



2. Stormwater Volume Considerations

Significant discussion was had by the conclave regarding the expectations for stormwater volume management in the precinct and the application of EPA Guideline 1739.1.

The conclave agreed that:

- The approach of the Marshall PSP meets the requirements of the Planning Scheme and EPA Guideline 1739.1
- The direction of flow from the south-east portion of the Marshall PSP in conjunction with the expected flows from NEIP will have almost no impact on the hydrological behaviour of the Sparrovale Wetlands. Mr Craigie's report accurately details the expected contributions of each catchment to the Sparrovale wetland and the impacts on hydrology.
- The Sparrovale Wetlands primary purpose is to protect Hospital Swamp from urban flow, primarily from Armstrong Creek and the Horseshoe Bend Precinct. This is achieved through storage of water and evaporation of stormwater. The benefits of the system as an ecological habitat are an outcome of the design intention, rather than being the primary reason for the wetlands.
- The volume reduction targets in the EPA Guideline are developed from an intention to mimic the volume of water over the year to be equivalent to a directly connected impervious area in the waterway catchment of no more than 2.5%. With regard to the Barwon River, this limit is already significantly exceeded, and the contribution of flows from Marshall Creek are insignificant in comparison to upstream catchment flows.

It was also noted that the EPA Guideline describes that local targets should be adopted for the receiving waterways – this has been done for Hospital Swamp

- For waters that flow to the Barwon River via Marshall Creek, the PSP provides a reasonably practicable approach to volume reduction. The ability to additionally offset stormwater volumes is limited as the main reuse will be served by recycled water. There are no other reasonably practicable solutions apparent to further reduce volume discharged to the Barwon River.

Protection of Marshall Creek is not required, as it will become a constructed waterway.

The conclave noted that the wider area that drains to the Sparrovale wetland complex is the only developing urban area that any member of the conclave is aware of that comes close to meeting the volume reduction targets of the EPA guideline.

The conclave also noted that the City of Greater Geelong is the controlling authority for the Sparrovale Wetlands and has the ability to alter the wetland outlet arrangement to balance water levels and evaporation of stormwater with ecological concerns. This control is unrelated to the stormwater quality requirements for the Marshall PSP.



3. Drainage Strategy Considerations

There was discussion on the conclusions in Mr Watters report considering the design and costing of drainage works in the PSP.

It was agreed that:

- The apportionment of costs between the Marshall PSP and the NEIP has been appropriately determined, given the state of knowledge at the time of the preparation of the PSP.
- Council should ensure that a sufficient reserve is allowed for the construction of the 825mm outlet pipe (DI_DR_01a) along Marlee Drive.
- There is no requirement for any additional evaporation works in the Sparrovale wetlands area.
- It is unclear what upgrades are proposed for the Tannery Road culverts or have been included in the costing. The design plans indicate a culvert upgrade, but it does not appear to be specifically itemised in the DCP. It is considered that as Tannery Road is to become an access road for the NEIP, it would typically require a drainage crossing that did not inundate at intervals more frequent than a 5% AEP or rarer.
- Mr Watters indicative costing for the culvert upgrade at Tannery Road was considered reasonable, if it had not been included in the DCP.
- The alignment of the Marshall Creek channel between Barwon Heads Road and Tannery Road is in the optimal location for drainage design (in the existing low point), noting that it creates an orphaned piece of land in the NEIP. Depending on how this piece of land is considered, there could be modifications to the proposed drainage works in the both the Marshall PSP and NEIP.

There were no significant areas of disagreement in relation to the above items.

Mr Watters had raised some other issues in his expert report as per below, however the other members of the conclave did not have strong opinions in relation to these matters. The conclave discussion is summarised below:

- The recommendation that the NEIP southern catchment area in the revised NEIP SWMS should be confirmed prior to finalising the Marshall PSP/DCP.
After discussion it was agreed on balance that it would not be necessary to confirm the NEIP area to be directed to Sparrovale as part of the Marshall DCP.

It was agreed that in principle, any additional catchment area from the NEIP that can be directed south to Sparrovale Wetlands would be an overall positive outcome, given that Sparrovale provides an opportunity to achieve stormwater volume reduction via evapotranspiration.

Mr Watters raised in his submission the cost of DCP drainage project DI_DR_14 should include the costs of any the proposed hydrological modelling of Sparrovale Wetlands, as well as CHMP and Flora and Fauna Studies for the purpose of confirming the necessary adjustments to Sparrovale Wetland management policies to rectify current operational issues. It was the view of the conclave that:

- the cost of confirming the necessary adjustments to SV management policies to rectify current operational issues should ideally be borne by the responsible management authority.
- the impact of adding in MP and NEIP runoff will be insignificant on SV operational conditions, so ideally the latter DCP's shouldn't get charged for that work as it is rectifying an existing issue.



- The completion of approvals for the Marshall Precinct and NEIP should not be dependent on the responsible authority completing an impact assessment on the Sparrovale wetlands
- Should it be decided that these assessments must be completed prior to approval, the costs could be included in the Marshall PSP for expedience, but apportioned by catchment area or runoff contribution. For runoff contribution, the percentage of these studies apportioned to the Marshall PSP would be around 2%, for the NEIP it would be around 6% with the remaining 92% apportioned to other areas.

4. Climate Change

The conclave considered the implications of climate change and agreed that:

- This PSP and neighbouring PSP's have been designed with no consideration for climate change.
- At this time, there is no clear approach on determining the required level of service to be used as the design standard under climate change. This will be a balance between level of impact, cost and risk appetite of the drainage authority.
- The effects of climate change on the design can be managed by freeboard and other methods, which can be a matter for detailed design.
- It is recommended that sensitivity testing be completed to determine the expected impact on the PSP works., such that appropriate future planning decisions can be made.

5. Declaration

This document is a true and accurate record of the drainage conclave for Amendment C278ggee. At all times, members of the conclave have been aware of the requirements of PPV Practice Note one, and no matters which we regard as significant have been withheld from the panel.

Signed:

A handwritten signature in black ink, appearing to read 'R. Swan'.

Mr Robert Swan, HARC Services (31 October 2024)

Signed by:

A handwritten signature in black ink, appearing to read 'Neil Craigie'.

Mr Neil Craigie, Neil M Craigie Pty Ltd

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A handwritten signature in black ink, appearing to read 'S. Watters'.

Mr Stephen Watters, SMEC Australia Pty Ltd

Signed by:

A handwritten signature in black ink, appearing to read 'Chris White'.

Mr Chris White, AECOM Pty Ltd