate (Australia) Pty Ltd (ESR) (previously ARA Australia)
55	5 Oct 22	Melbourne C384melb - Meeting of expert witnesses in respect of hydrology issues	PPV
56	5 Oct 22	Letter from Planning & Property Partners to Panel - Submitters 35 36 39 and 40 no longer wish to participate in Panel process	Assemble Communities Pty Ltd, BEG Developments Pty Ltd, BA Glen Investments Pty Ltd and Assemble x HCA HA Ltd
57	6 Oct 22	Email from ESR Real Estate (Australia) Pty Ltd to Panel – Providing expert evidence (Direction 14)	ESR
58	6 Oct 22	Expert Witness Report of Robert Swan - Hydrology Flooding - 5 10 22	ESR
59	6 Oct 22	Expert Witness Report of Nicky Drobis - Architecture Urban design	ESR
60	6 Oct 22	Expert Witness Report of Peter Coombes - hydrology - 3 10 22	Rockford Constant Velocity and RSA Holdings
61	7 Oct 22	Expert Witness Report of Chris Beardshaw - hydrology - 6 10 22	Rockford Constant Velocity and RSA Holdings
62	7 Oct 22	Email from Council to Panel – update on meeting of hydrology experts	Council
63	10 Oct 22	Melbourne C384melb - Hearing Timetable (version 3)	PPV
64	10 Oct 22	Letter from Melbourne Water to Panel – provision of hydraulic models	Melbourne Water
65	11 Oct 22	Email from Council to Panel – Providing late submission Crown Resorts Ltd (s45)	Council

No.	Date	Description	Provided by
66	11 Oct 22	Late submission to Melbourne C384melb – Crown Resorts Ltd (submission 45)	Council
67	11 Oct 22	Amendment C384melb Inundation Overlays - Submissions Map - updated 11 October 2022	Council
68	11 Oct 22	Part B submission (Direction 16)	Council
69	11 Oct 22	Email from Melbourne Water to Panel – requesting extension to provide Part B submission	Melbourne Water
70	11 Oct 22	Email from PPV to Parties – Panels response to Melbourne Water request for extension to provide Part B	PPV
71	12 Oct 22	Melbourne C384melb - Hearing Timetable (version 4)	PPV
72	12 Oct 22	Melbourne Water - Part B submission (Direction 16)	Melbourne Water
73	13 Oct 22	Arden Precinct – Arden Structure Plan – July 2022 – Approved and Gazetted	Melbourne Water
74	13 Oct 22	Arden Precinct – Arden Precinct Flood Management Policy – June 2022 – Approved and Gazetted	Melbourne Water
75	13 Oct 22	Victorian Floodplain Management Strategy (DELWP 2016)	Melbourne Water
76	13 Oct 22	Marine and Coastal Policy (DELWP 2020)	Melbourne Water
77	13 Oct 22	Marine and Coastal Strategy May 2022	Melbourne Water
78	13 Oct 22	Planning for sea level rise guidelines (MW 2017)	Melbourne Water
79	13 Oct 22	Building Regulations 2018 - rr 153 and 154	Melbourne Water
80	13 Oct 22	C407 - Standing Advisory Committee - Referral Report 2 May 2022	Melbourne Water
81	13 Oct 22	A Practitioner's Guide to Victorian Planning Schemes V 1.5	Melbourne Water
82	13 Oct 22	Flood-Management-Strategy – PPW Action Plan 2021-26	Melbourne Water
83	14 Oct 22	Amendment C384 - Expert Conclave Joint Report on Hydrology	Council
84	14 Oct 22	Email from Council to Panel – Luke Cunningham map illustrating proposed Schedule 3 to the SBO3 locations	Council
85	14 Oct 22	Council - Rain Consulting Amendment C384 - Proposed - SBO3 locations map	Council
86	17 Oct 22	Comparison between objectives as tabled by Mr Barnes at Day 1 Hearing	Council
87	18 Oct 22	Moorabool PSA C91moor Panel Report (30 July 2021)	Melbourne Water
88	18 Oct 22	5LSIO Map of the Melbourne Planning Scheme as at March 1999	Melbourne Water

