

Draft Drainage Strategy Briefing Note for Officer South Employment PSP

Background

The following briefing note is to guide landowners and stakeholders in relation to Melbourne Water's background reports and information supplied as part of the Officer South Employment Precinct Structure Plan (PSP) Public Exhibition. The information has informed the design of the draft drainage strategy.

Drainage strategy objectives for the PSP

The main objectives are:

- Flood protection is to be provided for properties within the PSP,
- Any new developments are not to further exacerbate existing flooding conditions for downstream/neighbouring properties,
- New developments are to achieve appropriate best practice stormwater quality treatment for flows generated from their property to mitigate impacts on downstream environments,
- New development proposals are to manage stormwater flow and volume from developments draining into Gum Scrub Creek,
- Proposed constructed waterways to provide safe drainage and flood protection and to incorporate environmental, cultural and amenity values,
- Melbourne Water's Development Services Schemes (DSSs) are to protect/minimise impacts on existing environmental and waterway values,
- Climate Change effects to be included in the future DSS designs,
- DSSs are to meet critical and other agency asset operational requirements to ensure constructability (i.e. gas main crossings),
- To achieve the principles as set out in the [Principles for Provision of Waterway and Drainage Services for Urban Growth](#).

Reports/information supplied by Melbourne Water

The following are reports and information that Melbourne Water has used to inform its current draft drainage strategy for the PSP.

Hydrology, Hydraulic, Options Reporting:

- **Officer South DSS Options Assessment Report and associated Options Plans September 2022 by Jacobs:** A PSP drainage strategy options assessment report was produced for three main drainage strategy options for the PSP in 2022. In total 11 sub options were produced and a multi-criteria assessment (MCA) was applied resulting in the preferred Option 1F design being determined. Option 1F design strategy was further refined following informal consultation with landowners and stakeholders. The current revised design has informed the Public Exhibition PSP Place-Based-Plan.
- **Officer South Employment PSP DSS Asset Overview Plan by Jacobs 2023:** A plan showing the refined version of Option 1F that is reflected in the Public Exhibition PSP Place-Based-Plan.
- **Officer South Predevelopment Hydrological Assessment Report by Jacobs 2023:** Predevelopment flow conditions for the catchments are set to a 2010 development status as a datum target to measure future development conditions for the Officer Township, Officer South, Cardinia Creek and Gum Scrub Creek catchments.
- **Officer South Interim Works Inundation Impact Assessment Report by Engeny 2023:** An investigation into existing development conditions and what temporary drainage could be provided to drain the existing developing Officer Township before the ultimate Melbourne Water Officer South Employment PSP proposed DSS works are constructed.

Soil Testing Reports:

- Officer South Waterway Corridor Hydraulic Assessment (Memo) Jacobs, 2022.
- Sodic Soil Assessment for the Officer South Precinct Structure Plan Area Including Retarding Basin Sites, Jacobs, May 2023.

- Officer South DSS Contaminated land Factual Assessment – Jacobs, 23rd May 23.
- Geotechnical Investigation Report, Officer South Retarding Basin, Officer South – Douglas Partners for Jacobs 15th May 2023.
- Officer South Hydrogeology Factual Report – Jacobs 16th May 2023.

Environmental Reporting:

- Cardinia Creek Hydrological and Fish Risk Assessment Final Report, Jacobs, 2021. A study of protected native Grayling Fish that exist in Cardinia Creek. Jacobs
- Officer South Fauna Survey Report, Jacobs, 2022.
- Western Port Sediment Supply Seagrass CSIRO 2016
- McPherson PSP SEPP F8 Water Quality Memo Alluvium 2015

Modelling (Models will be provided subject to request):

- **Hydrologic modelling (RORB):** (subject to request) Models for the 2010 pre-developed scenario (from Jacobs pre-development hydrology report) and post development conditions based on the revised Option 1F drainage strategy with works to estimate flows.
- **Stormwater Quality Treatment Modelling (MUSIC):** (subject to request) MUSIC modelling is provided for post development conditions for the revised Option 1F drainage strategy (majority are proposed as stormwater treatment wetlands).

NOTE: Existing Asset Proving Surveys (not provided)

- Survey data of existing APA T1 gas main, other minor gas mains, and Telstra, NBN optical fibre are available through a formal application to the APA directly and relevant authority.

