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Greater Geelong Planning Scheme Amendment C278ggee

Marshall PSP - Engineering Expert Evidence

Prepared for: Re-Grow C/- Maddocks

29 October 2024

SMEC INTERNAL REF. 30043481E

Document Control

Document Type	Greater Geelong Planning Scheme Amendment C278ggee
Project Title	Marshall PSP - Engineering Expert Evidence
Project Number	30043481E

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Executive Summary

1. On behalf of Re-Grow Geelong Pty Ltd (Re-Grow), I have been engaged by Maddocks to assist Planning Panels Victoria with respect to the Marshall PSP, focussing on specific queries related to drainage including:
   a) Issues related to the Southern catchments of the Marshall PSP and adjoining Armstrong Creek North East Industrial Precinct (NEIP);
   b) Queries related to whether the southern catchments satisfy the EPA Publication 1739.1 (Urban Stormwater management guidelines);
   c) Review of an issue concerning the waterway between Barwon Heads Road and Tannery Road. The waterway is aligned so that there is a piece of land within the NEIP which is "orphaned" or severed from the NEIP on the north west side of the waterway;
   d) Review of culvert sizing proposed under Tannery Road.
2. Whilst my initial instructions included a request to provide advice in relation to the costing of the DI_IT_02 intersection in the Marshall DCP, subsequent instructions removed that requirement, given that a finalised design for the intersection was not available in time for this report, and hence my report is focussed on drainage and drainage related matters.
3. Apportionment of the Marshall DCP project DI_DR-14 with the NEIP appears to be a fair apportionment, however should be reviewed once the NEIP SWMS has been finalised, to confirm the area of the NEIP that will fall to the south.
4. The southern catchments of the Marshall PSP and the NEIP oufalling via Sparrovale wetlands appear to be meeting the water quality targets, and providing significant volume reduction as per Publication 1739.1, so far as reasonably practicable. I note that Barwon Water is also undertaking a feasibility study that is examining future regional stormwater harvesting opportunities in the overall area, and if implemented, the combined stormwater volume reductions of all these measures could then achieve the Publication 1739.1 reduction targets.
5. Council should ensure that sufficient road or drainage reserve is provided on the north side of Marlee Drive, in order to provide for the future construction of the proposed 825mm diameter drainage pipe (DI_DR_01a), and also ensure that no utility services are constructed along this drainage alignment. This matter should be addressed prior to finalising the Planning Amendment to ensure that the drainage pipe is able to be constructed in the future, and to avoid the construction cost increasing beyond the DCP allowance for the project.
6. The Marshall DCP project DI_DR_14 costing allowance should be reviewed to include the cost of the proposed Sparrovale drainage modelling, plus any other environmental Flora and Fauna, CHMP reports that will be required in this sensitive area. Whilst I am unable to ascertain what consultant allowances have been made in this DCP project, these costs would typically be in the order of $200,000 and it my opinion should be included in the DCP project.
7. Whilst it appears that additional evaporation construction works are not necessary for the southern catchments of Marshall PSP and the NEIP, should others determine that they are necessary, then the cost of such works should be included in the Marshall DCP project DI_DR_14.
8. The Marshall SWMS should be amended to show the Tannery Road culverts upgraded to cater for the design flows, and the cost allowance in the Marshall DCP (project DI_DR-10) should be updated accordingly. The additional cost for the culverts and reinstatement of the road would likely be in the order of $250,000.
9. The alignment of the Tannery Road reach of Marshall Creek should be adjusted to allow for the future water quality treatment asset in the NEIP, and to fix the issue related to the orphaned land on the west side of the drainage reserve, as shown in Figure 17 on page 23 of this report.

1. Statement of Witness

1.1 Name and address of the expert

Stephen Watters, Civil Engineer

SMEC Australia, Tower 4, 727 Collins Street, Melbourne, 3008

1.2 Acknowledgment

I acknowledge that I have read the Expert Witness Code of Conduct as it applies to persons retained as an Expert Witness

- to assist the Court impartially on matters relevant to my area of expertise,
- to provide an expert's report for use as evidence in the proceedings, or
- to give opinion evidence in the proceedings,

and agree to be bound by the Code of Conduct in relation to the report hereafter provided.

1.3 Qualifications and Experience

I hold a Bachelor of Engineering (Civil), 1990, University of Melbourne and have over 34 years experience as a civil engineer. My curriculum Vitae is included in Appendix B.

1.4 Area of Expertise to Make the Report

The majority of my civil engineering career has been associated with the delivery of land development projects including associated infrastructure works throughout metropolitan Melbourne and regional Victoria. I have particular experience in relation to the design and delivery of projects, which includes leading teams of design engineers and construction engineers, and this includes review of Precinct Structure Plans (PSPs) and Infrastructure Contribution Plans (ICPs).

I have prepared Expert Witness reports related to panel hearings for a number of Precinct Structure Plans, which are summarised in Table 1 below, which also details the nature of my involvement in each instance:

Table 1: Previous projects involving Expert Evidence involvement

PSP	My role	Panel representation
Sunbury South and Lancefield Road ICP	Prepared an Expert Evidence report related to the ICP	Participated in the ICP conclave in relation to the estimated cost of projects
Clyde North PSP	Prepared an Expert Evidence report related to Drainage	Appeared before the PSP panel in relation to drainage issues
English Street PSP	Reviewed the PSP and provided feedback to the VPA	Participated in the conclave related to the Bridge over Merri Creek
Officer South Employment PSP	Prepared an Expert Evidence reports related to Drainage and the ICP.	Participated in the Drainage conclave and was involved in round table discussions at the panel in relation to ICP and Drainage issues

PSP	My role	Panel representation
Jetty Road Stage 2	Expert Evidence and appearance at panel related to drainage and costing matters	Participated in the Drainage conclave and appeared at the planning panel in relation to ICP and Drainage issues
Toolern PSP	Expert Evidence and appearance at panel related to drainage DCP matters	Participated in the Engineering conclave and appeared at the planning panel in relation to DCP and Drainage issues

I have experience in relation to the practical implementation of projects identified in DCPs and ICPs, which includes detailed negotiations with Councils, Water Authorities, and State Government authorities.

I have specific experience in relation to the practical implementation of drainage schemes, and the delivery of essential services to developments including sewer, water, gas, and electrical infrastructure. I have been involved in Industry associations including the Association of Land Development Engineers (ALDE) where I acted as President for two years, and I am a current member of the Urban Development Institute of Australia (UDIA) Greenfield committee, which has included representing these bodies in matters related to the delivery of essential services. I have participated on numerous other committees including:

- The Melbourne Water Urban Development Water Advisory Group (UDWAG) Technical Committee which enabled MWC to collaborate with industry
- The Engineering Design and Construction (EDCM) Technical Committee
- Stormwater Industry Guidance as an industry representative, which involved a series of workshops to help guide the implementation of volume controls of stormwater in the development industry.

1.5 Disclosure of Interests

I am not aware of any conflicts of interest that need to be declared. No other persons assisted with the preparation of this statement.

1.6 Expert 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

6. On behalf of Re-Grow I have been engaged by Maddocks to assist Planning Panels Victoria ("the Panel") with respect to amendment C278ggee of the Greater Geelong Planning Scheme, related to the Marshall PSP and DCP, as per instructions received 30th August 2024, as well as subsequent instructions by emails dated 18/10/24 and 24/10/24 (refer to Instructions included as Appendix A).

7. The instructions include responding to the following matters:

   a) To consider, prepare a report and give evidence in relation to drainage infrastructure as it affects the southern part of the Marshall PSP area and the southern catchment of the adjacent NEIP PSP area which are both planned to drain to the same outfall.

   b) address what reasonably practical opportunities there are to reduce the volume of stormwater runoff from the impermeable catchments in the Marshall and NEIP PSP areas given that they both drain to the common outfall and in that context consider the implications for the design and cost of DI_DR_14;

   c) review the costing of the drainage infrastructure that will be shared with the NEIP as referenced in the DCP (DI_DR_14) to ascertain if the cost is reasonable given and given the material available, provide an indication of what the amount allowed may provide for;

   d) review what likely works and allowance has been made in the Marshall DCP and the Marshall PSP drainage infrastructure to enable NEIP to connect to the outfall;

   e) review the outfall drain project DI DR01a for its adequacy;

   f) consider the stormwater drainage implications of the Marshall PSP/DCP including the various requirements of the PSP and particularly the submissions of the two agencies namely Barwon Water and DEECA as they relate to volumetric flows and then express a view whether achieving the targets that they may be referring to is reasonably practicable for urban development having regard to your knowledge of PSPs, the Marshall PSP, the NEIP PSP and stormwater drainage generally;

   g) Review an issue concerning the waterway between Barwon Heads Road and Tannery Road. The waterway is aligned so that there is a piece of land within the NEIP which is "orphaned" or severed from the NEIP on the north west side of the waterway. We request that you turn your mind to whether that design outcome is inevitable or whether there may be a solution to how the NEIP land may be treated in a more efficient manner.

   h) the culverts under Tannery Road are sized smaller than the culverts under Barwon Heads Road and there is the prospect that with flows from Marshall PSP, there will be an overtopping of the waterway so as to flood property on either side. Can you examine the Marshall SWMS to ascertain whether that issue was envisaged or whether there are any additional works that should be planned as part of the Marshall PSP/DCP to address that circumstance where the downstream culvert is larger than the upstream culvert.

