



19 August 2022

Reference: 2213

Amendment C69 to the Moyne Planning Scheme

Statement of Expert Evidence

Flooding Evidence for Rivers Run Estate, 169A Princes Highway
and 183 Princes Highway, Port Fairy

Prepared for Mr Michael Hearn of Rivers Run Estate Pty Ltd

Prepared by Nina Barich

1 Witness Details

1.1 Name and Address

Nina Barich
Principal Engineer
Incitus Pty Ltd
187 Mary Street, Richmond, VIC 3121

1.2 Qualifications and Experience

Qualifications

- APESMA / LaTrobe University - Masters of Business Administration (Technology Management)
- Royal Melbourne Institute of Technology - Bachelor of Engineering (Civil) Honours 1st Class
- FIEAust CPEng NER APEC Engineer IntPE (Aus)
- Registered Professional Engineer Victoria (RPEV)

Experience

I have 20 years' experience working in engineering related projects, focusing specifically on surface water (i.e. stormwater) quantity and quality management, including flood management and development in flood prone land. I have extensive experience in the development industry in relation to surface water management having worked for both the private and public sectors.

My related experience:

- I have 20 years' experience in strategic planning and design of stormwater management systems for greenfield and brownfield developments, including stormwater management systems to reclaim land for development which is subject to flooding.
- I regularly undertake stormwater strategy to determine the intent of how the development will manage the excess stormwater runoff generated from the urbanisation of the land, including development in flood prone land.
- I regularly undertake designs of stormwater assets, including waterways, constructed wetland systems, bioretention systems, retarding basins and stormwater pipelines.
- I formerly worked as development program leader at Melbourne Water, obtaining intimate knowledge of Melbourne Water's requirements relating to land subject to inundation.
- In 2006 I achieved Chartered Professional Engineer status with Engineers Australia recognising skills and experience with respect to stormwater management.
- I have provided input to numerous industry guidelines and standards relating to drainage, including for Melbourne Water and the Victorian Planning Authority (formerly Growth Areas Authority)

- My expert advice has been sought by the private sector and the public sector
- I have a sound understanding of the role of government agencies in stormwater planning and management, including flood management.
- I have attended and presented at various industry conferences and seminars.
- I have lectured Civil and Environmental Engineering students at Royal Melbourne Institute of Technology in the subject of Stormwater Management and did so for 12 years.

Therefore, my experience and expertise in stormwater management associated with civil engineering and development projects, including in flood prone land, qualifies me to make this report.

1.3 Declaration

I have made all the inquiries that I believe are desirable and appropriate and no matters of significance which I regard as relevant have to my knowledge been withheld from the Panel.

2 Instructions

This statement has been prepared on the instruction of Maddocks on behalf of Mr Michael Hearn of Rivers Run Estate Pty Ltd. I was instructed to:

- Review the documents in your brief and to provide us with an opinion in conference as to whether or not you support our client's position that the flood risk at the site can be adequately managed by the application of the LSIO, rather than the FO.
- Prepare a written statement of evidence and appear on behalf of our Client at the expert conclave and panel hearing for Amendment C69.
- Have regard to a decision of DP Gibson in *Greater Shepparton City Council v Goulburn Broken Catchment Management Authority* [2016] VCAT 2181 on the basis that, if the Floodway Overlay is applied to land, then a proposed subdivision of that land which creates additional lots within the Floodway Overlay extent will be prohibited notwithstanding anything to the contrary in the local floodplain development plan.
- Review and consider the Expert Witness Statement of Rob Swan of HARC in preparing a written statement of evidence.

3 Information and Documentation

In preparing this evidence, Nina Barich has had regard to:

Index to Brief:

- All documents listed in my brief, which is attached in the Annexure of this statement.

Additional Information:

- G7 – Guide to Expert Evidence February 2020
- Maddocks, 3 August 2022, Brief to Expert
- Maddocks, Email dated 16 August 2022, Amendment C69 – Rob Swan’s evidence
- Maddocks, Email dated 17 August 2022, Amendment C69 – Further Information
- Greater Shepparton CC v Goulburn Broken Catchment Management Authority [2016] VCAT 2181
- Ball J, Babister M, Nathan R, Weeks W, Weinmann E, Retallick M, Testoni I, (Editors), 2019, Australian Rainfall and Runoff: A Guide to Flood Estimation, Commonwealth of Australia
- Department of Environment Land Water and Planning, February 2019, Guidelines for Development in Flood Affected Areas
- Department of Environment Land Water and Planning, March 2020, Marine and Coastal Policy
- Department of Environment Land Water and Planning, 2016, Victorian Floodplain Management Strategy
- Department of Sustainability and Environment, June 2012, Guidelines for Coastal Catchment Management Authorities: Assessing Development in Relation to Sea Level Rise
- HARC, 11 August 2021, Flood Summary Report 2021
- Cardno, 18 August 2019, Translation of Port Fairy Coastal Hazard Assessment
- Water Technology, October 2008, Port Fairy Regional Flood Study
- Water Modelling Solutions, 26/06/2020, Port Fairy Hydraulic Model (SOBEK) Review Memorandum
- Streamology, February 2022, Tide Gauge Trigger Levels for Sea Level Rise Adaptation Pathways
- J. R. Hunter, 4 May 2014, Derivation of Revised Victorian Sea-Level Planning Allowances Using the Projections of the Fifth Assessment Report of the IPCC
- Agriculture and Resource Management Council of Australia and New Zealand. Standing Committee on Agriculture and Resource Management, 2000, Floodplain Management in Australia: Best Practice Principles and Guidelines (SCARM report 73)
- NSW Office of Environment and Heritage (OEH) (2015), Floodplain Risk Management Guide - Modelling the Interaction of Catchment Flooding and Oceanic Inundation in Coastal Waterways

- Planning Panels Victoria, 3 May 2016, Moyne Planning Scheme Amendment C60 Port Fairy West Structure Plan
- CSIRO and Bureau of Meteorology, Climate Change in Australia website (<http://www.climatechangeinaustralia.gov.au/>), cited 17 August 2022
- Australian Disaster Resilience Guideline 7-3: Technical flood risk management guideline: Flood hazard, 2014, Australian Institute for Disaster Resilience
- Fox-Kemper, B., H. T. Hewitt, C. Xiao, et al, 2021, Ocean, Cryosphere and Sea Level Change. In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change.
- Garner, G. G., R. E. Kopp, et al, 2021. Framework for Assessing Changes To Sea-level (FACTS). Geoscientific Model Development.
- Garner, G. G., T. Hermans, et al, 2021. IPCC AR6 Sea-Level Rise Projections. Version 20210809. PO.DAAC, CA, USA. Dataset accessed 2022-08-17 at <https://podaac.jpl.nasa.gov/announcements/2021-08-09-Sea-level-projections-from-the-IPCC-6th-Assessment-Report>.
- Aerial photography
- Contour data for the land

4 Existing Planning Overlays Relating to Flooding

The land at 169A Princes Highway and 183 Princes Highway, Port Fairy, the “site”, is approximately 7 ha in size and is located approximately 1.5 km north-west of the Port Fairy town centre.

The site is located on the eastern side of the Princes Highway with a frontage of 27m along the western boundary and 11m on the northern corner. The site has a largely flat topography with a fall of approximately 2.39 m from the north to the south-eastern corner. It is presently vacant and has predominantly been used for agricultural purposes.

The site is predominately located within a Farm Zone (FZ) with two smaller parcels located in the General Residential Zone, and is partially subject to various overlays including a Land Subject to Inundation Overlay (LSIO) relating to flooding.

The site and its associated overlays including the existing LSIO is illustrated in **Figure 4.1**.

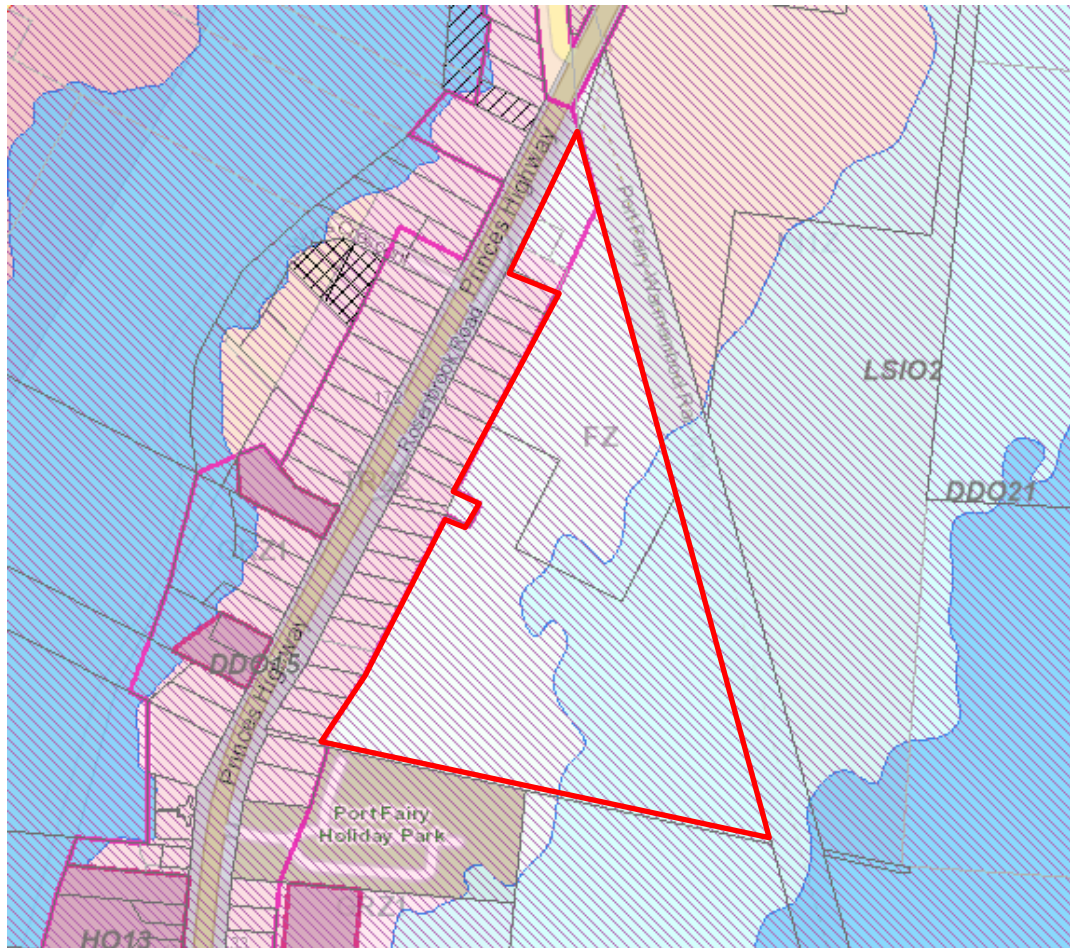


Figure 4.1 The Site Existing Overlays

5 Proposed C69 Amendment

Amendment C69 to the Moyne Planning Scheme proposes to amend Clause 21.06 to reflect a 1.2 metre sea level rise (SLR) benchmark as proposed in the new Floodway Overlay and Land Subject to Inundation Overlay provisions.