Appendix 1 Changes to Option 1F (since previous consultation of PSP's Place Base Plan)

The following is a summary of design changes which have occurred since the Officer South DSS Options Report was produced in September 2022 by Jacobs, resulting in changes to Option 1F that have informed the current PSP:

Total Suspended Solids (TSS) to 85% reduction

A TSS removal target was set to 85% TSS removal. The rationale for this is to reduce the terrestrial input of fine sediment that impact on the extensive seagrass meadows (Ramsar protected) found in the mudflats and below the low tide level in Western Port Bay. The target of 85% TSS removal has been adopted using the same Total Suspended Solids (TSS) target as the nearby completed Cardinia Creek South PSP (formerly McPherson PSP) water quality objectives.

Climate Change

The proposed retarding basins have been designed with Climate Change effects taking into consideration the increase in rainfall intensity that as time continues it is expected that rainfall intensity will increase which will increase rainfall and stormwater flows.

RORB Models setup using weirs

RORB modelling use of weirs for retarding basin outlets, this design methodology is to better control Retarding Basin discharges for the standard storm ranges 50% AEP – 1% AEP.

RBWL D

Proposed RBWL D asset was moved to the east adjacent to Officer South Road as this is the natural low point for the local catchment. This location will also allow the drainage crossing of the gas main to be at the lowest part of the gas main alignment.

Combination of RBWL C and SB C1

To adequately protect the downstream waterway, the proposed sediment basin at SB C1 was changed to a wetland. In addition, to reduce the drainage reserve land take, these assets were combined into a single online retarding basin with a low flow bypass for the incoming waterway flows. The combined asset also provides the benefit of reducing flows prior to the proposed gas main crossing.

Combination of RBWL E, SB E1, SB E2

To adequately protect the downstream waterway, the sediment basin at SB E1 was merged with E1 to one treatment wetland. In addition, to reduce the drainage reserve land take, these assets were combined into a single online retarding basin with a low flow bypass for the incoming waterway flows.

RBWL F

RBWL F location was moved from the south to the north (upstream) of the future Thompsons Rd alignment. The asset in this new location will retard flows prior to crossing Thompsons Rd resulting in a reduced size of Thompsons Rd future crossing. Another key benefit is that there will only be one crossing as opposed to two crossings in this catchment.

RBWL E2 and F1

Another small retarding basin and wetland is proposed at RBWL E2 for local stormwater quality treatment for a small catchment that could not be drained to RBWL E1. Additional assets RBWL E2 and F1 are proposed to retard the 98.17% AEP (3 month) and 50% AEP (2year) events.

Officer DSS Outfall Constructed Waterway (connecting to Lecky Rd /RBWL G)

The previously proposed diagonal constructed waterway alignment from Officer South Road at Princes freeway to Lecky Road Retarding Basin Wetland (RBWL G) is now proposed along the northern boundary/Princes Fwy alignment to optimise residential yield as requested by the VPA. Any additional cost resulting from the new alignment will be borne by the landowner.

RBWL H and constructed waterway

RBWL H is now proposed offline to Gum Scrub Crk to retard and treat the local catchment. The reserve footprint has been refined further. An upstream constructed waterway is required to safely convey the regional catchment flows.

RBWL I and constructed waterway

Proposed RB WL I has been optimised and the reserve footprint has been refined. An upstream constructed waterway is required to safely convey the large catchment flows into the RB. The retarding basin spillway flows will drain into Gum Scrub Crk in peak flood events. A low flow diversion pipeline(s) is proposed to divert flows from the RB I outlet eastward into Cardinia Road Drain.

Diversion Pipe(s) at RBWL I

There is an increased diversion of low flow to Cardinia Road Drain of approximately 4.5m³/s in order to approximate pre-developed volume conditions in Gum Scrub Ck catchment south of Patterson Road.

RBWL J and constructed waterway

Proposed Retarding Basin Wetland J has been optimised. Upstream constructed waterways are required to safely convey the large catchment flows into the RB. The proposed RBWL J's outfall pipeline alignment is proposed on the northern side of Patterson Road reserve and to convey flows to Gum Scrub Crk.

Retarding basin spillway flows will drain across Patterson Road in peak flood events into the existing rural drainage lines then drains back into Gum Scrub Creek.