8. Whilst my initial instructions included a request to provide advice in relation to the costing of the DI_IT_02 intersection in the Marshall DCP, subsequent instructions removed that requirement, given that a finalised design for the intersection was not available in time for this report, and hence and my report is focussed on drainage and drainage related matters.

2.1 Reference Documents

The reference documents that I have reviewed in preparing this expert report are shown in Table 3 below.

Table 2: Reference Documents

Ref	Description	Date
1	Armstrong Creek North East Industrial Precinct Structure Plan	May 2010
2	Permit PP-661-2010/A	23 March 2012
3	Armstrong Creek Urban Growth Plan – Framework Plan	Amended June 2015
4	Draft Marshall Precinct Structure Plan	July 2023
5	Clause 37.07 Urban Growth Zone - Schedule 7 (UGZ7) - Exhibition	-
6	Clause 45.06 Development Contributions Plan Overlay - Schedule 10 (DCPO10) - Exhibition	-
7	Clause 43.02 - Design And Development Overlay - Schedule 51 (DDO51) - Exhibition	-
8	Clause 52.16 Schedule - Native Vegetation Precinct Plan - Exhibition	-
9	Clause 66.04 Schedule - Referral Of Permit Applications Under Local Provisions - Exhibition	-
10	Clause 72.03 Schedule - What Does This Planning Scheme Consist Of - Exhibition	-
11	Clause 72.03 Schedule (Track Changes) - What Does This Planning Scheme Consist Of - Exhibition	-
12	Clause 72.04 Schedule - Incorporated Documents - Exhibition	-
13	Clause 72.04 Schedule – (Track Changes) Incorporated Documents – Exhibition	-
14	Amendment C278ggee – Explanatory Report - Exhibited	-
15	Amendment C278ggee – Instruction Sheet – Exhibition	-
16	Zone Maps - Exhibition	-
17	DDO Map - Exhibition	-
18	DCPO Maps - Exhibition	-
19	EAO Map - Exhibition	-
20	Marshall Precinct Structure Plan (Marshall PSP)	July 2023 – Amended March 2024
21	Marshall Development Contributions Plan (Marshall DCP)	August 2023
22	Marshall Native Vegetation Precinct Plan	October 2022
23	Servicing Plan prepared by TGM	13 September 2018
24	Fauna Surveys prepared by Ecolink Consulting	May 2022
25	Stormwater Management Strategy prepared by Spiire	December 2022

Ref	Description	Date
26	Preliminary Environment Assessment prepared by WSP	September 2023
27	Marshall PSP – Background Report prepared by Greater Geelong City Council	-
28	Vegetated Habitat Assessment prepared by EcoLink Consultung	5 April 2024
29	Bundle of Submissions to Amendment C278ggee	Various
30	Urban stormwater management guidelines – EPA Publication 1739.1	June 2021
31	Barwon Catchment Strategic Directions Statement (Barwon Integrated Water Management Forum)	2022
32	Neil Craigie – Statement of Expert Evidence, Marshall PSP (Drainage and Flooding)	October 2024

3. Introduction

3.1 Overview

9. Amendment C278Gggee the Greater Geelong Planning Scheme seeks to introduce the Marshall Precinct Structure Plan (Marshall PSP), the Marshall Development Contributions Plan (Marshall DCP) and a number of additional planning controls into the Greater Geelong Planning Scheme.

10. The regional context for the Marshall PSP within the Armstrong Creek Area, in relation to drainage outfall, is shown in the Spiire Geelong Regional Context Map (refer to Figure 1 below).

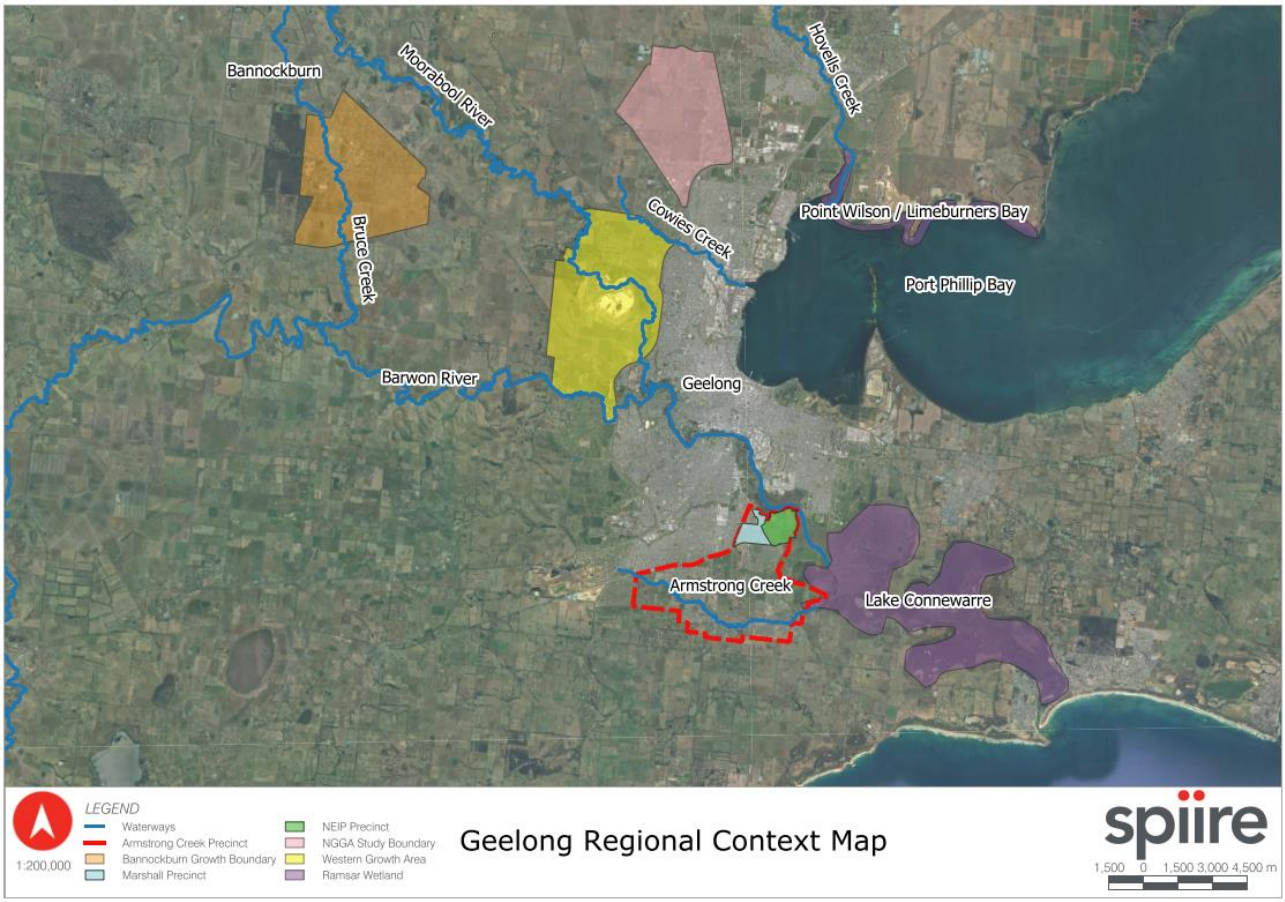


Figure 1: Geelong Regional Context Map

11. Adjoining Marshall PSP to the east is the Armstrong Creek North East Industrial Precinct (NEIP), shown in Figure 2 below. The Marshall PSP has two main drainage catchments and outfall points, with the northern catchment outfalling through the NEIP to Barwon River, and the southern catchment outfalling to Sparrovale Wetlands, as highlighted in Figure 2.

12. This report will focus on drainage issues in both the Northern catchment and Southern catchment areas.

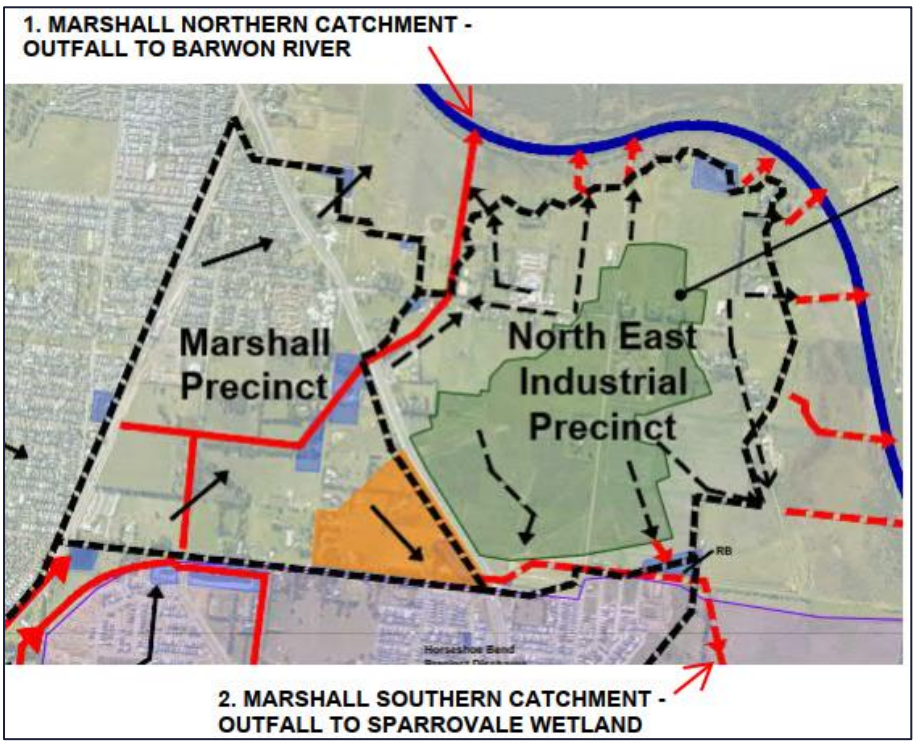


Figure 2: Marshall PSP and the NEIP PSP, highlighting the two drainage outfall locations for Marshall PSP

4. Southern Drainage Catchments

4.1.1 Marshall PSP and the NEIP PSP Southern Catchments

13. The southern Catchment area of the Marshall PSP, and a large proportion of the NEIP is proposed to outfall via Sparrowvale wetlands, and ultimately to Lake Connewarre, as shown in Figure 3 below.