The flood zone and overlays are specifically designed to identify land with particular flood characteristics. The Floodway Overlay (FO) applies to mainstream flooding in both rural and urban areas. They are areas that convey active flood flows or store floodwater. Areas in a FO typically encompass the stream or channel or primary flow path area, and tend to have higher flood depths and / or flow velocities.

The Land Subject to Inundation Overlay (LSIO) also applies to mainstream flooding in both rural and urban areas. In general, areas covered by the LSIO have a lower flood risk than FO areas.

Areas covered by a FO are very restricted in development opportunity. Areas covered by a LSIO have a greater ability to subdivide and construct new dwellings, subject to meeting the requirements of the planning scheme and the requirements outlined in the Development in Flood Affected Areas (DELWP, February 2019), such as not being subjected to flood depths of more than 300 mm.

The flooding provisions incorporated into Amendment C69 of the Moyne Planning Scheme are based on a hazard class system sourced from the Australian Disaster Resilience Guideline 7-3: Technical flood risk management guideline: Flood hazard (Australian Institute for Disaster Resilience, 2014), page 11, that includes the following:

The Land Subject to Inundation is applied to land in Hazard Risk Class 1 and 2 – below 0.5m depth + less than 2.0 velocity

- H1 – generally safe for people, vehicles and buildings
- H2 – unsafe for small vehicles

The Floodway Overlay is applied to land in Hazard Risk Class 3 to 5 – above 0.5m depth + greater than 2.0 velocity

- H3 – unsafe for vehicles, children and the elderly
- H4 – unsafe for people and vehicles
- H5 – unsafe for vehicles and people. All buildings vulnerable to structural damage. Some less robust building types vulnerable to failure.

The hazards for the flood provisions adopted in Amendment C69 to the Moyne Planning Scheme have been based on modelling undertaken as part of the Translation of the Port Fairy Local Coastal Hazard Assessment (PFLCHA) (Cardno, 18 August 2019).

The PFLCHA includes modelling that reflects numerous scenarios including, but not necessarily limited to:

- Present Day (2% Ocean Annual Exceedance Probability (AEP), 10% catchment AEP)
- Present Day (1% Ocean AEP, 10% catchment AEP)
- 2030 (1% Ocean AEP with 0.2 m sea level rise relative to 1990, 10% catchment AEP)

- 2050 (1% Ocean AEP with 0.4 m sea level rise relative to 1990, 10% catchment AEP)
- 2080 (1% Ocean AEP with 0.8 m sea level rise relative to 1990, 5% catchment AEP)
- 2100 (1% Ocean AEP with 1.2 m sea level rise relative to 1990, 5% catchment AEP)

There was no justification provided as to why these scenarios have been modelled, other than it was a directive of the project.

Moyne Planning Scheme Amendment C60 (Panel Report, 3 May 2016)

For the Moyne Planning Scheme Amendment C60, Council chose the benchmark of a 0.8 m sea level rise by 2080 to apply a LSIO.

The benchmark adopted in 2016 for Amendment C60 is starkly different from the Moyne Planning Scheme Amendment C69, where Council is proposing a 1.2 m sea level rise by 2100 for the application of FO and LSIO.

Council had considered the different sea level scenarios of 0.4 m by 2050, 0.8 m by 2080 and 1.2 m by 2100 for Amendment C60. Council chose the benchmark of 0.8 m by 2080 in order to achieve consistency with the State Planning Policy Framework.

Adoption of the 0.8 m sea level rise by 2080 would result in Rivers Run Estate site being subject to Flood Hazards of H1 and H2, resulting in the application of a LSIO to the majority site as opposed to a FO for the majority of the site. **Figure 5.1** illustrates the Flood Hazard mapping (extract from Cardno, 18 August 2019) for the 0.8 m sea level rise by 2080, with the 5% AEP Catchment Flood Event and the 1% AEP Coastal Inundation Event. The extract of the flood hazard maps has been selected from the Cardno report as the flood hazard maps are not included in the Flood Summary Report 2021 (HARC, 11 August 2021), only the flood depth maps are included. It is the flood hazard that determines the overlay appropriate for the flooding.

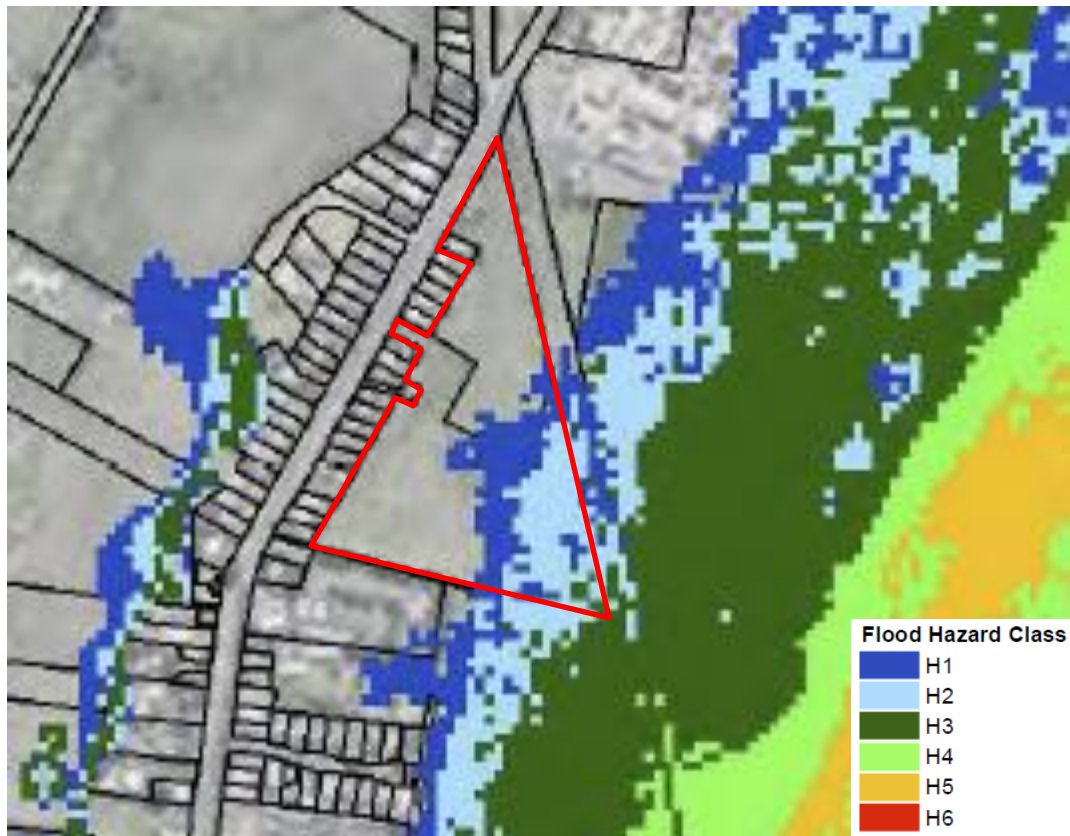


Figure 5.1 Rivers Run Estate Flood Hazard for the 5% AEP Catchment Flood Event with the 1% AEP Coastal Inundation Event and 0.8 m Sea Level Rise by 2080

In contrast to Figure 5.1, Figure 5.2 illustrates the proposed Flood Hazards for the Rivers Run Estate site with the adoption of a 1.2 m sea level rise by 2100, with the 5% AEP Catchment Flood Event and the 1% AEP Coastal Inundation Event. (extract from Cardno, 18 August 2019)

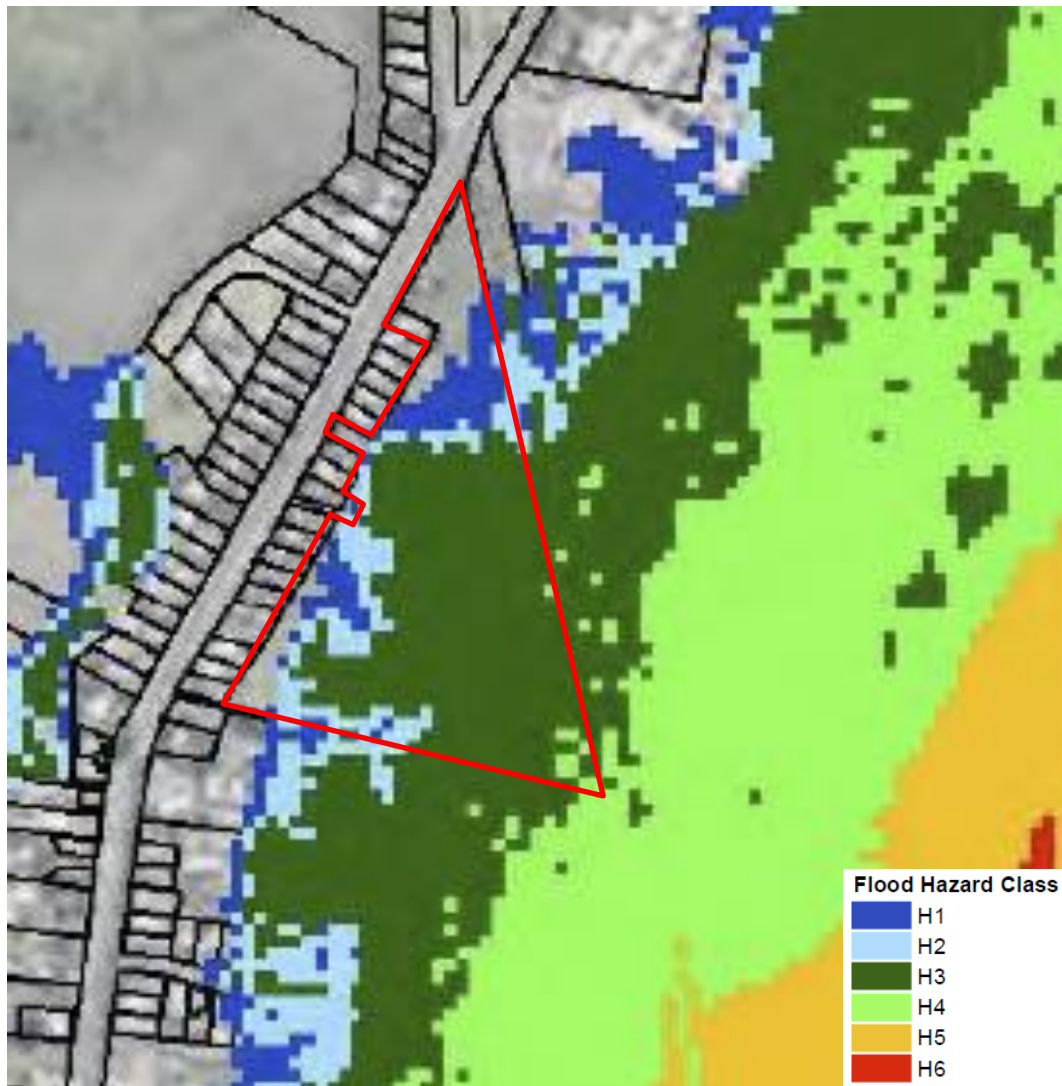


Figure 5.2 Rivers Run Estate Flood Hazard for the 5% AEP Catchment Flood Event with the 1% AEP Coastal Inundation Event and 1.2 m Sea Level Rise by 2100