No.	Date	Description	Provided by
89	18 Oct 22	Email from Council to Panel – providing Ministerial authorisation	Council
90	18 Oct 22	Amendment C384 - DELWP email to Council advising satisfaction with conditions of Ministerial authorisation	Council
91	19 Oct 22	Email from Sloan McLennan Jorgensen to Panel – provision of submission	Ms Sloan
92	19 Oct 22	Hearing Submission	Ms Sloan
93	21 Oct 22	Hearing Submission	ESR
94	21 Oct 22	Attachment 01. Submission to Council re Amendment C384 - 29 November 2021	ESR
95	21 Oct 22	a. Attachment 02(a). C390melb Explanatory Report b. Attachment 02(b). C390melb Inc Doc Southgate Redevelopment Project, 3 Southgate Avenue, Southbank (September 20) c. Attachment 02(c). C390melb Reasons for Intervention	ESR
96	21 Oct 22	Attachment 03. C384melb LSIO3 - joint markup ESR and Crown Panel Version - 21 October 2022	ESR
97	21 Oct 22	Attachment 04. Plan of Subdivision 328901G	ESR
98	21 Oct 22	Attachment 05. Melbourne Water advice - 14 August 2020	ESR
99	21 Oct 22	a. Attachment 06(a). Master Planning & Urban Context Report b. Attachment 06(b). Massing and Development Envelope Plans	ESR
100	21 Oct 22	Attachment 07. Email from Melbourne Water regarding applicable flood levels - 7 December 2021	ESR
101	21 Oct 22	Hearing Presentation - Nicky Drobis - Architecture Urban	ESR
102	21 Oct 22	Email from Crown Resorts Ltd (Crown) to Panel – Provision of submissions and annexures	Crown Resorts
103	21 Oct 22	Hearing Submission	Crown Resorts
104	21 Oct 22	Attachment - Melbourne Water Flood Level Certificate - 2-68 Whiteman Street, Southbank - 29 September 2021	Crown Resorts
105	21 Oct 22	Email from Melbourne Water to Panel – Request to provide submissions and hydrology memorandum to Mr Bishop	Melbourne Water
106	22 Oct 22	Email from ESR and Crown to Panel – Response to Melbourne Water request	ESR and Crown Resorts

No.	Date	Description	Provided by
107	24 Oct 22	Email from PPV to Parties – Panels response to Melbourne Water request seeking leave to provide documents to Mr Bishop	PPV
108	24 Oct 22	Hearing Presentation - Peter Coombes - hydrology	Rockford Constant Velocity and RSA Holdings
109	24 Oct 22	Hearing Presentation - Chris Beardshaw - hydrology	“
110	24 Oct 22	Hearing Submission	“
111	25 Oct 22	Hearing submission	Evolve Development / Evolve No.22 Pty Ltd and Cedar Woods
112	27 Oct 22	Hearing Presentation (revised)	Ms Lee for Keat Lee
113	26 Oct 22	Melbourne C384melb - Hearing Timetable (version 5)	Panel
114	26 Oct 22	Email from Council to Panel – Map and table of existing DDOs and proposed LSIO3, SBO2 and SBO3 and DOT memo	Council
115	26 Oct 22	Map of DDOs with mandatory Controls and Proposed LSIO3, SBO2 and SBO3	Council
116	26 Oct 22	Table of DDOs with mandatory controls and proposed LSIO3, SBO2 and SBO3	Council
117	26 Oct 22	Department of Transport memo regarding Arden PAOs	Council
118	27 Oct 22	Melbourne Water - Part C Submissions	Melbourne Water
119	27 Oct 22	Melbourne Water - Part C - Further amendments to exhibited controls - LSIO3	Melbourne Water
120	27 Oct 22	Melbourne Water - Part C - Further amendments to exhibited controls - SBO2	Melbourne Water
121	27 Oct 22	Melbourne Water - Part C - Further amendments to exhibited controls - SBO3	Melbourne Water
122	28 Oct 22	Melbourne Water - Response to Panel Questions	Melbourne Water
123	28 Oct 22	Council - Part C Submission on behalf of the Planning Authority	Council
124	28 Oct 22	Attachment 1 - Council Part C - Summary table of Council position on proposed Amendment C384 inundation controls	Council
125	28 Oct 22	Attachment 2 - Council Part C - Preferred Version of C384melb Schedule 3 to clause 44.04 (LSIO)	Council