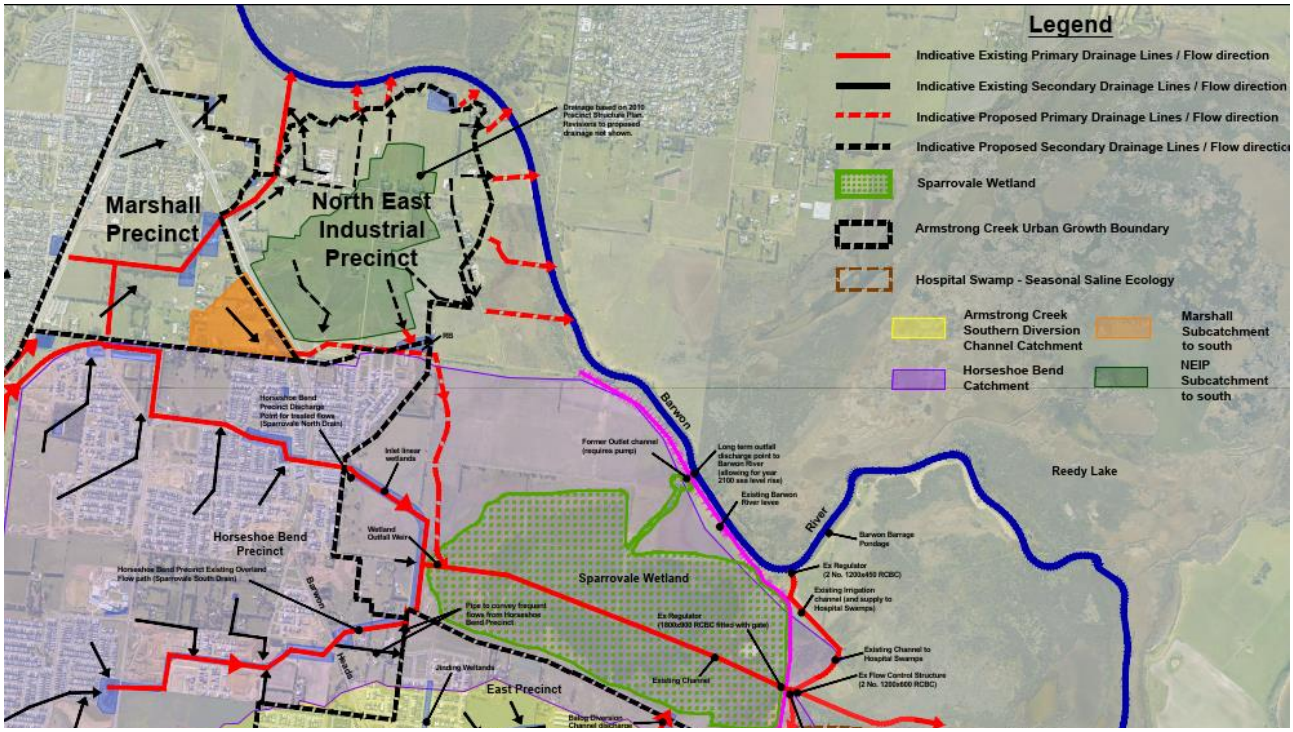


Figure 3: Southern drainage catchment draining to Sparrovale Wetland

14. The Marshall PSP southern catchment is a relatively small proportion of the overall Marshall PSP area, with 17.1 ha outfalling to the south. The Water Technology (WT) 2009 SWMS prepared for the NEIP, shows a 97ha southern drainage catchment (Subcatchment 1 shown in Figure 4 below). Whilst the WT SWMS at the time envisaged the southern NEIP catchment would be connected directly to the Barwon River (in an easterly direction), the current proposal is for this catchment to outfall south through the Sparrowvale wetlands.

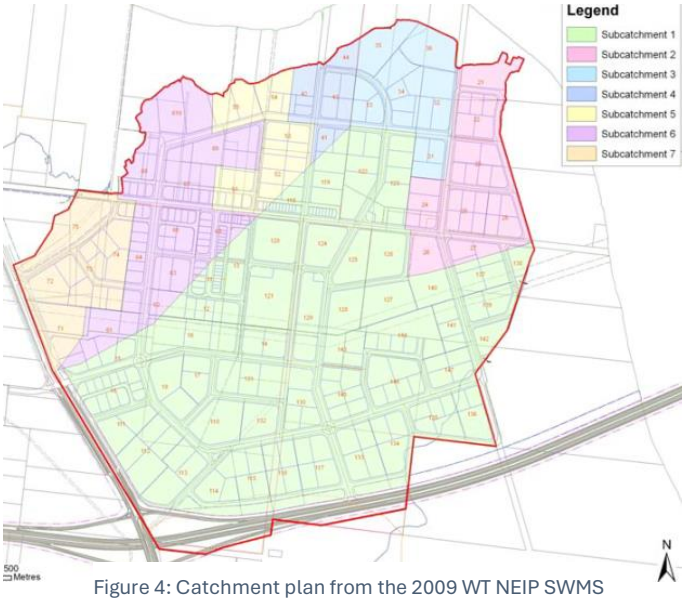


Figure 4: Catchment plan from the 2009 WT NEIP SWMS

15. The NEIP PSP and DCP gazetted in 2010 is currently going through a process to update them to current standards. This process will include an update of the SWMS to reflect current best practice. It is expected that the SWMS update will review the extent that the WT SWMS Subcatchment 1 will fall to the south, noting that some of the eastern portion of Subcatchment 1 could also outfall to the east.

4.1.2 Marshall DCP – Southern catchment drainage outfall projects

16. The drainage outfall projects that provide drainage outfall for the Southern catchments of the Marshall PSP and the NEIP are DI_DR_01 and DI_RD_14, as shown in Figure 5 below.

Figure 5: Drainage projects DI-DR-01a and DI-DR-14

17. The drainage project DI_DR_01a includes an 825mm diameter stormwater drain, running east for a distance of 760m from WLRB02 at Barwon Heads Roads to the proposed open channel (DI_DR_14) which will run in a southerly direction to Sparrowvale wetlands. DI_DR_14 comprises an open channel with a series of pools, as per the concept plan included in the Marshall SWMS, and shown in Figure 7 below.

18. Given that the updated SWMS for the NEIP has not yet been completed, it is not clear exactly how the NEIP drainage outfall will connect to the above drainage projects. The two drainage projects do not preclude the drainage connections from the NEIP however and the drainage connections should be able to be accommodated during the detailed design phase.

19. DI_DR_01a appears to be adequate for the drainage outfall of the Marshall PSP southern catchment, and will allow for the retarded developed flows from this catchment. The crossing of the recently duplicated section of Barwon Heads Road will present construction challenges, and will likely need to be constructed using an open trench methodology given the existing utility services that need to be crossed, and hence the additional costs of Traffic Management and reinstatement of Barwon Heads Road need to be included in the DCP project costs for DI_DR_01a (traffic Management and road reinstatement costs in the order of $300,000 could be expected for these items).

20. I note that the Glenlee housing development is progressing on the South side of Marlee Drive, and that the road and utility service construction works associated with the development will add to the complexity of construction the DI-DR-01a drain in the future. Council should ensure that sufficient road or drainage reserve is provided on the north side of Marlee Drive, in order to provide for the future construction of the proposed 825mm diameter drainage pipe (DI_DR_01a), and also ensure that no utility services are constructed along this drainage alignment. Refer to Figure 6 below which shows the area of concern.

21. This matter should be addressed prior to finalising the Planning Amendment to ensure that the drainage pipe is able to be constructed in the future, and to avoid the construction cost increasing beyond the DCP allowance for the project.