6 Appropriate Application of Sea Level Rise for Development

6.1 Policies, Provisions and Guidelines

Coastal Climate Change Advisory Committee

The Coastal Climate Change Advisory Committee Final Report (December 2010) states on page 11:

Sea level rise projections by the Intergovernmental Panel on Climate Change (IPCC) suggest sea level rise in the range of 0.18m – 0.59m by the end of the century. This was interpreted into policy by the previous Victorian Government (through the Victorian Coastal Strategy) to mean that planning should consider a 0.8m sea level rise by 2100 (0.59m plus an allowance for ice cap melt).

On page 23 of the same document, the Committee:

- *agreed that there should be a nationally consistent sea level rise benchmark*

The Coastal Climate Change Advisory Committee Final Report (December 2010) continuously refers to the overall requirement of planning for at least 0.8 metres of sea level rise by 2100

Victorian Planning Provisions (VC210 04/05/2022)

The Victorian Planning Provisions Clause 13.01-2S Coastal Inundation and Erosion incorporates the strategy to plan for sea level rise of not less than 0.8 metres by 2100 and allow for the combined effects of tides, storm surges, coastal processes and local conditions such as topography and geology when assessing risks and coastal impacts associated with climate change.

Marine and Coastal Policy (March 2020)

The Victorian Government's Marine and Coastal Policy (March 2020) includes Policy 6.1: *Plan for sea level rise of not less than 0.8 metres by 2100, and allow for the combined effects of tides, storm surges, flooding, coastal processes and local conditions such as topography and geology, when assessing risks and coastal impacts associated with climate change.*⁴

With the footnote 4 associated with the policy stating:

The impacts of climate change, including sea level rise, will be affected by global emissions trajectories and mitigation efforts. Sea level rise is not globally uniform and regional differences within $\pm 30\%$ of the global average can result from several factors. The 'not less than 0.8m' figure is used as the statewide planning benchmark to provide a consistent policy setting across the State. It will be updated as necessary and supported by modelling that places global projections into the Victorian context to provide greater accuracy for regional and local-level adaptation.

Based on this, it is reasonable to assume that it is the intent of the Victorian Government to ensure there is a consistent and state wide approach to the adoption of a 0.8 m sea level rise.

The Victorian Government's Marine and Coastal Policy (March 2020) includes Policy 6.8: *Marine and coastal adaptation planning should:*

e) be compatible with climate change mitigation efforts

The adoption of a sea level rise of 1.2 m does not appear conducive to this clause of being compatible with climate change mitigation efforts. At present, based on the Climate Change in Australia government website, a sea level rise of 0.61 m (0.39 m – 0.84 m) for Portland is based on the current emission levels with no additional climate change policy.

As the Australian Government and many other countries are committed to climate change policies, it would not seem reasonable that a 1.2 m sea level rise is compatible with climate change mitigation levels, particularly given that it is higher than the predicted sea level rise under the current emissions with no additional climate change policy.

Victorian Floodplain Management Strategy (2016)

The Victorian Floodplain Management Strategy includes Policy 5e, which states:

- Planning scheme controls must be applied to all priority coastal areas, identified through Regional Floodplain Management Strategies, expected to be at risk of inundation by the 1% AEP flood level, taking into account a rise in mean sea level of at least 0.8 metres.
- Statutory planning decisions for planning permits triggered by the relevant planning scheme controls:
 - *must be based on the risk of inundation taking into account a rise in mean sea level of at least 0.8 metres for subdivisions outside existing town boundaries and for all development accommodating emergency and community facilities*
 - *may be based on the current 1% AEP flood level for all other development inside town boundaries and for development on existing lots outside town boundaries*
 - *should include an additional 0.2 metres on top of the normal freeboard applied for decisions based on the current 1% AEP flood level.*

The Victorian Floodplain Management Strategy sets the direction for floodplain management in Victoria. The direction is to adopt a 0.8 m sea level rise for planning scheme controls.

Guidelines for Coastal Catchment Management Authorities: Assessing Development in Relation to Sea Level Rise (June 2012)

The Guidelines for Coastal Catchment Management Authorities: Assessing Development in Relation to Sea Level Rise (June 2012) objective is to set out Clause 13.01 of the State Planning Policy Framework in the planning scheme. The guidelines require government agencies:

Plan for sea level rise of not less than 0.8 metres by 2100, and allow for the combined effects of tides, storm surges, coastal processes and local conditions such as topography and geology when assessing risks and coastal impacts associated with climate change.

They also state:

tight restrictions on development at this point in time may impact on the viability and vitality of coastal communities, which may not be affected by sea level rise for some time

And:

tight restrictions on development at this point in time may impact on the viability and vitality of coastal communities, which may not be affected by sea level rise for some time

In relation to greenfield developments, the Guidelines for Coastal Catchment Management Authorities: Assessing Development in Relation to Sea Level Rise (June 2012) state:

if the intention is to transform land used for a rural purpose to an urban purpose, the proposal should be assessed against the current 1% AEP flood level plus 0.8 m

All documentation in the Guidelines for Coastal Catchment Management Authorities: Assessing Development in Relation to Sea Level Rise (June 2012) require a 0.8 m sea level rise for assessing development applications in coastal areas.

6.2 Scientific Predictions

Climate Change Australia

The CSIRO and Bureau of Meteorology have released the latest set of climate predictions for Australia. The results from the research are available to source on the Climate Change Australia website, including projection tools for sea level rise.

Based on the Representative Concentration Pathway (RCP) 8.5, the median sea level rise for Portland is 0.61 m by 2090, and the 90th percentile sea level rise for Portland by 2090 is 0.84 m. RCP8.5 is a global emission scenario based on business as usual, where emissions continue to rise throughout the 21st century, with fast population growth, a low rate of technological development and high energy use. This is scenario was defined in the Intergovernmental Panel on Climate Change (IPCC) in assessments up to and including the 5th Assessment (IPCC, 2014). Until recently, this was considered to be the worst case scenario that could be used for climate change planning and is thought to be very unlikely to occur.

IPCC Sixth Assessment Report Sea Level Rise Predictions

The predications from the latest IPCC report, the 6th Assessment Report, are available on the [Sea level projections from the IPCC 6th Assessment Report \(AR6\) | PO.DAAC / JPL / NASA](#) website. The 6th Assessment Report has redefined the RCPs to be Shared Socioeconomic Pathway (SSP) scenarios. SSP5-8.5 is a high reference scenario with no additional climate policy. Emission levels as high as SSP5-8.5 are not obtained by Integrated Assessment Models (IAMs) under any of the SSPs other than the fossil fuelled SSP5 socioeconomic development pathway.

The current SSP5-8.5 sea level rise for Portland based on the ICPP 6th Assessment Report has a median value of 0.72 m for 2100. The 95% percentile for the SSP5-8.5 at Portland is 1.2 m for 2100.

It is worth noting that the SSP5-8.5 is a pathway based on no changes to emissions and no additional climate change policy adopted by any governments, therefore it is a very conservative estimate. The 95th percentile for the SSP5-8.5 predicts the 1.2 m level sea rise in 2100, which is an extreme abnormality. Therefore, it is very unlikely that this scenario will actually occur.

6.3 Flood Information Reports

The sea level rise proposed for the Amendment C69 for the Moyne Planning Scheme is documented in the reports used to inform the likely extents and impacts of flooding. These reports include:

- Flood Summary Report 2021 (HARC, 11 August 2021)
- Translation of the Port Fairy Coastal Hazard Vulnerability Assessment (Cardno, 2019)
- Port Fairy Coastal Hazard Vulnerability Assessment (Water Research Laboratory of UNSW, 2013)
- Port Fairy Regional Flood Study (Water Technology, 2008)

All of the reports used to inform the likely extents and impacts of flooding for Amendment C69 have modelled the impacts of a 1.2 m sea level rise by 2100, amongst others. It is believed that the instruction to model a scenario of a 1.2 m sea level rise by 2100 was a direction from Council. It is worth noting that all the reports also modelled a 0.8 m level sea rise, however the year it reached that level varied between 2080 and 2100.

The Water Technology report modelled the 1.2 m sea level rise as a “high” scenario for 2100, meaning a high flood level scenario.

Table 5.1 in the Water Research Laboratory work defined a 0.8 m sea level rise as “about as likely as unlikely” and a 1.2 m sea level rise as “unlikely”. Despite the Port Fairy Coastal Hazard Vulnerability Report documenting the 1.2 m sea level rise as unlikely, this level was continued to use in the Translation of the Port Fairy Coastal Hazard Vulnerability Assessment.

The HARC Flood Summary Report 2021 recommends to adopt the 1.2m sea level rise case adopting an envelope of the maximum flood extent from the 1% River and 5% Ocean AEP events and the 5% River and 1% Ocean AEP events as the planning flood extent defined by the LSIO, noting it is consistent with the approach recommended by the NSW OEH guideline for coastal flood risk modelling for the purpose of delineating flood controls in planning schemes. However Port Fairy is located in Victoria, not New South Wales and therefore the same guidelines for planning schemes are not applicable.