No.	Date	Description	Provided by
126	28 Oct 22	Attachment 3 - Council Part C - Preferred Version of C384melb Schedule 2 to clause 44.04 (LSIO)	Council
127	28 Oct 22	Attachment 4 - Council Part C - Preferred Version of C384melb Schedule 2 to clause 44.05 (SBO)	Council
128	28 Oct 22	Attachment 5 - Council Part C - Preferred Version of C384melb Schedule 3 to clause 44.05 (SBO)	Council

Appendix E Panel preferred versions

E:1 LSIO2 (Flemington Racecourse)

SCHEDULE 2 TO CLAUSE 44.04 LAND SUBJECT TO INUNDATION OVERLAY

Shown on the planning scheme map as LSIO2.

FLEMINGTON RACECOURSE

1.0 Land subject to inundation objectives to be achieved

None specified.

2.0 Statement of risk

None specified.

3.0 Permit requirement

A permit is not required to construct or carry out any of the following buildings and works on land subject to Schedule 1 to the Special Use Zone (Flemington Racecourse):

- A non-habitable building or an extension of a non-habitable building
- A building for the purpose of an office, where floor levels are at least 500mm above natural surface levels
- A building for the purpose of exhibitions
- A building for the purpose of place of assembly
- A building for the purpose of betting agency
- A building for the purpose of spectators
- An open style building with no walls
- Upper storey extensions or alterations to existing building
- Racing and equine related buildings such as horse stables and yards, swimming pools, sand rolls, TV tote screens, steward towers, tack stores and maintenance workshops and amenities for staff
- Racing and training tracks including trotting and exercise tracks
- An open style fence
- Replacement fences with the same or similar materials as the existing fence
- Advertising signs or posts attached to buildings
- Earth works and landscaping, where no fill is imported to the site and where no flood storage is reduced
- Process equipment and plant
- Footpaths and bicycle paths Road
- Car park
- Public toilets
- Pergola
- Marquee

4.0 Application requirements

The following application requirements apply to an application for a permit under Clause 44.04, in addition to those specified in Clause 44.04 and elsewhere in the scheme and must accompany an application, as appropriate, to the satisfaction of the responsible authority:

- The boundaries and dimensions of the site.
- Relevant existing ground levels on and surrounding the site, to Australian Height Datum, taken by or under the direction or supervision of a licensed land surveyor.
- The layout of all existing and proposed buildings and works.
- The existing Finished Floor levels of any existing buildings to Australian Height Datum, taken by or under the direction or supervision of a licensed land surveyor.
- The proposed Finished Floor Level and Nominal ~~ted~~ Flood Protection Level (NFPL) of any proposed buildings, to Australian Height Datum, taken by or under the direction or supervision of a licensed land surveyor.

The written approval of the floodplain management authority which must:

- Be granted not more than three months prior to lodging with the responsible authority.
- Quote the reference number of the plans which are the subject of the floodplain management authority's approval being consented.
- State the applicable Flood Level and the approved Finished Floor Levels that meet the Nominal ~~ted~~ Flood Protection Level.
- Must confirm ~~that~~ whether the proposal is in accordance with an adopted local floodplain development plan.
- ~~State that~~ Confirm whether the proposal ~~complies~~ is consistent with the Guidelines for Development in Flood Affected Areas (the Department of Environment, Land, Water and Planning, 2019).

5.0 Decision guidelines

None specified.

E:2 LSIO3 (Moonee Ponds Creek and Lower Yarra River Waterways)

SCHEDULE 3 TO CLAUSE 44.04 LAND SUBJECT TO INUNDATION OVERLAY

Shown on the planning scheme map as **LSIO3**.