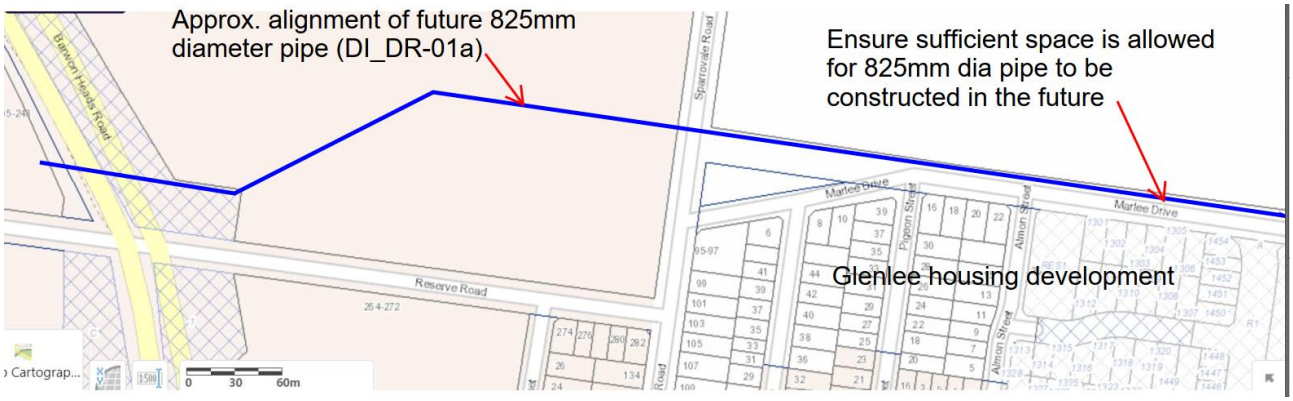


Figure 6: Glenlee housing development and alignment of future 825mm diameter pipe (DI-DR-01a)

22. DI-DR-14 comprises an open channel with a series of pools as shown in the SWMS concept plan (refer Figure 7 below). The Spiire SWMS explain the following design features of the project:

    a) The alignment of the waterway is not fixed, and the alignment will need to be reviewed with input from Environmental specialists in order to minimise environmental impacts;

    b) The pools are a necessary design feature to respond to the flat terrain;

    c) The waterway has not been designed to accommodate the 100 year design flows, and it is expected that larger storm events will spill from waterway into the surrounding wetland area;

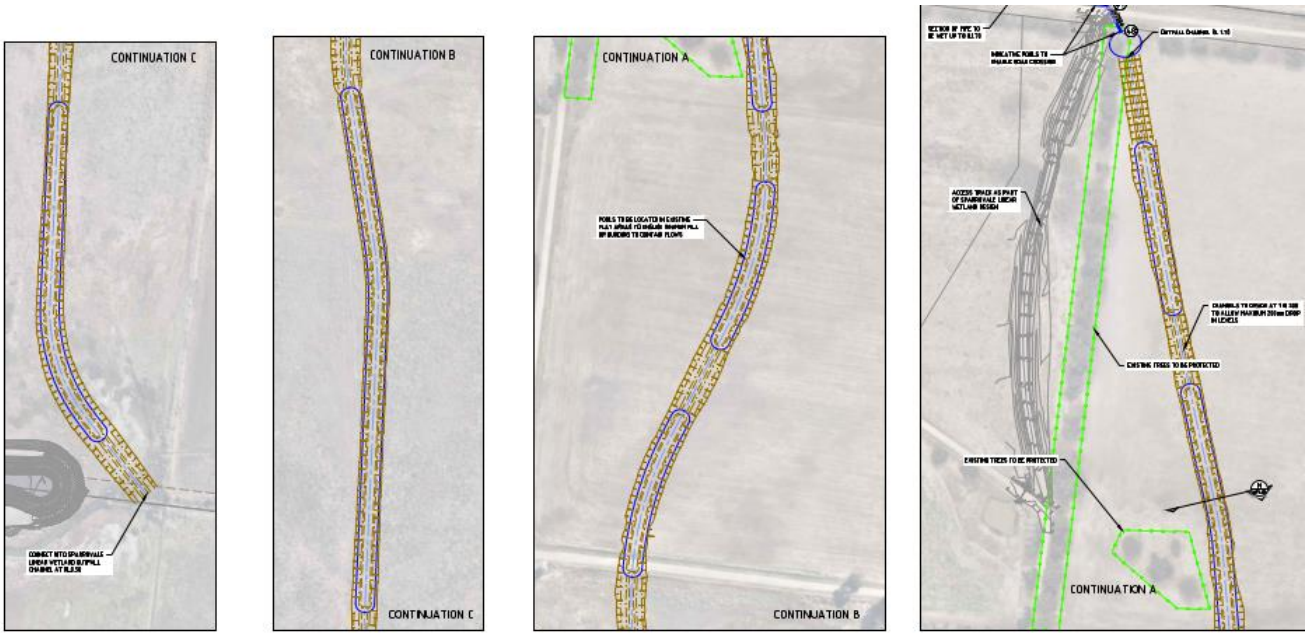


Figure 7: Drainage project DI_DR-14 concept plan, extract from Marshall SWMS Appendix 3

23. DI_DR_14 does not make any specific allowance for volume reduction of stormwater. As discussed in section 4.2 below, Sparrovale wetlands together with the internal drainage elements of the SWMS will provide a significant amount of volume reduction without needing to construct any further additional works such as additional evaporation areas.

24. The DCP has an amount of $2,429,555.22 for DI_DR_14 which appears to be a sufficient allowance for the construction works proposed. I note from Neil Craigie's expert report related to Sparrovale wetlands (report dated 28/10/24), that there is a recommendation to undertake additional flood modelling to confirm any marginal impact in ponding duration and water levels in Sparrovale wetlands with adding in the Marshall PSP and the NEIP southern drainage catchments. My recommendation is that the DI_DR_14 drainage project costing allowance be reviewed to include the cost of this drainage modelling, plus any other environmental Flora and Fauna, CHMP reports that will be required in this sensitive area.

25. Should it be determined that additional evaporation areas are required to provide additional stormwater volume reduction for Marshall PSP and the NEIP, then the cost of these additional works should be included in the DCP project DI_DR_14.

26. DI_DR_14 provides drainage outfall for both the Marshall PSP and the NEIP and this DCP project has been apportioned 85% to Marshall and 15% to the NEIP. This is consistent with the relative catchment areas for the two precincts, on the assumption that the WT SWMS Subcatchment 1 will all fall to the South. Should the Subcatchment 1 be reduced in area as part of the NEIP SWMS update, then the apportionment between Marshall PSP and the NEIP should be reviewed. Hence an early determination of the NEIP southern catchment area in the revised NEIP SWMS would be desirable prior to finalising this Planning Amendment.

27. In relation to answering the question - *is the apportionment between the NEIP and Marshall PSP fair*?
The apportionment proposed in the Marshall DCP is consistent with the relative catchment areas of the two precincts (based on the 2009 NEIP SWMS), and hence appears to be a fair approach to cost apportionment. If the southern catchment of NEIP is reduced in area as part of the updated SWMS, then the apportionment between the two precincts should be adjusted accordingly.

4.2 Volumetric reduction of Stormwater

28. The Stormwater Management Strategy (SWMS) prepared by Spiire in December 2022 (Marshall PSP SWMS) forms the basis for the footprint of the drainage assets shown in the Marshall PSP, and the subsequent drainage infrastructure projects included in the Marshall DCP.

29. The Key objectives of the Marshall PSP SWMS are stated as follows:

    a) Management of flood flows using retarding basins.

    b) Water quality treatment using Water Sensitive Urban Design (WSUD).

    c) Conveyance of peak flows through the Precinct using pipes, road reserves and constructed waterways.

    d) Outfall drainage downstream of the Precinct through constructed waterways.

30. The Marshall PSP SWMS states the following in relation to volumetric reduction of stormwater:

    It is important to note that, as agreed with The City, volumetric reduction of stormwater has not been assessed or provided for Marshall PSP SWMS. Recycled Water will be provided by Barwon Water to Marshall Precinct (referred to hereinafter as "the Precinct") and the expectation is that this will be mandated for toilet flushing and garden tap supply. In the absence of any other large demands, such as sporting ovals within the Precinct, meaningful volumetric reduction of stormwater is considered unfeasible.

31. Two submitters to the Marshall PSP (Barwon Water and DEECA) raised the issue of whether volumetric reduction of stormwater should be adopted in the Marshall PSP, as shown in extracts of the submissions shown in Figure 9 and Figure 8 and below.

Integrated Water Management
Noting the "General Environmental Duty" (GED) under the *Environment Protection Act 2017*, the PSP's requirements for integrated water management (e.g. R71) should extend to meeting the volume reduction targets of the Environment Protection Authority's "Urban stormwater management guidelines" (Publication 1739.1, June 2021).

Figure 9: Extract from DEECA submission to CoGG dated 15th July

62	R56	Barwon Water has been working closely with DEECA and local government across the region to pursue concepts for stormwater volume reduction, inline with the EPA Guidance Note (2021). DEECAs experts have advised that 'urbanisation, without appropriate stormwater management (including volume reduction) will negatively impact physical, ecological, social values of waterways and will result in the loss of high value wetlands.' It also states that 'stormwater harvesting can - and should - be considered an imperative to protect flow regimes and water quality and the receiving water bodies.' Most recently, Barwon Water received our Corporate Letter of Expectations (LOE 2024-25) from the Minister for Water, the Hon. Harriet Shing MP. It specifically calls out the above issues and risks of stormwater management, specifically, "Given the greenfield urban development planned in the Barwon and Moorabool Catchments, and the associated risk of stormwater impacting the region's natural assets, my expectation is that Barwon Water Corporation prioritise how to manage these risks with Integrated Water Management Forum partners." How does the Marshall PSP Stormwater Strategy propose to address this? The current Spiire work and actions outlined in 3.5 do not comment on stormwater volume reduction.