It is worth noting that the Guidelines for Developing a Coastal Hazard Assessment (DELWP, August 2017) recommends scenario modelling including a 0.8 m sea level rise with a 1% and 10% AEP catchment flow to a 1% AEP coastal storm and a 1.2 m sea level rise with a 1% and 10% AEP catchment flow to a 1% AEP coastal storm. They do not require the modelling of a 5% AEP catchment flow with a 1% AEP coastal storm for these sea level rises. The Port Fairy Coastal Hazard Vulnerability Assessment has exceeded the requirements of the Guidelines for Developing a Coastal Hazard Assessment (DELWP, August 2017).

The Guidelines for Developing a Coastal Hazard Assessment (DELWP, August 2017) also do not specify the recommended sea level rise to be adopted, merely that an explanatory report is required to outline the rationale for the application of the recommended zones and / or overlays.

7 Riverine Flood Event and Tidal

The Guidelines for Coastal Catchment Management Authorities: Assessing Development in Relation to Sea Level Rise (June 2012) require government agencies to:

Ensure that new development is located and designed to take account of the impacts of climate change on coastal hazards such as the combined effects of storm tides and river flooding.

Victorian estuary floodplain studies have typically adopted the static 10% AEP tidal level as the downstream boundary condition for a 1% AEP riverine flood in the estuary. This approach was consistent with the advice in Floodplain Management in Australia: Best Practice Principles and Guidelines (SCARM, 2000).

The modelling undertaken for the Port Fairy Coastal Hazard Vulnerability Assessment has been based on a 5% AEP tidal level with a 1% AEP riverine flood or a 1% AEP tidal level with a 5% AEP riverine flood. The justification for this is that it is in accordance with the NSW Floodplain Risk Management Guide - Modelling the Interaction of Catchment Flooding and Oceanic Inundation in Coastal Waterways (Office of Environment and Heritage, November 2015).

The site is not located with New South Wales, but in the state of Victoria. The application of the combined effects of storm tides and river flooding in Victoria is typically undertaken in accordance with Floodplain Management in Australia: Best Practice Principles and Guidelines (SCARM, 2000).

The application of the 1% / 5% scenario instead of the 1% / 10% scenario at the two locations stated in the Port Fairy Coastal Hazard Vulnerability Assessment results in an increase in the flood level of between 120 mm and 140 mm.

The Flood Summary Report 2021 (HARC, 11 August 2021) attempts to justify the application of NSW standards by identifying that the 5% AEP rainfall depths equate to a 10% AEP rainfall depth with climate change.

The inclusion of climate change modelling in the rainfall depth is a requirement of the Australian Rainfall and Runoff (2019) (ARR2019). However it is worth noting that the ARR2019 adopts median values for peak flows to be used in the flood modelling, not the 95th percentile peak flows.

Hence it is my opinion that the adoption of a 95th percentile value for sea level rise combined with climate change factored into the rainfall depths (i.e. a 1% / 5% model) is on the extreme level of conservatism for flood modelling.

8 Appropriate Overlays for Flooding on the Site

The site for Rivers Run Estate should not be subjected to the extents of Floodway Overlay as proposed in the Amendment C69 of the Moyne Planning Scheme.

The overlays have been based on the flood mapping relating to an extreme climate change scenario of a 95th percentile 1.2 m sea level rise by 2100, and climate change included in the catchment flooding. This results in the depths of flooding on the site exceeding 500 mm for a significant portion of the site, rendering it subject to a FO instead of an LSIO and subsequently not developable.

The adoption of a more reasonable but still conservative 0.8 m sea level rise reduces the depth of flooding over the site to a level where only a small portion of the site will experience a higher hazard of flooding. This will still result in an LSIO over the majority of the site and will subject the site to appropriate planning controls.

It is important to note that the 1.2 m sea level application has been used to nominate a NFPL and is based on the equivalent of a 0.8 m sea level rise with a 600 mm freeboard. However the application of the NFPL does not equate to the 1% AEP flood level with an appropriate freeboard when considering the impacts of potential future building and development with respect to the controls contained within the planning overlays.

It is my opinion that a flood envelope based on the 0.8 m sea level rise for this site still ensure any future development has safe access in the event of a flood and the justification for the adoption of a 1.2 m sea level rise with respect to safe access is not warranted. This is because the LSIO will still trigger the requirement for any development to comply with the Guidelines for Development in Flood Affected Areas (DELWP, February 2019).

9 Expert Evidence by Mr Robert Swan

I have reviewed the statement of expert evidence prepared by Mr Robert Campbell Swan of HARC. Mr Swan was responsible for the Translation of the Port Fairy Coastal Hazard Vulnerability Assessment whilst employed with Cardno, and subsequently the Flood Summary Report 2021 since his employment with HARC.

Mr Swan's evidence states that the adoption of the 1.2 m sea level rise case was recommended for the LSIO layer with the 1% River and 5% Ocean AEP events and the 5% River and 1% Ocean AEP events. This is in accordance with NSW Floodplain Risk Management Guide - Modelling the Interaction of Catchment Flooding and Oceanic Inundation in Coastal Waterways (Office of Environment and Heritage, November 2015). However Port Fairy isn't in NSW, it's in Victoria. And the guidelines do not provide advice on developing sea level rise projections, merely that the 1% River and 5% Ocean AEP events and 5% River and 1% Ocean AEP events be modelled. This deviates from the Floodplain Management in Australia: Best Practice Principles and Guidelines (SCARM, 2000) typically adopted combination in Victoria of the 1% River and 10% Ocean AEP events and the 10% River and 1% Ocean AEP events.

Mr Swan also states on page 13 of his evidence that *"It is acknowledged that with such a long planning horizon, the adoption of the higher SLR scenario may be too conservative or apply conditions that plan for risks that may begin to occur in 2100 or beyond for buildings or works with a design life that ends before this time period."* And, on the same page, that *"the current assessment indicates that a SLR of 1.2m is unlikely by 2100"* So why adopt the 1.2 m sea level rise that is not applicable for the potential development that will have a lifecycle that ends prior to the likelihood of experiencing such a high sea level rise?

On pages 15 and 16 of Mr Swan's evidence, he compares the adoption of the 1.2 m sea level rise with the 1% / 5% scenario in Port Fairy to Melbourne Water's Nominal Flood Protection Level (NFPL) for the Yarra River Estuary. However Melbourne Water apply a freeboard to the 0.8 m sea level rise, and the extents of flooding used for LSIO's and other planning controls is only based on the extents with sea level rise, reducing the extents of the flooding and hence the planning controls and therefore is not comparable.

Mr Swan states the NFPL for Port Fairy based on his modelling is 3.34 m AHD, and the NFPL for the Yarra River Estuary is 3.38 m AHD. It's important to note that the Yarra River Estuary incorporates a 600 mm freeboard, which is not captured in the flood extents, and therefore the flood extents are smaller than what is currently proposed in the benchmark adopted for Amendment C69 to the Moyne Planning Scheme.

In response to the submissions that the FO and LSIO are too severe on existing and future residents, on page 18 of Mr Swan's evidence he states *"The resolution of the model is such that the effect on properties is assessed at the individual level. The inclusion of overlays means that each site can be compared on its merits at the time of application."* However the inclusion of the overlays prevents properties within the FO from being assessed at an individual level and prevents the sites from being compared on their merits at the time of application.

In response to the submissions that other Councils are not proposing these more severe controls, on page 20 of Mr Swan's evidence he states *"As described above in section 9.1 of my evidence, the adoption of a 0.8m sea level rise provision, with an allowance for*

freeboard, provides an identical practical outcome for the nominal flood protection level.”. Whilst the adoption of a 0.8 m sea level rise with freeboard may result in an identical practical outcome for the NFPL, the 0.8 m sea level rise does not result in the same flooding extents as a 1.2 m sea level rise and therefore has a significant impact on the overlays for flooding in Amendment C69 of the Moyne Planning Scheme.

Mr Swan’s response to the review of the Water Technology Memo on page 22 of his evidence states:

“It is agreed that the typical planning control across Australia is typically no more than a 0.9 sea level rise, once freeboard controls are adopted, the NFPL may well be consistent with the 1.2m sea level rise case.”

Whilst this statement is in typical agreement with the Water Technology Memo, what Mr Swan fails to consider is that the 1.2 m sea level rise case does result in a greater extent of flooding and therefore greater extents of overlays associated with the flooding.

In Mr Swan’s conclusions on page 23 of his evidence, he states *“The nominal flood protection level at Port Fairy adopting the 1.2m SLR case with no freeboard is consistent with a 0.8m sea level rise case plus 600mm freeboard. The adoption of the 1.2m envelope ensures that there are no boundary areas that are exempt from flood controls.”*

All planning applications are referred to the relevant authorities. It is my experience of dealing with development referrals when working for Melbourne Water that a planning application within any proximity to an overlay with flooding must be assessed and meet certain minimum requirements relating to development levels. Therefore I disagree that the 1.2 m envelope is required for the overlays to ensure flood controls are adopted.

Where there is no planning application required, the issue of a freeboard to the 1% AEP flood level is captured at the Building Permit application stage, with the Building Act (1993) requiring a minimum of a 300 mm freeboard for the finished floor levels to the 1% AEP flood level.

10 Summary

It is my opinion that the overlays proposed in Amendment C69 to the Moyne Planning Scheme be modified to reflect a 0.8 m sea level rise, whether this be applied for the year 2080 or 2100.

A 0.8 m sea level rise is consistent with the State Planning Policy Framework and will provide Council with ample control over development in flood prone land. It is reflective of the current scientific research conducted into sea level rise indicating a rise of between 0.4 m and 1.2 m by the year 2100 for the nearby town of Portland, with a median rise of 0.72 m by 2100. These values in sea level rise are based on is a high reference scenario with no additional climate policy, so it is unlikely that we will reach the 1.2 m sea level rise by 2100. Even the Port Fairy Coastal Hazard Vulnerability Assessment reported a 1.2 m sea level rise as unlikely.

The fact that the median sea level rise based on the IPCC research for Portland has lowered from 0.61 m¹ by 2090 to 0.59 m by 2090 from 2014 to 2021, likely based on the uptake of climate change policies and subsequent reduction in emissions and estimated with additional data for individual tide gauge locations, is a good indication that a 1.2 m sea level rise is highly unlikely to ever be experienced in Port Fairy.

The adoption of a 0.8 m sea level rise will enable a greater level of future development in the flood prone land in the township of Port Fairy through the reduction of a flood overlay and an increase in the land subject to inundation overlay.

It is my opinion that the adoption of a 0.8 m sea level rise, together with the adoption of a 20% AEP catchment flood, to account for a 10% AEP catchment flood with climate change, and a 1% AEP tidal inundation will provide sufficient controls over development whilst minimising the risk to the community in a flood event.