MOONEE PONDS CREEK AND LOWER YARRA RIVER WATERWAYS

1.0 Land subject to inundation objectives to be achieved

To identify land in areas that may be inundated by the combined effects of the 1% Annual Exceedance Probability (AEP) flood event incorporating an 18.5% increase in rainfall intensity due to climate change by the year 2100.

~~To protect life, property, public health, assets and the environment from flood hazard.~~

To minimise the impact of new development on flood extent, depth and the flow velocity to the detriment of surrounding properties.

~~To assess whether new development prioritises~~ prioritise the protection of human life, including emergency services personnel.

To ensure new development appropriately responds to ~~is suitably designed to be compatible with the identified flood hazard and~~ local drainage characteristics. ~~and identified flood hazard.~~

~~To ensure development simultaneously achieves safe access and egress, good urban design and equitable access.~~

2.0 Statement of risk

The City of Melbourne includes the lower reaches of the Yarra River and Moonee Ponds Creek. Riverine flooding is caused when runoff from major storms exceeds the channel capacity of a river or creek and overflows onto the surrounding floodplain. While riverine flooding is generally associated with a longer rate of rise and in some instances warning times, flood events may have a longer duration and therefore a longer period of exposure to flood hazard. Flooding may have the potential to result in significant risk to:

- Human life and safety
- Property
- Public infrastructure and assets
- Public health through contaminated floodwaters
- The environment
- Economic and social cohesion of communities

To minimise the impact of such events, it is important buildings are sensitively and appropriately designed to minimise flood damage and protect life, property, assets and the environment. The mapping which forms the basis of the Land Subject to Inundation Overlay identifies areas that would be subject to inundation by the combined effects of the 1% Annual Exceedance Probability (AEP) flood event incorporating an 18.5% increase in rainfall intensity due to climate change by the year 2100. For Moonee Ponds Creek and the Lower Yarra River a boundary condition inclusive of a starting water surface level of a 10% Annual Exceedance Probability (AEP) tidal level plus a 0.8 metre sea level rise in 2100 has been included in the modelling. This information is contained in the background documents listed in the Schedule to Clause 72.08 which is the source of mapping for this overlay

3.0 Permit requirements

A permit is not required to construct a building or carry out works for:

- An elevated boardwalk provided that the boardwalk is constructed above the applicable levels set by the relevant floodplain management authority.
- Earthworks that do not change the rate of flow or the discharge point of water across a property boundary.
- A sign on a single support pole, or structure that is at least 50 per cent permeable up to the applicable flood level.
- Bollards, bus and tram shelters.

See 44.04-2 for relevant provisions.

4.0 Application requirements

The following application requirements apply to an application for a permit under Clause 44.04, in addition to those specified in Clause 44.04 and elsewhere in the scheme and must accompany an application, as appropriate, to the satisfaction of the responsible authority:

- An existing conditions survey plans ~~taken by or under the direction and supervision of as prepared by a~~ licensed land surveyor showing boundaries and dimensions of the site, and the layout and location of existing buildings and works, with natural ground level, ~~the current Flood Level, and the natural ground, and~~ existing finished floor ~~and surface~~ levels to Australian Height Datum (AHD).
- A site development plan which includes:
 - The layout and location of proposed buildings and works including building entry/exit points and basement ramp/s;
 - Existing survey levels to AHD;
 - The proposed finished floor levels including in relation to building entry/exit points and basement ramps to AHD;
 - The 1% Annual Exceedance Probability (AEP) flood level and the Nominal Flood Protection Level (NFPL) as determined by the relevant floodplain management authority;
 - The location of proposed overland flow paths.
- ~~Proposed, plans,~~ Elevations and cross-section drawings (1:50 or 1:20) to include:
 - The proposed finished floor levels to AHD;
 - The proposed building entry/exit points, basement ramps and ground levels along access and egress routes within the property boundary to AHD;
 - Flow paths for the passage of overland flows to AHD;
 - The 1% Annual Exceedance Probability (AEP) flood level showing the proposed ground and finished floor level and the Nominal ~~ted~~ Flood Protection Level (NFPL) as determined by the relevant floodplain management authority of all new structures on the land.
- A written Flood Risk and Design Statement that must include but not be limited to:
 - A flood assessment of the site which includes reference to the Design Flood Event (1% AEP) and other flood characteristics, including velocities and depths of flooding on the site and access routes, overland flood paths and the duration of flooding;
 - A written description of the design response which demonstrates how the proposed development responds to the flood characteristics which affect the site and surrounds.
 - ~~A comprehensive description of the proposed plans, elevations and drawings stating the design of the lower levels of the building including entries, shop front design, the current Flood Level, the proposed Finished Floor Level(s) and Nominated Flood Protection Level (NFPL) as nominated by the relevant floodplain management authority, flood proofing and use of flood resistant materials, flood storage, stairs,~~