Figure 8: 2024Extract from Barwon Water submission to CoGG dated 8th May 2024

4.2.1 EPA Publication 1739.1 Urban Stormwater management guidelines

32. EPA's 2021 Publication 1739.1 Urban Stormwater management guidelines (Publication 1739.1) details how to assess stormwater risks and implement associated controls. The guidelines states that it is not a compliance document, but rather that it contributes to the state of knowledge about the harm or risks of harm to human health and the environment, and that the guide should be used to minimise risks *so far as reasonably practicable*.

33. Table 1 in Publication 1739.1 is reproduced in Figure 10 below, and this shows the Quantitative performance objectives for urban stormwater.

34. The Geelong Mean Annual Rainfall is 512.2mm (source: Bureau of Meteorology website - Geelong Racecourse gauge). This indicates that the appropriate rainfall band to adopt in the Table 1 of Publication 1739.1 is 500ml, which is the range that is closest to 512.2mm, as highlighted in Figure 10 below.

Indicator	Performance objective
Suspended solids	80% reduction in mean annual load (Note:1)
Total phosphorus	45% reduction in mean annual load (Note:1)
Total nitrogen	45% reduction in mean annual load (Note:1)
Litter	70% reduction of mean annual load
Flow (water volume)	

	Priority areas (Notes 2, 4, 5, 6)		Other areas (Notes 3, 4, 5, 6)	
rainfall band (ml)	Harvest/evapotranspire (% mean annual impervious run-off)	Infiltrate/filter (% mean annual impervious run-off)	Harvest/evapotranspire (% mean annual impervious run-off)	Infiltrate/filter (% mean annual impervious run-off)
200	93	0	37	0
300	88	0	35	0
400	83	0	33	0
500	77	5	31	4
600	72	9	29	7
700	68	11	27	9

Figure 10: Extract of Table 1 from Publication 1739.1Quantitative performance objectives for urban stormwater, with Geelong rainfall band highlighted

35. Notwithstanding that Marshall PSP is not specifically identified as being a Priority Area in Publication 1739.1, given that the southern drainage catchments of Marshall PSP and NEIP outfall to Sparrovale wetlands, and ultimately to Lake Connewarre (which forms part of the RAMSAR listed Port Phillip Bay Western Shoreline and Bellarine Peninsula area), it would be reasonable to assume that this is a Priority drainage area.

36. Marshall PSP SWMS achieves the stormwater quality targets shown at the top of Figure 10 above. The following section discusses whether Marshall PSP and the future NEIP will achieve the aspirational volume reduction of stormwater that the guidelines are stipulating.

4.2.2 Methods of stormwater volume reduction

37. The usual methods of stormwater volume reduction are described in Publication 1739.1, and include the following:

    a) Infiltrating a portion of stormwater runoff. Given the ground conditions and high water table in the Marshall area, it is not expected that large amount of stormwater volume could be reduced by infiltration.

b) Leaky rainwater tanks. Given the mandate for each lot to be connected to recycled water, rainwater tanks would not be appropriate for the Marshall and NEIP areas.

c) Stormwater harvesting. Given the mandate for each lot to be connected to recycled water, stormwater harvesting would not be necessary for the Marshall and NEIP areas, unless this was to be undertaken as part of a more regional scheme (as discussed below).

d) Evapotranspiration. This will be achieved to a limited extent by the constructed wetlands and RBs in both the Marshall and NEIP PSPs, as well as within the Sparrovale Wetland as discussed further below.

e) Self watering street trees. This is possible for both precincts and will provide some further stormwater volume reduction.

4.2.3 Sparrovale Wetlands

38. As described in Neil Craigie's Expert Evidence report (dated 28/10/2024), Sparrovale Wetlands were designed to provide Stormwater volume reduction for the Armstrong Creek catchment area. It would appear that the Sparrowvale Wetlands is capable of providing a significant amount of volume reduction for the southern catchments of Marshall PSP and the NEIP, as detailed in Neil Craigie's report.

4.2.4 Barwon Catchment Strategic Directions Statement 2022

39. I note that the Barwon Catchment Strategic Directions Statement 2022 prepared by the Barwon Integrated Water Management Forum, included as one of their 19 Integrated Water Management Opportunities the following project (with Barwon Water as the lead agency):

    a) Investigate Feasibility of Staged Large-scale Stormwater and Recycled Water Networks

    The project will investigate the feasibility of the staged implementation of large-scale recycled water and treated stormwater networks in the Barwon region, including the Moorabool Valley, Surf Coast Hinterland and the Bellarine. The project seeks to unlock the potential of agriculture and primary industry, promote the growth, sustainability and resilience of the regional economy, and provide for environmental and cultural needs. These large-scale water networks have the potential to build on many of the location-based recycled water and stormwater priorities highlighted in this SDS and will help deliver greater regional benefits by better linking diverse sources of water with locations of beneficial use.

    As part of the above project, the feasibility of a regional based stormwater re-use scheme will be investigated, and if a use case for the harvested stormwater can be found, then this has the potential to further reduce the volume of stormwater discharging from the developed Armstrong Creek Urban catchments.

4.2.5 Overall Stormwater volume reduction

40. In my opinion, the combination of the above methods of stormwater volume reduction (from wetlands/ RBs, self watering street trees and from Sparrowvale Wetlands) as well as the potential for a future regionally based stormwater reuse scheme would appear to satisfy the *so far as reasonably practicable* approach of the Publication 1739.1, in respect to the Southern catchment areas.

5. Tannery Road Reach of Marshalls Creek

41. In my review of the Marshall PSP, there are two issues of concern in relation to the Tannery Road Reach of Marshalls Creek within the Northern Drainage Catchment area of the PSP (refer to Figure 11 below), namely:

    a) the inadequate capacity of the existing culverts crossing Tannery Road, and

    b) An "orphaned" area of land on the west side of Tannery Road reach, between the drainage reserve and the eastern boundary of the Marshall PSP.

    These two issues are discussed in more detail below.

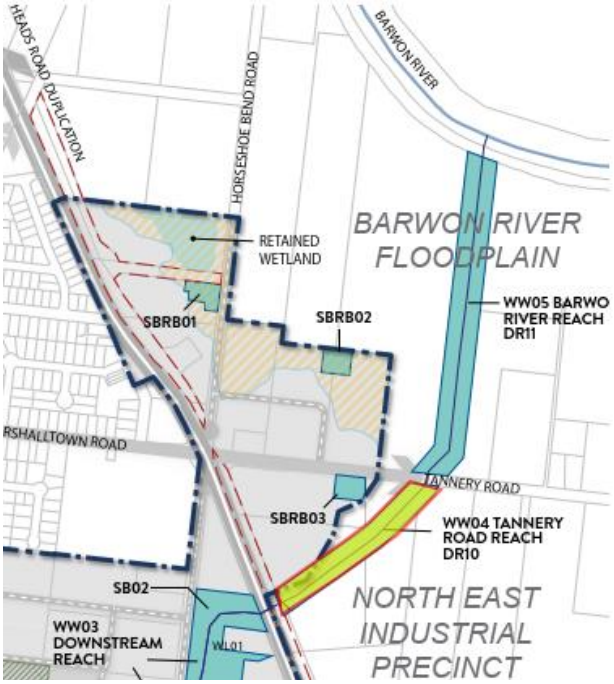


Figure 11: Extract from P12 Integrated Water management Plan, highlighting the Tannery Road Reach

5.1 Tannery Road Culverts

42. The Stormwater Management Strategy (SWMS) prepared by Spiire (2022) indicates that at the upstream end of Tannery Road reach, there are existing culverts under Barwon Heads Road (2 No 2100 x 900mm and 2 No 1800 x 900mm box culverts), as shown in Figure 12 below.

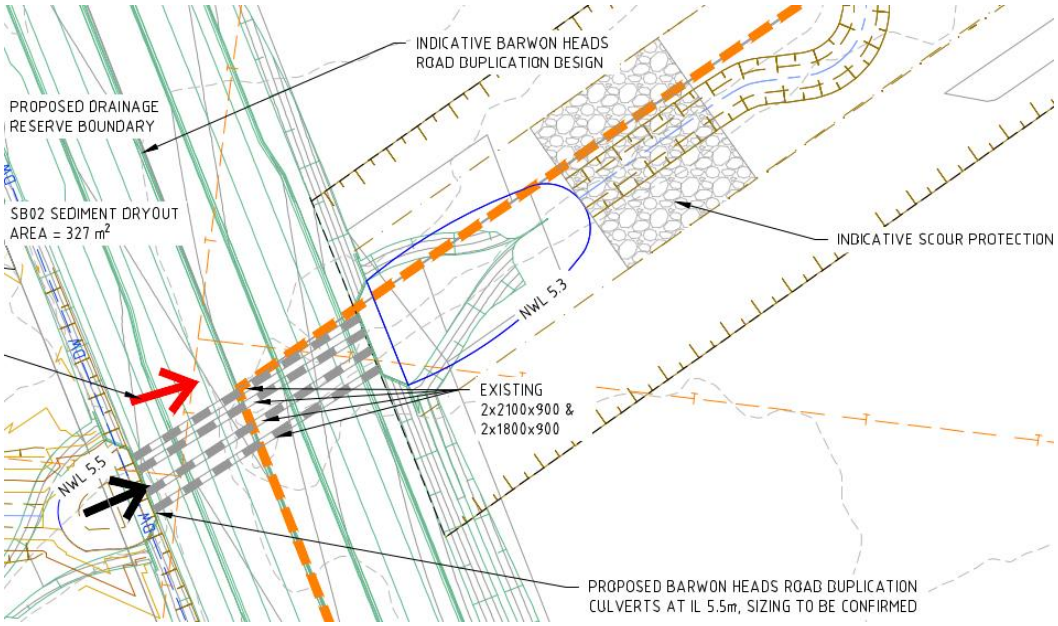


Figure 12: Existing culverts crossing under Barwon Heads Roads – From Spiire concept design plans Appendix 3 of SWMS

43. The SWMS shows that at the downstream end of the Tannery Road reach, that there are existing culverts under Tannery Road (2 No 1500mm diameter pipes), as shown in Figure 13 below.