Glenelg Hopkins CMA claim that the 600 mm freeboard to developments is likely to be reached around 2068 based on sea level rise. This has been extracted from the Tide Gauge Trigger Levels for Sea Level Rise Adaptation Pathways report (Streamology, February 2022), and is based on the 95th percentile sea level rise based on business as usual and no additional climate change policy. This has been used to justify the 1.2 m sea level flood envelope proposed in Amendment C69 of the Moyne Planning Scheme. However, it is important to note that this is an extremely conservative estimation of when the likely sea level rise of 0.8 m will be achieved.

The report even suggests that potential risks associated with the loss of ice sheets should also be considered when planning for future change when the IPCC state the loss of ice sheet scenario has low confidence and is the most extreme possibility.

It should be pointed out that the 95th percentile sea level rise for Portland in 2100 based on a more realistic scenario of the adoption of the trajectory for the upper end of aggregate

¹ Sourced from CSIRO and Bureau of Meteorology, Climate Change in Australia website (<http://www.climatechangeinaustralia.gov.au/>), cited 17 August 2022 and based on IPCC 5th Assessment Report

Nationally Determined Contribution emission levels by 2030 is 0.95 m, and the 95th percentile sea level rise for the same scenario in 2080 is 0.67 m.

The Australian Rainfall and Runoff does not require the adoption of the 95th percentile in stormwater and flood computations. It recommends the adoption of the median value. Additional confidence is then built in through the adoption of factors of safety, blockage factors or freeboard levels.

Based on the SSP5-8.5 trajectories, the adoption of an 0.8 m sea level rise is the same as the 95th percentile estimation for 2080 or the median estimation for 2100. This level should provide all authorities with sufficient confidence that the region will not need to undertake further revision of the planning scheme in the next 50 years.

The adoption of a 0.8 m sea level rise over a 1.2 m sea level rise has a significant impact on the hazard of flooding which is reflected in the relevant overlays. The communities will not realise these sea level rises for 60 – 80 years, and therefore should not be penalised by the adoption of flood hazards which may not occur.

The adoption of a 1.2 m sea level for a NFPL does not correlate to a 0.8 m sea level rise with a 600 mm freeboard for a NFPL in terms of development. The 1.2 m sea level rise will prohibit development based on the planning overlays proposed. A 0.8 m sea level rise with a freeboard will enable future development that can still be considered as safe. It is also worth noting that the NFPL is an indication of when climate adaption pathways should be considered, and does not need to correlate to the flood envelope. It is also important to note that the Building Act (1993) requires a 300 mm minimum freeboard for the finished floor levels from the 1% AEP flood level. This will be based on the flood envelope levels adopted, and therefore provides an additional level of safety for flood protection.

It is my opinion that the land subject to inundation overlay will still provide Council and Glenelg Hopkins Catchment Management Authority (CMA) with sufficient control over the development of the site for Rivers Run Estate. With an LSIO, the site will still need to comply with the Planning Provisions, the CMA requirements and ensure the any works on site meets the requirements of the Guidelines for Development in Flood Affected Areas (DELWP, February 2019).

It is my opinion that a 0.8 m sea level rise should be adopted to set the flood extents and hazards for Amendment C69 to the Moyne Planning Scheme for consistency with Amendment C60 to the Moyne Planning Scheme. It is my opinion that this will provide the referral authorities with a conservative flood protection for future development.

Annexures

AMENDMENT C69 TO THE MOYNE PLANNING SCHEME
IN PLANNING PANELS VICTORIA

MOYNE SHIRE COUNCIL

Planning Authority

MEMORANDUM TO EXPERT WITNESS – FLOODING

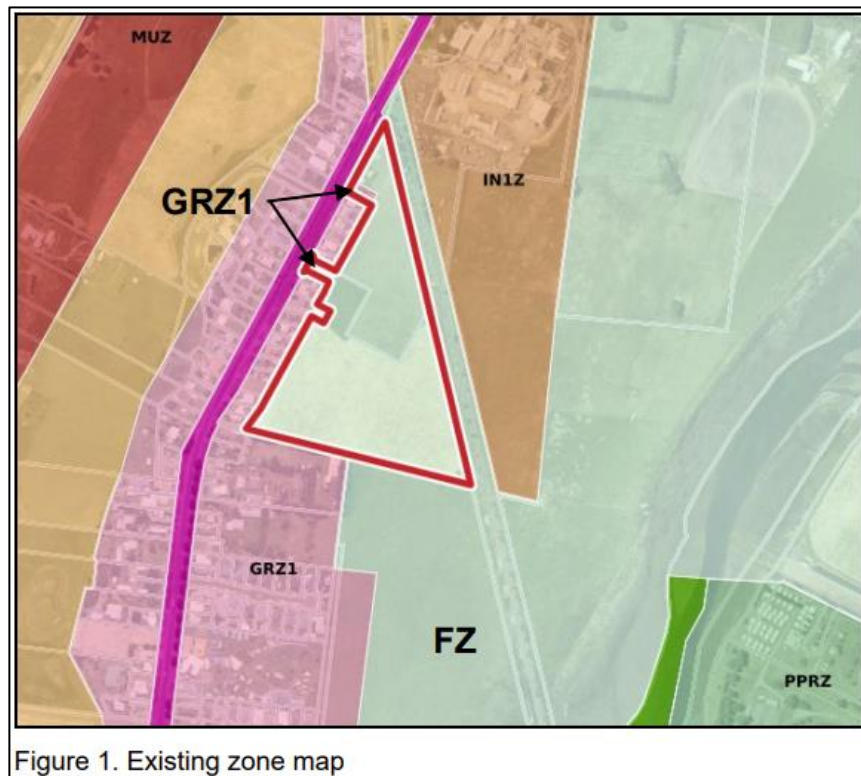
1. We act for Mr Michael Hearn of Rivers Run Estate Pty Ltd (the **Client**).
2. Moyne Shire Council (**Council**) is the planning authority for the Moyne Planning Scheme (**Scheme**). Harwood Andrews act on behalf of Council.
3. This matter involves two separate but inherently linked amendments to the Scheme:
 - 3.1 Amendment C69 which relates to all land within the township of Port Fairy and surrounds (**Settlement Area**) and is an amendment that seeks to implement the recommendations of the *Port Fairy Coastal and Structure Plan 2018* (**Structure Plan**); and
 - 3.2 Amendment C75 relates to the land at 169A and 183 Princes Highway in Port Fairy (**Land**) and is a combined planning permit application and planning scheme amendment under s 96 of the *Planning and Environment Act 1987* (**Act**).
4. Broadly, Amendment C69 will incorporate the Structure Plan into the Scheme, rezone land and apply new overlays to the Settlement Area, including Schedule 3 to the Floodway Overlay (**FO3**) and Schedule 4 to the Land Subject to Inundation Overlay (**LSIO4**).
5. Broadly, Amendment C75 rezones land in accordance with the recommendations of the Structure Plan and applies the Development Plan Overlay to guide future subdivision and development.
6. The accompanying permit application seeks permission for earthworks (cut and fill), a 75-lot residential subdivision and development of multiple dwellings on proposed Lot 20 (**Permit Application**).
7. Amendment C75 has been prepared by Council at the request of the Client.
8. Council has been advised that Planning Panels Victoria has listed Amendment C69 to be heard from 1 September for 7 days. A directions hearing is listed on Friday 5 August 2022. We anticipate that the Panel will issue directions for circulation of expert evidence and, potentially, expert conclaves. Evidence is likely to be due 1 or 2 weeks in advance of the commencement of the hearing.
9. Submissions to Amendment C75 have not yet been referred to a Panel.
10. You are instructed to review the documents in your brief and to provide us with an opinion in conference as to whether or not you support our client's position that the flood risk at the site can be adequately managed by the application of the LSIO, rather than the FO.

11. Subject to your verbal opinion, you may be instructed to prepare a written statement of evidence and appear on behalf of our Client at the expert conclave and panel hearing for Amendment C69.
12. Jessica Orsman will be your instructing solicitor.
13. Prior to commencing any work on this matter, we ask that you please advise Maddocks if you have any conflict or perceived conflict of interest either in relation to the parties to this proceeding or the Subject Land (including whether you or your firm has provided any previous advice to Council in respect of the Subject Land or any of the documents that comprise either Amendment C69 or C75) which may prevent you from appearing on behalf of the Client.

The Land

Land and Surrounds

14. Amendment C75 and the Permit Application apply to land at 169A Princes Highway and 183 Princes Highway Port Fairy. The Land is predominantly in the Farming Zone with two smaller parcels located in the General Residential Zone:



Source: Explanatory report to Amendment C75 as exhibited

15. The Land and surrounds are shown in the aerial excerpt below:



16. The Land is described in the Permit Application material.
17. As detailed in the planning report accompanying the permit application, the land comprises four parcels:

The subject site consists of four parcels as detailed in the following table.

Address	Title details	Size	Owner
169A Princes Highway	Lot 2 PS306968	4.712ha	Rivers Run Estate
183 Princes Highway	Lot 1 LP209306	694m ²	Rivers Run Estate
183 Princes Highway	Lot 1 TP618374	522m ² (approx.)	Rivers Run Estate
183 Princes Highway	Lot 1 PS306968	2.140ha	Rivers Run Estate