~~ramps and access/egress points and possible refuge spaces within the development (if applicable).~~

- ~~• A description of proposed actions, flood mitigation strategies or measures required, if any, to the siting and design of the buildings or works, or in association with the use and occupation of all aspects of the proposal in order to reduce the risk to individuals, property, infrastructure and the environment. These actions may include the consideration of adaptation options such as planned retreat, setbacks, accommodation of changes through floor heights, site and land forming and proposed drainage works.~~

See 44.04-4 for relevant provisions

5.0 Decision guidelines

The following decision guidelines apply to an application for a permit under Clause 44.04, in addition to those specified in Clause 44.04 and elsewhere in the scheme which must be considered, as appropriate, by the responsible authority:

- ~~• Guidelines for Development in Flood Affected Areas (the Department of Environment, Land, Water and Planning, 2019).~~
- ~~• Good Design Guide for Buildings in Flood Affected Areas in Fishermans Bend, Arden and Macaulay (City of Melbourne, Melbourne Water and City of Port Phillip, 2021)~~
- The practicality and reliability, over the likely lifetime of a development, of any proposed strategies to minimise or mitigate risks of flood damage or safety hazards.
- Whether the development will likely result in persons being exposed to unsafe flood depths and velocities.
- Whether the proposed development maintains existing flood storage capacity and flow paths.
- The likely or modelled extent of any likely or modelled impact development on floodwaters, including the specific and cumulative nature and extent of impact on surrounding properties.
- Whether the proposal appropriately responds to the identified site specific flood risk to the satisfaction of the relevant floodplain management authority.
- ~~• Whether development achieves good urban design and equitable access.~~
- ~~• Whether the ground floor design of the building maintains good physical and visual connection between the street and internal ground floor.~~
- ~~• Whether development activates the street edge and frontage.~~
- Whether the development and design response manage the flood risk appropriately.
- Whether the materials and finishes are resilient to damage in flood events.
- Whether precinct wide drainage upgrades or flood risk mitigation works or evacuation warning systems can reduce floor levels in commercial and retail spaces.

See 44.04-8 for relevant provisions.

E:3 SBO2 (Melbourne Water Main Drains)

SCHEDULE 2 TO CLAUSE 44.05 SPECIAL BUILDING OVERLAY

Shown on the planning scheme map as **SBO2**.

MELBOURNE WATER MAIN DRAINS – ELIZABETH STREET, ARDEN, MACAULAY, ~~AND~~ MOONEE PONDS CREEK, FISHERMANS BEND AND SOUTHBANK CATCHMENTS

1.0 Flooding management objectives to be achieved

To identify land in areas that may be inundated by the combined effects of the 1% Annual Exceedance Probability (AEP) flood event incorporating an 18.5% increase in rainfall intensity due to climate change by the year 2100.

~~To protect life, property, public health, assets and the environment from flood hazard.~~

To minimise the impact of new development on flood extent, depth and the flow velocity to the detriment of surrounding properties.