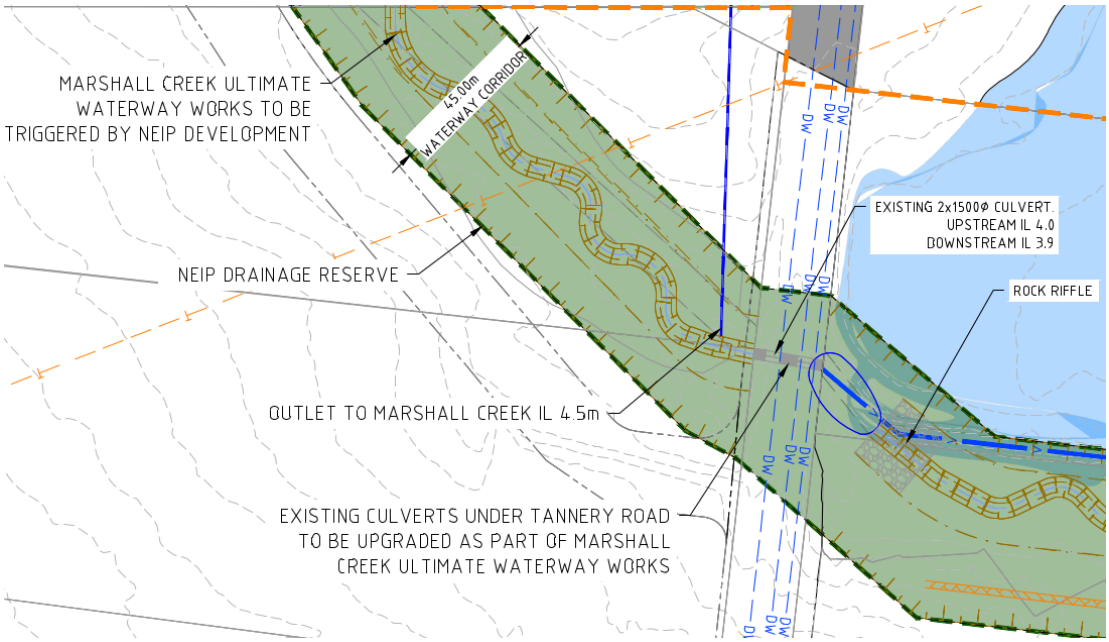


Figure 13: Concept design of Tannery Road reach, showing existing culverts crossing under Tannery Road
(From Spiire concept design plans Appendix 3 of SWMS)

44. With an estimated 1% AEP design flow of 10.2 m^3/s for the Tannery Road reach of Marshalls Creek, it would appear that the downstream existing culverts at Tannery Road are undersized.

45. I note that there is a significant difference in the cross sectional areas of the upstream culverts crossing under Barwon Heads Road (7.02m^2), compared to the downstream culverts crossing under Tannery Road (3.53m^2) – with the cross sectional area at Barwon Heads Road twice the cross sectional area at Tannery Road.

46. It is unclear whether there is an intention to upgrade the existing culverts at Tannery Road. There is no mention of upsizing these culverts in the SWMS, except for the note on the concept plan (refer Figure 13 above), which states that the existing culverts are to be upgraded as part of the Marshall Creek ultimate waterway works.

47. The DCP project DI_DR_10 makes an allowance of $1,836,702.40 for *"Construction of Waterway in between Barwon Head Road and Tannery Road (WW04)"*. There is no mention in the description of the project that the culverts under Tannery Road will be upgraded.

48. If the Tannery Road culverts are not upsized, this will likely result in flooding of Tannery Road and the properties either side of Marshall Creek (south of Tannery Road) in large storm events once the upstream areas are developed.

49. My recommendation is to upsize the culverts under Tannery Road to accommodate the design flows, with similar cross sectional area as the Barwon Heads Road crossing. That would entail an additional 2 No 1500mm diameter pipes to be installed, or box culverts with the same cross sectional area, and for the cost of these culverts to be included in the Marshall DCP.

5.2 Orphaned land west of Marshalls Creek

50. The 2010 Armstong Creek NEIP PSP shows a retardation basin within the drainage reserve of Marshalls Creek (south of Tannery Road), as shown in Figure 14 below.

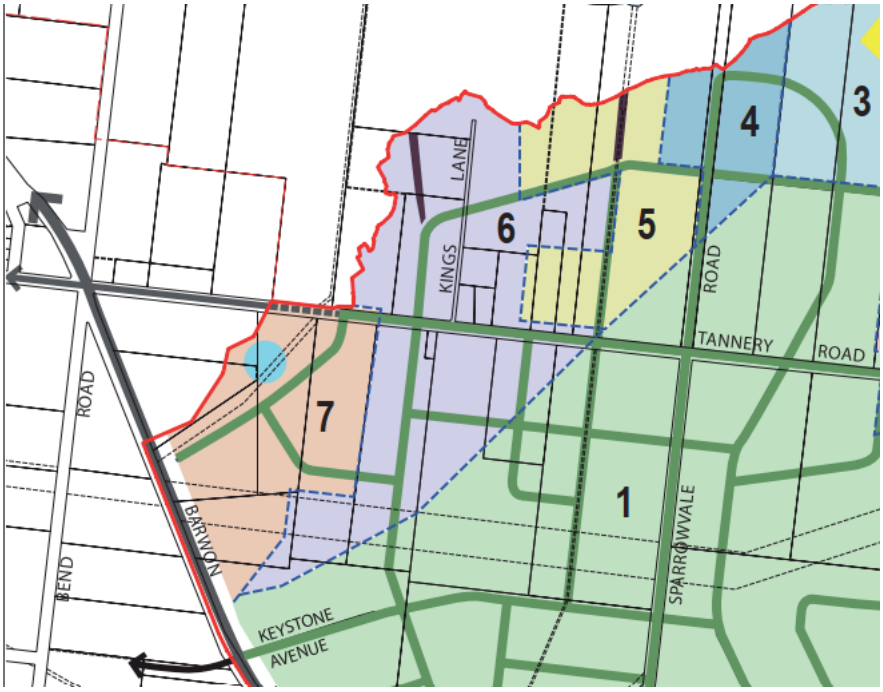


Figure 14: Extract from Figure 13 (Water Sensitive Urban Design Plan) of the Armstong Creek NEIP PSP, with the Blue dot indicating the proposed Retardation basin

51. The 2009 Armstrong Creek NEIP SWMS prepared by Water Technology (WT) had also allowed for an online retarding basin to be located within Marshalls Creek, as shown in Figure 15 below.

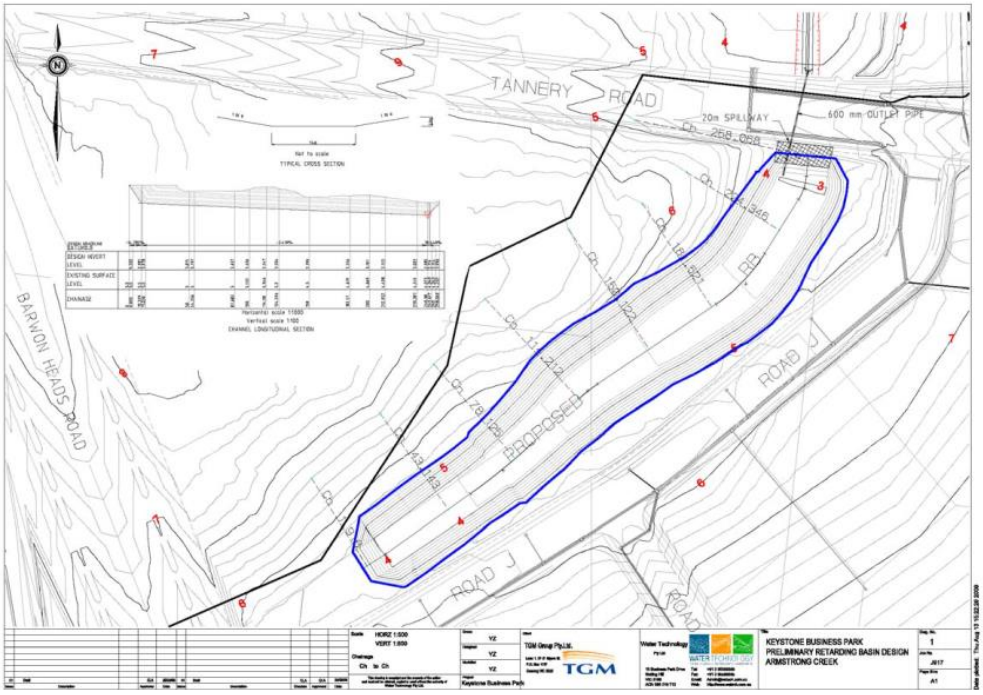


Figure 15: Figure 4-6 from the Armstong Creek NEIP SWMS, showing proposed design of the on-line retarding basin

52. Spiire state in the 2022 Marshalls PSP SWMS that Council's preference is not to have on-line retardation, and hence the retardation basin shown in the NEIP SWMS has been removed from the Marshall PSP. This has resulted in an area of land west of the Marshalls Creek (south of Tannery Road) that is within the NEIP PSP, but disconnected from the balance land within the NEIP PSP, as highlighted purple in Figure 16 below.