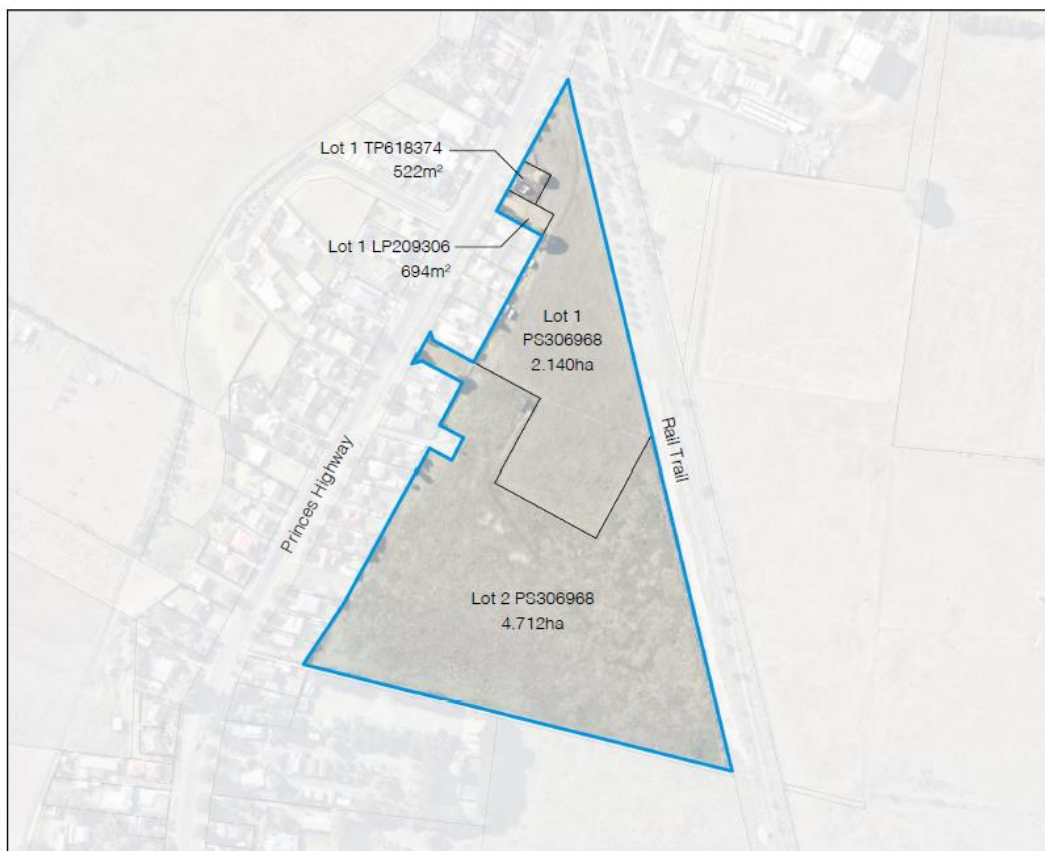


Figure 3: Land ownership

18. In summary, the Land:
 - 18.1 has an approximate area of 7 hectares;
 - 18.2 is located approximately 1.5km north-west of the Port Fairy town centre;
 - 18.3 is located on the eastern side of the Princes Highway with a frontage of 27m along the western boundary and 11m on the northern corner

- 18.4 has a largely flat topography with a fall of approximately 2.39m from the north to the south eastern corner;
- 18.5 is presently vacant and largely cleared except for farm fencing, stockyard and stock trough; and
- 18.6 is encumbered by a number of drainage and sewerage easements (E-1 and E-2 on PS306968V).
19. The surrounding land is summarised as follows:
- 19.1 to the immediate **north** of the Land is the intersection of the Princes Highway and the Port Fairy to Warrnambool rail trail. On the northern side of the Rail Trail is the Sun Pharma pharmaceutical plant which is located in the Industrial 1 Zone.
- 19.2 to the immediate **south** of the Land is a 3.5m reserve/powerline easement. On the southern side of the easement is land that is zoned General Residential and is developed with a caravan park. Further south is farming land that is located in the Farming Zone.
- 19.3 to the immediate **west** of the Land is land located in the General Residential Zone which has been subdivided and developed for residential purposes with lot sizes that vary from 600sqm to 800sqm.
- 19.4 to the immediate **east**, the Rail Trail runs along the entire boundary of the Subject Land. On the eastern side of the Rail Trail is vacant land that is located in the IN1Z.

AMENDMENT C69

Overview

20. Amendment C69 applies to all land within the Port Fairy township and surrounds:



Source: Explanatory Report to Amendment C69 as exhibited

21. As to what Amendment C69 does, the Explanatory Report explains:

What the amendment does

The Amendment seeks to implement the recommendations of the Port Fairy Coastal and Structure Plan 2018 by revising the Local Areas Policy relevant to Port Fairy in the Local Planning Policy Framework of the Moyne Planning Scheme, making the relevant changes to the zone and overlay controls applicable to Port Fairy, and updating the operational provisions.

Specifically, the Amendment proposes the following changes to the Moyne Planning Scheme:

Planning Scheme Maps

- Rezone all land currently in the General Residential Zone (GRZ) and the Mixed Use Zone (MUZ) to Neighbourhood Residential Zone (NRZ1).
- Rezone the Rural Living Zone land in Growth Area A identified in the Structure Plan to Neighbourhood Residential Zone (NRZ1).
- Rezone land in the Farming Zone (FZ), Low Density Residential Zone (LDRZ) and one site in the Industrial 1 Zone (IN1Z) around Belfast Lough and outside the town settlement boundary to the Rural Conservation Zone (RCZ2).
- Apply the Commercial 1 Zone (C1Z) to properties identified for expansion of the town centre commercial area and that are currently in the General Residential Zone (GRZ).
- Amend zone maps to correct historical mapping anomalies within the Port Fairy settlement boundary.
- Apply a Development Plan Overlay (DPO4) to Growth Area A and part of Growth Area B identified in the Structure Plan.
- Replace the existing 19 Design and Development Overlays with seven (7) Design and Development Overlays to areas identified in the Structure Plan.
- Apply an Environmental Significance Overlay (ESO7) to a 500 metre buffer around the Wannon Water – Port Fairy Water Reclamation Plant.
- **Introduce a Land Subject to Inundation Overlay (LSIO4) and Floodway Overlay (FO3) to the Port Fairy Township to identify areas subject to coastal inundation and a 1.2 metre sea level rise as per the findings of the Translation of Port Fairy Coastal Hazard Assessment (Cardno, 2019).**
- Extend the Erosion Management Overlay (EMO) currently applicable in Port Fairy West to areas along the primary coastal dune in South Beach and East Beach.
- Apply the Parking Overlay (PO1) to the commercial town centre area in accordance with the recommendation of the Port Fairy Car Parking Strategy 2017.

Planning Scheme Ordinance

- **Amend Clause 21.06 to reflect a 1.2 metre sea level rise (SLR) benchmark as proposed in the new Flood Overlay and Land Subject to Inundation Overlay provisions.**
- Amend Clause 21.09 to replace the existing Local Areas Policy for Port Fairy. This includes identifying a settlement boundary as identified in the Port Fairy Coastal and Structure Plan 2018.
- Amend Clause 21.11 to introduce the following background documents:

- **Port Fairy Coastal and Structure Plan 2018 o Translation of Port Fairy Coastal Hazard Assessment - Port Fairy Coastal and Structure Planning Project (Cardno) 2019**
- Port Fairy Car Parking Strategy 2017
- Insert Clause 32.09 Neighbourhood Residential Zone and a new Schedule 1.
- Number the Schedule to Clause 35.06 Rural Conservation Zone to Schedule 1 and insert a new Schedule 2.
- Insert a new Schedule 7 to Clause 42.01 Environmental Significance Overlay.
- Delete existing Schedules 1 to 21 (inclusive) to Clause 43.02 Design and Development Overlay, and insert new Schedules 1 to 7 (inclusive).
- Insert a new Schedule 4 to Clause 43.04 Development Plan Overlay.
- **Amend Schedule 2 to Clause 44.03 Floodway Overlay and insert a new Schedule 3.**
- **Amend Schedule 2 to Clause 44.04 Land Subject to Inundation Overlay and insert a new Schedule 4.**
- Insert Clause 45.09 Parking Overlay and new Schedule 1.
- Amend the Schedule to Clause 72.03 What Does This Planning Scheme Consist Of? to insert Planning Scheme Map Nos 36EMO and 36PO.
- **Amend the Schedule to Clause 72.04 Documents Incorporated in this Planning Scheme to replace the existing Port Fairy Local Floodplain Development Plan 2013 introduced by Amendment C54 with the Port Fairy Local Floodplain Development Plan 2019 and incorporate the Glenelg Hopkins Catchment Management Authority Guidelines for Fencing in Flood Prone Areas 2015.**

[our emphasis]

22. As to why Amendment C69 is required, the Explanatory Report states:

The Amendment is required to update the local policy and appropriate planning provisions to guide and manage land use and development within Port Fairy in accordance with the strategic directions of the Port Fairy Coastal and Structure Plan 2018 (PFCSP).

23. A copy of the Explanatory Report and Instruction Sheet as exhibited, and copies of the most relevant flood related controls and policies, are included in your brief.

24. Please refer in particular to the following documents:

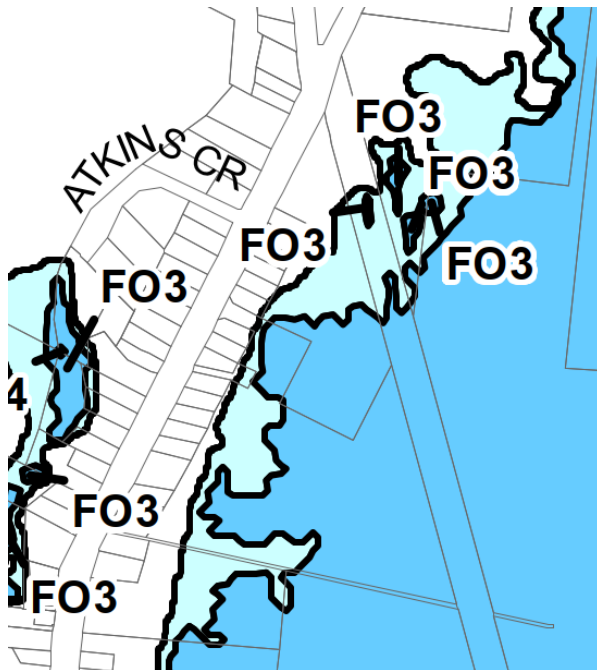
24.1 The maps showing the proposed extent of the FO and LSIO: Document Number 15.¹.

24.2 The proposed schedule 3 to the Floodway Overlay at Document 5.

24.3 The proposed schedule 4 to the Land Subject to Inundation Overlay at Document 6.

25. Note, the head provision of the FO and LSIO are found at Document 22. The following snip shows that Amendment C69 (as exhibited) proposes to apply the (darker blue) Flood Overlay - Schedule 3 to part of both 169A and 183 Princes Highway, with the (lighter) LSIO – Schedule 4 also being applied to the Land.

¹ NB: The proposed flood maps have been updated from the versions exhibited: 'Amendment C69 - Maps - Maps 34, 35 and 25 LSIO FO' Document number 8 of your brief. This is discussed below in your brief.



26. The application of the FO, as proposed, would prohibit the subdivision of the Land as per clause 44.03-3, extracted below:

44.03-3 Subdivision

31/07/2018
VC148

A permit is required to subdivide land. A permit may only be granted to subdivide land if the following apply:

- The subdivision does not create any new lots, which are entirely within this overlay. This does not apply if the subdivision creates a lot, which by agreement between the owner and the relevant floodplain management authority, is to be transferred to an authority for a public purpose.
- The subdivision is the resubdivision of existing lots and the number of lots is not increased, unless a local floodplain development plan incorporated into this scheme specifically provides otherwise.