To ensure new development appropriately responds to ~~is suitably designed to be compatible with the identified flood hazard and~~ local drainage characteristics. ~~and identified flood hazard.~~

~~To ensure development simultaneously achieves safe access and egress, good urban design and equitable access.~~

2.0 Statement of risk

Areas across the municipality are susceptible to overland flows when runoff from severe storm events exceeds the capacity of the underground drainage system. Overland flows can be localised or widespread depending on the path or extent of the storm activity. Flooding may have the potential to result in significant risk to:

- Human life and safety
- Property
- Public infrastructure and assets
- Public health through contaminated floodwaters
- The environment
- Economic and social cohesion of communities

To minimise the impact of such events, it is important buildings are sensitively and appropriately designed to minimise flood damage and protect life, property, assets and the environment. The mapping which forms the basis of the Special Building Overlay identifies areas that may be subject to overland flows by the combined effects of the 1% Annual Exceedance Probability (AEP) flood event incorporating an 18.5% increase in rainfall intensity due to climate change by the year 2100. This information is contained in the background documents listed in the Schedule to Clause 72.08 which is the source of mapping for this overlay.

3.0 Permit requirements

A permit is not required to construct a building or carry out works for:

- An elevated boardwalk provided that the boardwalk is constructed above the applicable levels set by the relevant floodplain management authority.
- Earthworks that do not change the rate of flow or the discharge point of water across a property boundary.
- A sign on a single support pole, or structure that is at least 50 per cent permeable up to the applicable flood level.

- Bollards, bus and tram shelters.

See 44.04-2 for relevant provisions.

4.0 Application requirements

The following application requirements apply to an application for a permit under Clause 44.04, in addition to those specified in Clause 44.04 and elsewhere in the scheme and must accompany an application, as appropriate, to the satisfaction of the responsible authority:

- An existing conditions survey plans ~~taken by or under the direction and supervision of as prepared by a~~ licensed land surveyor showing boundaries and dimensions of the site, and the layout and location of existing buildings and works, with natural ground level, ~~the current Flood Level, and the natural ground, and~~ existing finished floor ~~and surface~~ levels to Australian Height Datum (AHD).
- A site development plan which includes:
 - The layout and location of proposed buildings and works including building entry/exit points and basement ramp/s;
 - Existing survey levels to AHD;
 - The proposed finished floor levels including in relation to building entry/exit points and basement ramps to AHD;
 - The 1% Annual Exceedance Probability (AEP) flood level and the Nominal Flood Protection Level (NFPL) as determined by the relevant floodplain management authority;
 - The location of proposed overland flow paths.
- ~~Proposed plans,~~ Elevations and cross-section drawings (1:50 or 1:20) to include:
 - The proposed finished floor levels to AHD;
 - The proposed building entry/exit points, basement ramps and ground levels along access and egress routes within the property boundary to AHD;
 - Flow paths for the passage of overland flows to AHD;
 - The 1% Annual Exceedance Probability (AEP) flood level showing the proposed ground and finished floor level and the Nominal ~~ted~~ Flood Protection Level (NFPL) as determined by the relevant floodplain management authority ~~of all new structures on the land.~~
- A written Flood Risk and Design Statement that must include but not be limited to:
 - A flood assessment of the site which includes reference to the Design Flood Event (1% AEP) and other flood characteristics, including velocities and depths of flooding on the site and access routes, overland flood paths and the duration of flooding;
 - A written description of the design response which demonstrates how the proposed development responds to the flood characteristics which affect the site and surrounds.
 - ~~A comprehensive description of the proposed plans, elevations and drawings stating the design of the lower levels of the building including entries, shop front design, the current Flood Level, the proposed Finished Floor Level(s) and Nominated Flood Protection Level (NFPL) as nominated by the relevant floodplain management authority, flood proofing and use of flood resistant materials, flood storage, stairs, ramps and access/egress points and possible refuge spaces within the development (if applicable).~~
 - ~~A description of proposed actions, flood mitigation strategies or measures required, if any, to the siting and design of the buildings or works, or in association with the use and occupation of all aspects of the proposal in order to reduce the risk to individuals, property, infrastructure and the environment. These actions may include the consideration of adaptation options such as planned retreat, setbacks,~~