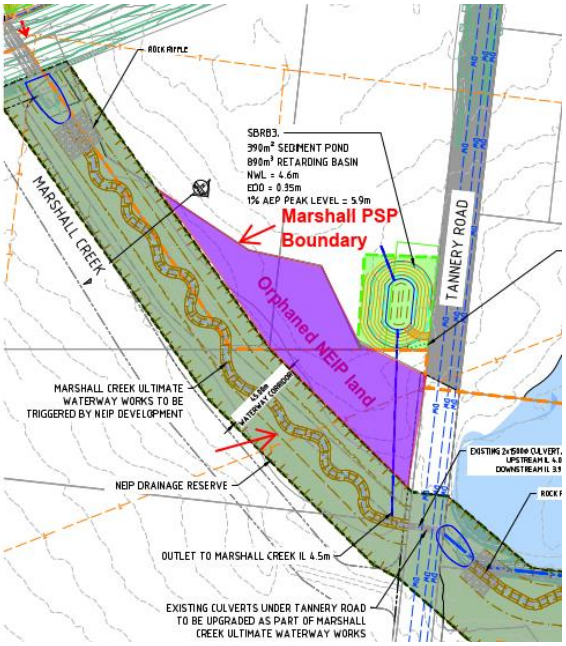


Figure 16: Extract from Spiire SWMS (Appendix 3 concept plans), with orphaned land highlighted in purple

53. Spiire have suggested a possible change to the drainage concept plan that could utilise the orphaned land, by realigning the waterway to the west. This would then result in land being available to provide a water quality treatment device to service the NEIP catchment on the east side of Marshalls Creek, as shown in Figure 17 below.

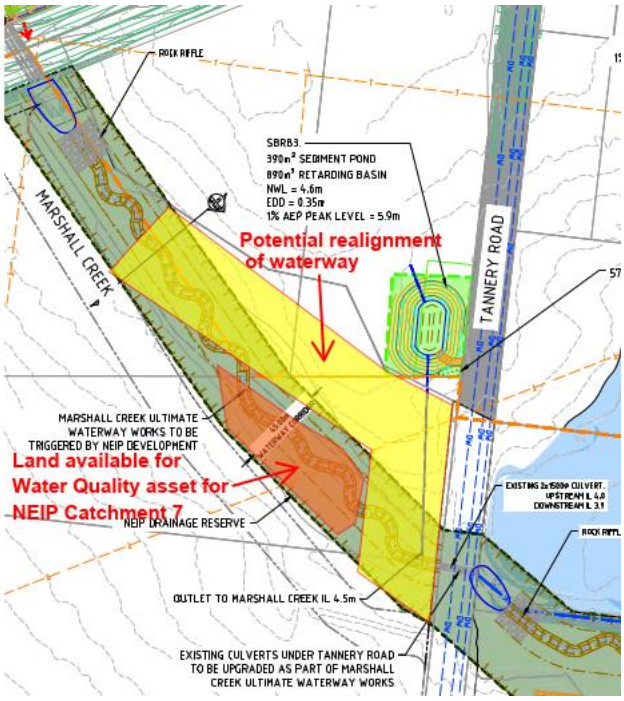


Figure 17: Potential realignment of Marshalls Creek Waterway to accommodate Water Quality asset on east side with the NEIP

54. Whilst the Spiire suggestion to realign the creek may have merit, there may be other solutions that make better use of the orphaned land. My recommendation is that the concept plan for Marshalls Creek in the Marshall PSP and SWMS be modified to reduce the area of the NEIP orphaned land, and also that the upgrade of the culverts under Tannery Road be included in the Marshall DCP.

6. Conclusion and Recommendations

55. Apportionment of the Marshall DCP project DI_DR_14 with the NEIP appears to be a fair apportionment, however should be reviewed once the NEIP SWMS has been finalised, to confirm the area of the NEIP that will fall to the south. Hence an early determination of the NEIP southern catchment area in the revised NEIP SWMS would be desirable prior to finalising this Planning Amendment

56. The southern catchments of the Marshall PSP and the NEIP oufalling via Sparrovale wetlands appear to be meeting the water quality targets, and providing significant volume reduction as per Publication 1739.1, so far as reasonably practicable. I note that Barwon Water is also undertaking a feasibility study that is examining future regional stormwater harvesting opportunities in the overall area, and if implemented, the combined stormwater volume reductions of all these measures could then achieve the Publication 1739.1 reduction targets.

57. Council should ensure that sufficient road or drainage reserve is provided on the north side of Marlee Drive, in order to provide for the future construction of the proposed 825mm diameter drainage pipe (DI_DR_01a), and also ensure that no utility services are constructed along this drainage alignment. This matter should be addressed prior to finalising the Planning Amendment to ensure that the drainage pipe is able to be constructed in the future, and to avoid the construction cost increasing beyond the DCP allowance for the project.

58. The Marshall DCP project DI_DR_14 costing allowance should be reviewed to include the cost of the proposed Sparrovale drainage modelling, plus any other environmental Flora and Fauna, CHMP reports that will be required in this sensitive area. Whilst I am unable to ascertain what consultant allowances have been made in this DCP project, these costs would typically be in the order of $200,000 and it my opinion should be included in the DCP project.

59. Whilst it appears that additional evaporation construction works are not necessary for the southern catchments of Marshall PSP and the NEIP, should others determine that they are necessary, then the cost of such works should be included in the Marshall DCP project DI_DR_14.

60. The Marshall SWMS should be amended to show the Tannery Road culverts upgraded to cater for the design flows, and the cost allowance in the Marshall DCP (project DI_DR-10) should be updated accordingly. The additional cost for the culverts and reinstatement of the road would likely be in the order of $250,000.

61. The alignment of the Tannery Road reach of Marshall Creek should be adjusted to allow for the future water quality treatment asset in the NEIP, and to fix the issue related to the orphaned land on the west side of the drainage reserve, as shown in Figure 17 on page 23 of this report.

Appendix A

Instructions from Maddocks

Maddocks

IN PLANNING PANELS VICTORIA

GREATER GEELONG PLANNING SCHEME AMENDMENT C278ggee
MARSHALL PRECINCT STRUCTURE PLAN

RE-GROW GEELONG PTY LTD

EXPERT WITNESS BRIEF TO STEPHEN WATTERS - SMEC

BRIEF TO EXPERT

1. OVERVIEW

1.1 Maddocks acts for Re-Grow Geelong Pty Ltd (**Re-Grow**), which is the owner of a number of land parcels within the Armstrong Creek North Creek North East Industrial Precinct (**NEIP**). The plan below in Part 2.0 identifies the parcels owned by Re-Grow

1.2 Re-Grow has lodged a submission in relation to Draft Greater Geelong Planning Scheme Amendment C278ggee (**Amendment**), which proposed to introduce the *Marshall Precinct Structure Plan* (**Marshall PSP**), the *Marshall Development Contributions Plans* (**Marshall DCP**) and a number of additional planning controls into the Greater Geelong Planning Scheme (**Scheme**).

1.3 The full suite of amendment documents is provided in your brief.

1.4 The Amendment was placed on exhibition between 24 April - 3 June 2024, and Re-Grow lodged its submission responding to the Amendment for Council's consideration on 3 June 2024.

1.5 We understand that Council will consider the submissions at a meeting in August 2024.

1.6 Following this, the Amendment will be listed for hearing in Planning Panels Victoria in or around **6 November 2024**.

1.7 You are instructed to advise and appear for Re-Grow in relation the Amendment.

1.8 This Memorandum outlines the relevant background to the matter and identifies your instructions.

1.9 We also **attach** an electronic brief of relevant documents.

2. KEY ISSUES FOR REGROW

2.1 Relevant to your field of expertise there are two separate prongs to this request.

2.2 The first is for you, at the appropriate time, to undertake a cost assessment of an intersection that is proposed to be a DCP project. The context for this part of your brief is set out further below.

2.3 The second is to consider, prepare a report and give evidence in relation to drainage infrastructure as it affects the southern part of the Marshall PSP area and the southern catchment of the adjacent NEIP PSP area which are both planned to drain to the same outfall. The context for this part of your brief is set out further below.

2.4 In general terms, Re-Grow's concerns with the Marshall PSP relate to:

- The unplanned introduction of a Commercial Bulky Goods area on the east side of Barwon Heads Road (and partly on the west side) where residential was previously planned as part of the Armstrong Creek Framework Plan. We do not think that this aspect is within your field of expertise and we do not seek your input into this matter unless you foresee that a relevant drainage issue arises.

- The design and costing of the four way intersection between Barwon Heads Road and Keystone Blvd and the east west road through Marshall PSP. The costing of this intersection is one of the key matters we require your assistance on.

- The costing of drainage outfall DI_DR-14 which is planned by the Marshall DCP and will inevitably be used by the NEIP PSP. This project is apportioned 15% - 85% between Marshall and NEIP.

- The sufficiency of the design of the drainage scheme as described in the SWMP for Marshall PSP and in particular outfall DI_DR-14 as a means of satisfying the needs for a drainage outfall for the Marshall PSP and the NEIP PSP when it is finalised.