Processing the Amendment

27. On 3rd March 2020, the Minister for Planning (**Minister**) authorised the Amendment C69.² The Amendment was subsequently exhibited from 14 May to 28 June 2020 by sending notification letters to approximately 2,500 land owners and occupiers, relevant statutory authorities and prescribed Ministers.
28. In response to exhibition, a total of 86 submissions were received.
29. The submissions raise a number of issues which included feedback regarding the technical basis of the application of the Floodway and Land Subject to Inundation Overlays and the draft *Local Floodplain Development Plan 2019*.
30. Following an initial review of the submissions, the Amendment was placed on hold to enable additional flood modelling to be undertaken.

² These dates are subject to clarification from Council which Maddocks are currently attending to. We are also requesting a copy of the Letter of Authorisation from the Minister for Planning.

31. Hydrology and Risk Consulting Pty Ltd were appointed to undertake this modelling which was completed in August 2021. The HARC Flood Summary Report 2021 is document 14 of your brief.
32. As explained in the officer report, after consultation with GHCMA to refine the recommendations of the report, Council released the updated flood overlay maps and the draft Local Floodplain Development Plan 2021 for public feedback from 16 December 2021 to 31 January 2022.
33. The updated flood maps are in your brief at document 15.
34. The proposed application of the FO and LSIO on the Land in the updated flood maps is similar to that shown in the exhibited flood maps. We understand the updated flood maps will be taken to Panel by Council as the relevant mapping, so to extent that it matters focus on them.
35. In response to the revised flood modelling a further 64 submissions were received (including 2 late submissions and 23 supplementary submissions). This meant a total of 128 submissions were received for the whole of the Amendment.
36. A summary of the objections and assessment of the issues raised in the objections is included in the Council Meeting Agenda dated 1 March 2022. We draw your attention to the discussion of flood issues from page 8 of the report, which is document 19 in your brief.
37. The submission of the CMA is contained in document 17 of your brief.
38. The submission by our client is dealt with further below.
39. On 1 March 2022, Council resolved to adopt Amendment C69 (in part) and refer the Amendment to an independent Planning Panel as follows.
 1. Considers all submissions received prior to the date of this report in respect of Planning Scheme Amendment C69moyn under Section 22 of the Planning and Environment Act 1987.
 2. Abandon that part of the Amendment which concerns the application of the Parking Overlay (PO1) to the commercial town centre in accordance with section 23 (1) (c) of the *Planning and Environment Act 1987*.
 3. Abandon that part of the Amendment which concerns the application of the Environmental Significance Overlay (ESO7) to the area surrounding the Wannon Water Port Fairy Water Reclamation Plant in accordance with section 23 (1) (c) of the *Planning and Environment Act 1987*.
 4. Refer all submissions received prior to the date of this report, except those pertaining to the application of the Parking Overlay (PO) and to the application of the Environmental Significance Overlay (ESO7) to a Panel in accordance with section 23 (1) (b) of the *Planning and Environment Act 1987*.
 5. Request the Minister for Planning to appoint an Independent Panel under Part 8 of the Planning and Environment Act 1987 to consider all submissions received prior to the date of this report, except those pertaining to the application of the Parking Overlay (PO) and to the application of the Environmental Significance Overlay (ESO7).
 6. Authorise the Director of Economic Development and Planning to:
 - a. Submit to the Panel its response to the submissions generally as outlined in this report and the attachment.
 - b. Undertake further assessment and discussions with relevant parties to finalise Council's position on the Amendment before the Panel, provided the position is generally as outlined in this report.

- c. Consider submissions to the Planning Panel and undertake discussions with parties to resolve any further concerns arising during its process, provided the position is generally as outlined in the report.

- 40. A copy of the Council Meeting Agenda and Council Meeting Minutes of 1 March 2022 are included in your brief at Documents 19 and 20.

Incorporated Documents

- 41. The amendment proposed to incorporate the following documents:

Guidelines Fencing in Flood Prone Areas – July 2015

- 42. The Guidelines were prepared to help minimise flood risks associated with fences constructed on flood-prone land.
- 43. The Glenelg Hopkins Catchment Management Authority is the Floodplain Management Authority responsible for identifying where flooding is likely to occur, how high flood water is likely to rise and for advising local government on the appropriateness of development on flood prone land.
- 44. The Guidelines outline principles for design and approval for fencing in flood prone areas.

Port Fairy Local Floodplain Development Plan 2019

- 45. The Local Floodplain Development Plan establishes minimum design and development performance criteria for buildings and works and subdivision in the settlement of Port Fairy affected by the Floodway Overlay (FO) and Land Subject to Inundation Overlay (LSIO).
- 46. The plan also establishes criteria that respond to specific characteristics of land within three location specific precincts (East Beach & Wharf, Belfast Lough Edges and South Beach & Port Fairy West) as well as policy relating to remaining land within the township which may be impacted by coastal or riverine flooding.
- 47. As above, the updated *Draft Local Floodplain Development Plan 2021* was put out for public consultation in 2021.

Relevant background Documents

Port Fairy Coastal and Structure Plan 2018

- 48. The Structure Plan is intended to enable a translation of the recommendations of the Port Fairy Local Coastal Hazard Assessment 2013 and provide a long-term strategic framework to guide and manage land use and development in Port Fairy and the surrounding area.
- 49. In addition to providing development objectives for the township areas, the Structure Plan identifies two 'growth areas' in Port Fairy:
 - 49.1 Growth Area A, which is located to the west of the existing urban area of Port Fairy. Growth Area A has a total area of 270,000sqm. It has a net developable area of 189,000sqm which would result in an average lot size of 500sqm or 378 theoretical lots.
 - 49.2 Growth Area B, which is located in the existing Mixed Use Zone along Albert Road ridgeline. Growth Area B has a total area of 177,000sqm in the MUZ and 65,000sqm in the Rural Living Zone with a net developable area of 123,900sqm in the MUZ and 45,500sqm in the RLZ. This results in average lot size of 800sqm or 211 theoretical lots.
- 50. The Settling & Housing Plan as reproduced in the Town Planning Report for the Permit Application is shown below. Growth Areas A and B are depicted in the Settling & Housing Plan. Outside of

these areas, the Land is identified with an asterisk, and is nominated as 'Potential residential expansion area' subject to consideration of the following technical issues:

- 50.1 Development can demonstrate accordance with relevant flood controls under a 1.2m sea level rise (SLR) scenario; and
- 50.2 Land is outside any buffer agreed by Sun Pharma and the EPA.



Figure 9: Settlement & Housing Plan (Source: Port Fairy Coastal & Structure Plan, 2018, pp27)

Port Fairy Coastal Hazard Assessment August 2019

51. The Coastal Hazard Assessment provides an analysis of the expected hazards and risks associated with coastal inundation at Port Fairy. It seeks to develop useful data that can be combined to understand coastal risks in the planning process.
52. As part of the project, the following tasks were undertaken:
 - 52.1 Extract and provide additional hydrodynamic modelling of the township of Port Fairy to provide comprehensive data for depths, velocities, flow paths and estimated length of time for inundation for the Port Fairy township.
 - 52.2 In addition to, and including Port Fairy West, map present day 1% AEP (Annual Exceedance Probability) and the 0.2m sea level rise scenario storm tide flood levels.
 - 52.3 Present the findings using a single set of GIS (geographic information system) layers for a range of scenarios including various sea level rise and catchment flooding scenarios.

Our client's position on Amendment C69

53. Our client's submission on Amendment C69 dated 15 June 2020 is included in your brief.

54. See in particular, in the submission under the heading 'Coastal hazard':

...

It is noted that hydraulic flood modelling undertaken for the Translation of the Port Fairy Local Coastal Hazard Assessment differs significantly from modelling undertaken by Water Technology. The Glenelg Hopkins CMA is aware of these discrepancies and Rivers Run Estate understands the CMA, with support of Moyne Shire Council, has commissioned a peer review of Translation of the Port Fairy Local Coastal Hazard Assessment.

The outcomes of the peer review will inform Rivers Run Estate's position on this matter once information is available.

55. Our client submitted a supplementary submission to Council for Amendment C69 on 28 July 2022 noting that our client opposes the introduction of the proposed FO3 over its Land, which would prohibit the subdivision and development proposed in its Permit Application, but is supportive of an LSIO. Our client's supplementary submission was accompanied by a memorandum prepared by Water Technology, dated July 2022. The memorandum and supplementary submission is included in your brief.

Amendment C75

56. Our client has provided Council with a response to its further information request, including a revised cut and fill plan. We will provide you with an update on the status of the permit application as the need arises. For present purposes, we have included in your brief an updated plan of subdivision and two sets of updated plans, which were prepared, among other things, to respond to a request by the CMA to that access could be provided to the lots during a 1% event (plus 1.2m sea level rise). These can be found at Document 23.
57. We also note that, although the planning report submitted with the application proposed a set of flood controls for the land, reflecting the proposed post development state of the Land, the Amendment that was exhibited did not include a set of revised flood controls. Our client, therefore, expects that the flood controls for the Land will be established via Amendment C69.
58. Please let us know if you would like any further information regarding the permit application if it would assist in informing your view on the question below.

ADDITIONAL DOCUMENTS

59. Please refer to the following documents, as appropriate, in addition to any other documents you consider relevant:
- 59.1 The FO and LSIO
 - 59.2 Clauses 13.01 and 13.03 of the Planning Scheme
 - 59.3 Planning Practice Note 12 (PN12) "Applying the Flood Provisions in Planning Schemes A guide for councils"
 - 59.4 Moyne C54 (PSA) [2014] PPV 78
 - 59.5 DELWP Guidelines for Development in Flood Affected Areas
 - 59.6 6-September-2021-VC171-Ministerial-Direction-13-Managing-Coastal-Hazards
 - 59.7 PPN53-Managing-coastal-hazards-and-the-coastal-impacts-of-climate-change_August-2015

BRIEF TO EXPERT

60. As noted above, we have been advised that Planning Panels Victoria has set the proceedings for Amendment C69 to be heard from 1 September for 7 days. Amendment C75 is yet to be listed.
61. You are instructed to review the documents in your brief and provide a verbal opinion on whether the application of FO3 and LSIO4 to our Client's Land as proposed in Amendment C69 are appropriate.
62. Subject to your verbal opinion, you may be instructed to prepare a written statement of evidence and appear on behalf of our Client at the expert conclave and panel hearing for Amendment C69.
63. Your statement of evidence (if required) should be prepared in accordance with the Planning Panels Victoria [Guide to Expert Evidence](#).

Fee proposal

64. Before starting any work, we ask you provide us with an electronic copy of your fee proposal for the requested scope of work for our client's consideration.
65. Please also provide a schedule of fees and rates in the event you are required to perform additional tasks in the future relating to this matter.