~~accommodation of changes through floor heights, site and land forming and proposed drainage works.~~

See 44.04-4 for relevant provisions

5.0 Decision guidelines

The following decision guidelines apply to an application for a permit under Clause 44.04, in addition to those specified in Clause 44.04 and elsewhere in the scheme which must be considered, as appropriate, by the responsible authority:

- ~~▪ Guidelines for Development in Flood Affected Areas (the Department of Environment, Land, Water and Planning, 2019).~~
- ~~▪ Good Design Guide for Buildings in Flood Affected Areas in Fishermans Bend, Arden and Macaulay (City of Melbourne, Melbourne Water and City of Port Phillip, 2021)~~
- The practicality and reliability, over the likely lifetime of a development, of any proposed strategies to minimise or mitigate risks of flood damage or safety hazards.
- Whether the proposed development maintains existing flood storage capacity and flow paths.
- The likely or modelled extent of any likely or modelled impact development on floodwaters, including the specific and cumulative nature and extent of impact on surrounding properties.
- Whether the proposal appropriately responds to the identified site specific flood risk to the satisfaction of the relevant floodplain management authority.
- ~~▪ Whether development achieves good urban design and equitable access.~~
- ~~▪ Whether the ground floor design of the building maintains good physical and visual connection between the street and internal ground floor.~~
- ~~▪ Whether development activates the street edge and frontage.~~
- Whether the development and design response manage the flood risk appropriately.
- Whether the materials and finishes are resilient to damage in flood events.

See 44.04-8 for relevant provisions.

E:4 SBO3 (Council Drains)

SCHEDULE 3 TO CLAUSE 44.05 SPECIAL BUILDING OVERLAY

Shown on the planning scheme map as **SBO3**.

COUNCIL DRAINS – ELIZABETH STREET, ARDEN, MACAULAY AND MOONEE PONDS CREEK, HOBSONS ROAD, FISHERMANS BEND AND SOUTHBANK CATCHMENTS

1.0 Flooding management objectives to be achieved

To identify land in areas that may be inundated by the combined effects of the 1% Annual Exceedance Probability (AEP) flood event incorporating an 18.5% increase in rainfall intensity due to climate change by the year 2100.

~~To protect life, property, public health, assets and the environment from flood hazard.~~

To minimise the impact of new development on flood extent, depth and the flow velocity to the detriment of surrounding properties.

To ensure new development appropriately responds to ~~is suitably designed to be compatible with the identified flood hazard and~~ local drainage characteristics. ~~and identified flood hazard.~~

~~To ensure development simultaneously achieves safe access and egress, good urban design and equitable access.~~

2.0 Statement of risk

Areas across the municipality are susceptible to overland flows when runoff from severe storm events exceeds the capacity of the underground drainage system. Overland flows can be localised or widespread depending on the path or extent of the storm activity. Flooding may have the potential to result in significant risk to:

- Human life and safety
- Property
- Public infrastructure and assets
- Public health through contaminated floodwaters
- The environment
- Economic and social cohesion of communities

To minimise the impact of such events, it is important buildings are sensitively and appropriately designed to minimise flood damage and protect life, property, assets and the environment. The mapping which forms the basis of the Special Building Overlay identifies areas that may be subject to overland flows by the combined effects of the 1% Annual Exceedance Probability (AEP) flood event incorporating an 18.5% increase in rainfall intensity due to climate change by the year 2100. This information is contained in the background documents listed in the Schedule to Clause 72.08 which is the source of mapping for this overlay.

3.0 Permit requirements

A permit is not required to construct a building or carry out works for:

- An elevated boardwalk provided that the boardwalk is constructed above the applicable levels set by the relevant floodplain management authority.
- Earthworks that do not change the rate of flow or the discharge point of water across a property boundary.
- A sign on a single support pole, or structure that is at least 50 per cent permeable up to the applicable flood level.

- Bollards, bus and tram shelters.

See 44.04-2 for relevant provisions.

4.0 Application requirements

The following application requirements apply to an application for a permit under Clause 44.04, in addition to those specified in Clause 44.04 and elsewhere in the scheme and must accompany an application, as appropriate, to the satisfaction of the responsible authority:

- An existing conditions survey plans ~~taken by or under the direction and supervision of as prepared by a~~ licensed land surveyor showing boundaries and dimensions of the site, and the layout and location of existing buildings and works, with natural ground level, ~~the current Flood Level, and the natural ground, and~~ existing finished floor ~~and surface~~ levels to Australian Height Datum (AHD).
- A site development plan which includes:
 - The layout and location of proposed buildings and works including building entry/exit points and basement ramp/s;
 - Existing survey levels to AHD;
 - The proposed finished floor levels including in relation to building entry/exit points and basement ramps to AHD;
 - The 1% Annual Exceedance Probability (AEP) flood level and the Nominal Flood Protection Level (NFPL) as determined by the relevant floodplain management authority;
 - The location of proposed overland flow paths.
- ~~Proposed plans,~~ Elevations and cross-section drawings (1:50 or 1:20) to include:
 - The proposed finished floor levels to AHD;
 - The proposed building entry/exit points, basement ramps and ground levels along access and egress routes within the property boundary to AHD;
 - Flow paths for the passage of overland flows to AHD;
 - The 1% Annual Exceedance Probability (AEP) flood level showing the proposed ground and finished floor level and the Nominal ~~ted~~ Flood Protection Level (NFPL) as determined by the relevant floodplain management authority ~~of all new structures on the land.~~
- A written Flood Risk and Design Statement that must include but not be limited to:
 - A flood assessment of the site which includes reference to the Design Flood Event (1% AEP) and other flood characteristics, including velocities and depths of flooding on the site and access routes, overland flood paths and the duration of flooding;
 - A written description of the design response which demonstrates how the proposed development responds to the flood characteristics which affect the site and surrounds.
 - ~~A comprehensive description of the proposed plans, elevations and drawings stating the design of the lower levels of the building including entries, shop front design, the current Flood Level, the proposed Finished Floor Level(s) and Nominated Flood Protection Level (NFPL) as nominated by the relevant floodplain management authority, flood proofing and use of flood resistant materials, flood storage, stairs, ramps and access/egress points and possible refuge spaces within the development (if applicable).~~
 - ~~A description of proposed actions, flood mitigation strategies or measures required, if any, to the siting and design of the buildings or works, or in association with the use and occupation of all aspects of the proposal in order to reduce the risk to individuals, property, infrastructure and the environment. These actions may include the consideration of adaptation options such as planned retreat, setbacks,~~

~~accommodation of changes through floor heights, site and land forming and proposed drainage works.~~

See 44.04-4 for relevant provisions

5.0 Decision guidelines

The following decision guidelines apply to an application for a permit under Clause 44.04, in addition to those specified in Clause 44.04 and elsewhere in the scheme which must be considered, as appropriate, by the responsible authority:

- ~~▪ Guidelines for Development in Flood Affected Areas (the Department of Environment, Land, Water and Planning, 2019).~~
- ~~▪ Good Design Guide for Buildings in Flood Affected Areas in Fishermans Bend, Arden and Macaulay (City of Melbourne, Melbourne Water and City of Port Phillip, 2021)~~
- The practicality and reliability, over the likely lifetime of a development, of any proposed strategies to minimise or mitigate risks of flood damage or safety hazards.
- Whether the proposed development maintains existing flood storage capacity and flow paths.
- The likely or modelled extent of any likely or modelled impact development on floodwaters, including the specific and cumulative nature and extent of impact on surrounding properties.
- Whether the proposal appropriately responds to the identified site specific flood risk to the satisfaction of the relevant floodplain management authority.
- ~~▪ Whether development achieves good urban design and equitable access.~~
- ~~▪ Whether the ground floor design of the building maintains good physical and visual connection between the street and internal ground floor.~~
- ~~▪ Whether development activates the street edge and frontage.~~
- Whether the development and design response manage the flood risk appropriately.
- Whether the materials and finishes are resilient to damage in flood events.

See 44.04-8 for relevant provisions.