Your accounts

66. If your fee proposal is approved, all accounts for this matter should be referred directly to Maddocks (marked to the attention of Jess Orsman).

Maintaining client legal privilege and confidentiality

67. The advice you are asked to provide may be relied upon for any future hearing or litigation and for the purpose of providing legal advice to our client. You must as far as legally possible treat all communications relating to the scope of works as confidential and subject to client legal privilege.
68. Should you have any queries, please do not hesitate to contact Jess Orsman on 9258 3135 or by email to jessica.orsman@maddocks.com.au.

Date delivered 3 August 2022

Maddocks

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Maddocks

Index of documents

AMENDMENT C69	
Exhibited Material	
1.	Explanatory Report
2.	Instruction Sheet
<i>Ordinance</i>	
3.	Local Planning Policy Provisions: <ul style="list-style-type: none"> ▪ Clause 21.06 - Environment ▪ Clause 21.09 – Local Areas ▪ Clause 21.11 – Reference Documents
4.	Neighbourhood Residential Zone: <ul style="list-style-type: none"> ▪ Clause 32.09 ▪ Schedule 1 – Port Fairy Township
5.	Floodway Overlay <ul style="list-style-type: none"> ▪ Schedule 2 – Port Fairy ▪ Schedule 3 – Port Fairy Coastal Inundation Areas
6.	Land Subject to Inundation Overlay: <ul style="list-style-type: none"> ▪ Schedule 2 - Port Fairy ▪ Schedule 4 – Port Fairy Coastal Inundation Areas
7.	General Provisions: <ul style="list-style-type: none"> ▪ Schedule to clause 66.04 ▪ Schedule to Clause 72.03 ▪ Schedule to clause 72.04
8.	Maps
9.	Ordinance in track changes
<i>Incorporated Documents</i>	
10.	Guidelines for Fencing in Flood Prone Areas 2017
11.	Port Fairy Local Flood Plain Development Plan 2019
<i>Background Documents</i>	
12.	Port Fairy and Coastal Precinct Structure Plan 2018
Supporting documents (put out for public consultation in 2021)	
13.	Translation of Port Fairy Coastal Hazard Assessment (V161030, 18 August 2019)
14.	Flood Summary Report 2021 (Version 1.2, HARC, 11 August 2021)
Updated documents to go to Panel following further work by HARC (put out for public consultation in 2021)	
15.	Updated proposed FO – LSIO Maps
16.	Draft Port Fairy Local Floodplain Development Plan 2021
Submissions	

17.	<ul style="list-style-type: none"> • CMA submissions (dated February 2022) to Amendment C69³ • River Run Estate submission to Amendment C69 • River Run Estate supplementary submission to Amendment C69
18.	Council's consideration of Submissions to Amendment C69moyn
Council Report and Decision	
19.	Council Meeting Agenda 1 March 2022
20.	Council Meeting Minutes 1 March 2022
Other material	
21.	Memorandum prepared by Water Technology, dated 18 July 2022
22.	<p>Current planning scheme:</p> <ul style="list-style-type: none"> • Clause 13.01 Climate Change Impacts • Clause 13.03 Floodplains • Clause 44.03 Floodway Overlay • Clause 44.04 Land Subject to Inundation Overlay
23.	<p>Application:</p> <ul style="list-style-type: none"> • Town Planning report prepared by Myers Planning Group dated June 2021 • Proposed plan of subdivision [ref: PS842672B prepared by Joseph Land Surveying] dated May 2022 • River Run Estate Architectural Plans prepared by Designers by nature dated May 2022 • Updated Functional Layout Plans prepared by Greening Structural & Civil showing updated volumes of cut and fill and design response dated June 2022
24.	CMA correspondence
25.	Planning Practice Note 12 (PN12) "Applying the Flood Provisions in Planning Schemes, A guide for Councils"
26.	Moyne C54 (PSA) [2014] PPV 78
27.	DELWP Guidelines for Development in Flood Affected Areas
28.	VC171 Ministerial Direction 13 Managing Coastal Hazards dated 6 September 2021
29.	PPN53 Managing coastal hazards and the coastal impacts of climate change dated August 2015

³ NB: These submissions superseded CMA's earlier submissions pre-dating the updated modelling work.

AMENDMENT C69 TO THE MOYNE PLANNING SCHEME

IN PLANNING PANELS VICTORIA

MOYNE SHIRE COUNCIL

Planning Authority

MEMORANDUM TO EXPERT WITNESS – FLOODING – SUPPLEMENTARY BRIEF FOR NINA BARICH

Index of documents

AMENDMENT C69	
FLOODING	
1.	2008 Port Fairy Regional Flood Study <ul style="list-style-type: none"> Volume 1: Summary Report Volume 2: Survey Report Volume 3: Hydrology Report Volume 4: Hydraulics Report Volume 5: Risk Report Volume 6: Mapping Report
2.	CHCMA Flood delineation for planning scheme maps standard approach 2013
3.	Floodplain Management in Australia Best Practice Principles and Guidelines 2000
4.	Glenelg Hopkins Regional Floodplain Management Strategy 2017
5.	Glenelg Hopkins Regional Catchment Strategy 2021-2027, Glenelg Hopkins Catchment Management Authority available at https://glenelghopkins.rcs.vic.gov.au/
6.	Guidelines for Coastal CMAs Assessing Development in Relation to Sea Level Rise June 2012
7.	Guidelines for Floodplain Cut and Fill 2012
8.	Port Fairy – Sea Level Rise Modelling Project 2012
9.	Port Fairy Coastal Hazard Vulnerability Assessment 2013
10.	Port Fairy Regional Flood Study Addendum – Sea Level Rise Modelling 2010
11.	Tide Gauge Trigger Levels for Sea Level Rise Adaption Pathways 2022
12.	Victorian Floodplain Management Strategy 2016 <ul style="list-style-type: none"> Section 1 Section 2 Section 3
13.	Port Fairy Hydraulic Model (SOBEK) Review 2020
14.	Future Coasts – Port Fairy Coastal Hazard Assessment 2013
15.	Derivation of Victorian Sea-Level Planning Allowances, J R Hunter, May 2013
16.	Derivation of Revised Victorian Sea-Level Planning Allowances Using the Projections of the Fifth Assessment Report of the IPCC, J R Hunter, May 2014

Coastal	
17.	Port Fairy Coastal & Structure Plan - Issues & Opportunities Paper May 2017
18.	Marine and Coastal Policy 2020
19.	Marine and Coastal Strategy 2022
20.	Victorian Coastal Hazard Guide 2012
21.	Victorian Coastal Strategy 2014
22.	Victorian Coastal Strategy Implementation Plan 2017
Climate Change	
23.	IPCC reports <ul style="list-style-type: none"> • AR4 Synthesis Report – Climate Change 2007 • AR5 Synthesis Report – Climate Change 2014 • AR6 Climate change 2022 – Impacts, Adaption and Vulnerability Summary for Policy Makers • AR6 Climate Change 2022 – Mitigation of Climate Change • AR6 Climate Change 2022 – The Physical Science Basis Summary for Policy Makers • Special Report on the Ocean and Cryosphere in a Changing Climate Chapter 4 • Special Report on the Ocean and Cryosphere in a Changing Climate Summary for Policy Makers
24.	Coastal Climate Change Advisory Committee Final Report 2010
25.	Glenelg Hopkins CMA Climate Change Strategy 2016-2023
26.	Local Government Climate Change Adaptation Roles and Responsibilities 2020
27.	Victoria Climate Change Adaptation Plan 2017-2020

From: [Jess Orsman](#)
To: nina.barich@incitus.com.au
Cc: [Maria Marshall](#); [Chloe Henry-Jones](#)
Subject: Amendment C69 evidence - further information [MADDOCKS-M.FID4605322]
Date: Wednesday, 17 August 2022 9:26:15 AM
Attachments: [image001.png](#)
[Greater Shepparton CC v Goulburn Broken Catchment Management Authority \[2016\] VCAT 2181.pdf](#)

Hi Nina,

Please find **attached** a decision of DP Gibson in *Greater Shepparton CC v Goulburn Broken Catchment Management Authority* [2016] VCAT 2181. In that case, DP Gibson considered the prohibition on subdivision contained in the Floodway Overlay, which is as follows:

44.03-3 Subdivision

A permit is required to subdivide land. A permit may only be granted to subdivide land if the following apply:

- ! The subdivision does not create any new lots, which are entirely within this overlay. This does not apply if the subdivision creates a lot, which by agreement between the owner and the relevant floodplain management authority, is to be transferred to an authority for a public purpose.*
- ! The subdivision is the resubdivision of existing lots and the number of lots is not increased, unless a local floodplain development plan incorporated into this scheme specifically provides otherwise.*

The Deputy President found that a subdivision which creates a lot that is entirely within the Floodway Overlay (which is prohibited by the first limb) may be allowed by the second limb but only if it is a re-subdivision of existing lots, which means that no additional lots will be created. A local floodplain development plan may provide that re-subdivision should *not* occur in a particular location or may limit or guide the type of re-subdivision that can occur, but it cannot allow a subdivision to occur that would create additional lots within the Floodway Overlay extent.

We note that there is a discrepancy between clause 44.03-2 of the Floodway Overlay (as interpreted by the Tribunal in the above decision) and the text of section 6.2 of the Draft Port Fairy Local Floodplain Development Plan 2021 Supporting Document, which purports to allow new lots if certain conditions are met:

6.2 Subdivision

Applications to subdivide land that is either partly or wholly within the FO or LSIO must not create new lots entirely within these overlay areas unless it is demonstrated to the satisfaction of the responsible authority and the Floodplain Management Authority that:

- each new lot contains an existing dwelling; or*
- there is an adequate building envelope on each lot (which must be formally defined on the plan of subdivision) where the inundation depth is estimated to be no more than 300mm during a 1% AEP flood level under the 1.2m sea level rise scenario; and*
- access to the building envelope does not traverse land where the inundation depth is estimated to exceed 300mm during a 1% AEP flood under the 1.2m sea level rise scenario.*

Having regard to DP Gibson's decision, please proceed on the basis that, if the Floodway Overlay is applied to land, then a proposed subdivision of that land which creates additional lots within the Floodway Overlay extent will be prohibited notwithstanding anything to the contrary in the local floodplain development plan. That is, please assume that the Floodway Overlay will prevent the creation of additional lots which are entirely within the extent of the Floodway Overlay.

Please ensure that you either attach this email to your report or copy the text into that part of your report where you set out your instructions.

If you have any queries, please don't hesitate to contact us.

Kind regards,

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