2.5 Specifically, on this last matter, Re-Grow is very concerned that in the context of

- Barwon Water's submissions to the Marshall PSP
- The Submission by DEECA to the Marshall PSP; and
- EPA publication 1739.2 -

that together with the operation of the General Environmental Duty at section 25 of the *Environment Protection Act 2017*, Re-Grow may end up being saddled with having to provide volumetric reduction of stormwater from either or both of the NEIP PSP and Marshall PSP areas either as part of the finalisation of the Marshall PSP/DCP or when Re-Grow and the City of Greater Geelong finalise a stormwater strategy for the NEIP. We explain this issue further below.

3. BACKGROUND

Re-Grow Land

3.1 Re-Grow is the owner of the following properties within the NEIP:

3.1.1 425-499 Barwon Heads Rd, Charlemont Vic 3216 (**Property 1**);

3.1.2 42 Sparrovale Rd, Charlemont (**Property 2**);

3.1.3 31-41 Sparrovale Rd, Charlemont (**Properties 3A & 3B**); and

3.1.4 52 Tannery Rd, Charlemont (**Property 4**) –

collectively, the **Re-Grow Land**. It is a substantial holding comprising approximately ~ 54 ha.

3.2 Re-Grow was previously a mortgagee in relation to the Re-Grow Land, when it was owned by Armstrong Creek Industrial No 2 Pty Ltd. Re-Grow then became mortgagee-in-possession and owner of the Re-Grow Land upon the previous owner's default of the mortgage. Armstrong Creek Industrial No 2 Pty ltd was, as we understand it, the relevant owner at the time the NEIP PSP was prepared and approved together with the planning permit described below in Part 3.0.

4. PLANNING MATTERS

4.1 Concurrently with the consideration of the NEIP PSP, Council issued Planning Permit PP-661-2010 (**Original Permit**) in respect of Properties 1 & 2 on 25 November 2010 allowing the subdivision of *part* of the land that is now the Re-Grow land.

4.2 On 23 March 2012 Council issued amended Permit PP-661-2010/A (**Planning Permit** and **Endorsed Plans**)(**Tab 2**), incorporating a number of amendments to conditions to allow:

4.2.1 a reconfiguration and reduction in the number of lots from 71 to 39 (excluding balance lots).

4.2.2 changes to the proposed road network.

4.2.3 addition, deletion and renumbered of a number of conditions.

4.2.4 amendments to conditions imposed by Barwon Water.

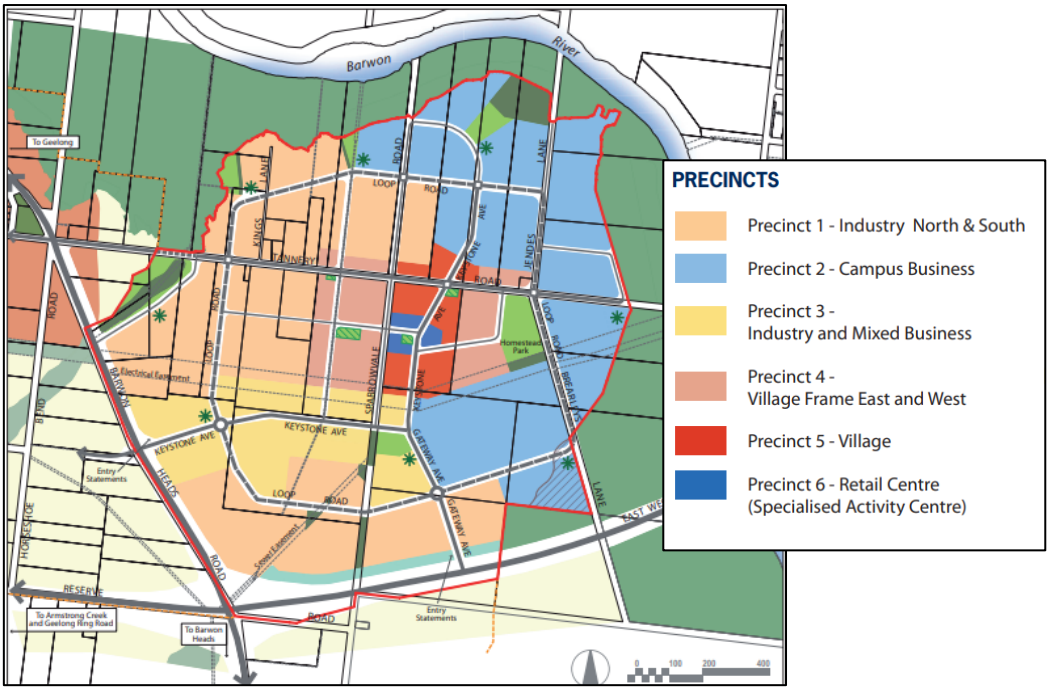
4.3 The Planning Permit has since been extended three times.

4.4 On 25 November 2021, after it came into ownership of the Re-Grow Land, Re-Grow lodged an application for extension of time of the Planning Permit under section 69 of the Act (**EOT Application**). The EOT Application has not been determined and remains before Council for consideration pursuant to the MOU discussed below.

4.5 Re-Grow entered into a Memorandum of Understanding with Council (**MOU**), in which both parties have agreed to use their best endeavours to facilitate a 'refresh' of the *Armstrong Creek North East Industrial Precinct - Precinct Structure Plan* (**NEIP PSP**) (**PSP Refresh**) and the associated DCP and an amendment to the Planning Permit (**Section 72 Amendment**) so as to *modernize* the planning permit and bring it up to contemporary standards. I the process of modernizing the NEIP PSP, it is likely that matters relating to stormwater management will be revisited.

4.6 The NEIP PSP was introduced into the Scheme following the gazettal of Amendment C207ggee on 3 June 2010.

4.7 The purpose of the NEIP PSP is to set out an integrated vision for one of the key employment precincts within the Armstrong Creek Framework Plan and to then guide its future use and development.



NEIP PSP – Figure 4: Future Urban Structure (p 17)

4.8 As discussed above, because of the time that has past since gazettal and noting that there has been no development within the NEIP, Re-Grow is working with Council in accordance with the terms of the MOU to provide for the Refresh of the PSP and the DCP. As part of the current NEIP PSP, a stormwater strategy was prepared by Water Technology and peer reviewed by Neil Craigie. A copy of this strategy and peer review (and other relevant documents) is within your brief.

5. AMENDMENT C278GGEE

5.1 The Amendment seeks to facilitate residential and commercial development in accordance with the Marshall PSP.

5.2 The Amendment proposes to:

5.2.1 apply the Urban Growth Zone Schedule 7 (**UGZ7**) to the Marshall Precinct (noting the precinct is currently zoned UGZ with no schedule);

5.2.2 incorporate the Marshall PSP, the Marshall DCP and the *Marshall Native Vegetation Precinct Plan*;

5.2.3 apply the Design and Development Overlay – Schedule 51 (**DDO51**) to 137 Barwarre Road, Marshall to safeguard future access to Marshall Railway Station from Barwarre Road; and

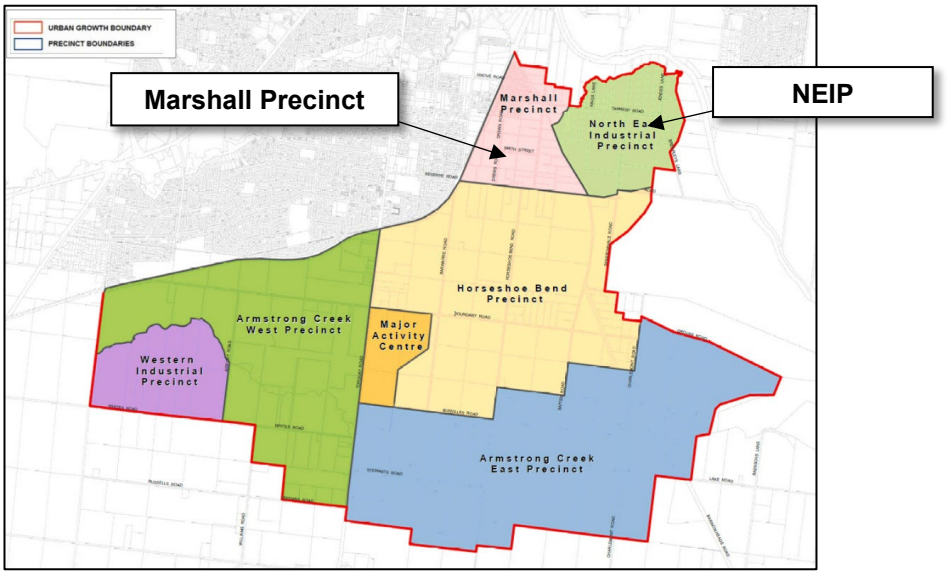
5.2.4 apply the Environmental Audit Overlay (**EAO**) to potentially contaminated land.

5.3 The Amendment was placed on public exhibition between 24 April 2024 - 3 June 2024.

5.4 Re-Grow lodged a submission, prepared by Chris De Silva on Mesh's letterhead, responding to the Amendment on 3 June 2024 (**Tab 36**) followed by an Addendum submission.

6. MARSHALL PSP

6.1 The Marshall Precinct is located directly to the west of the NEIP also within the Armstrong Creek Precinct.

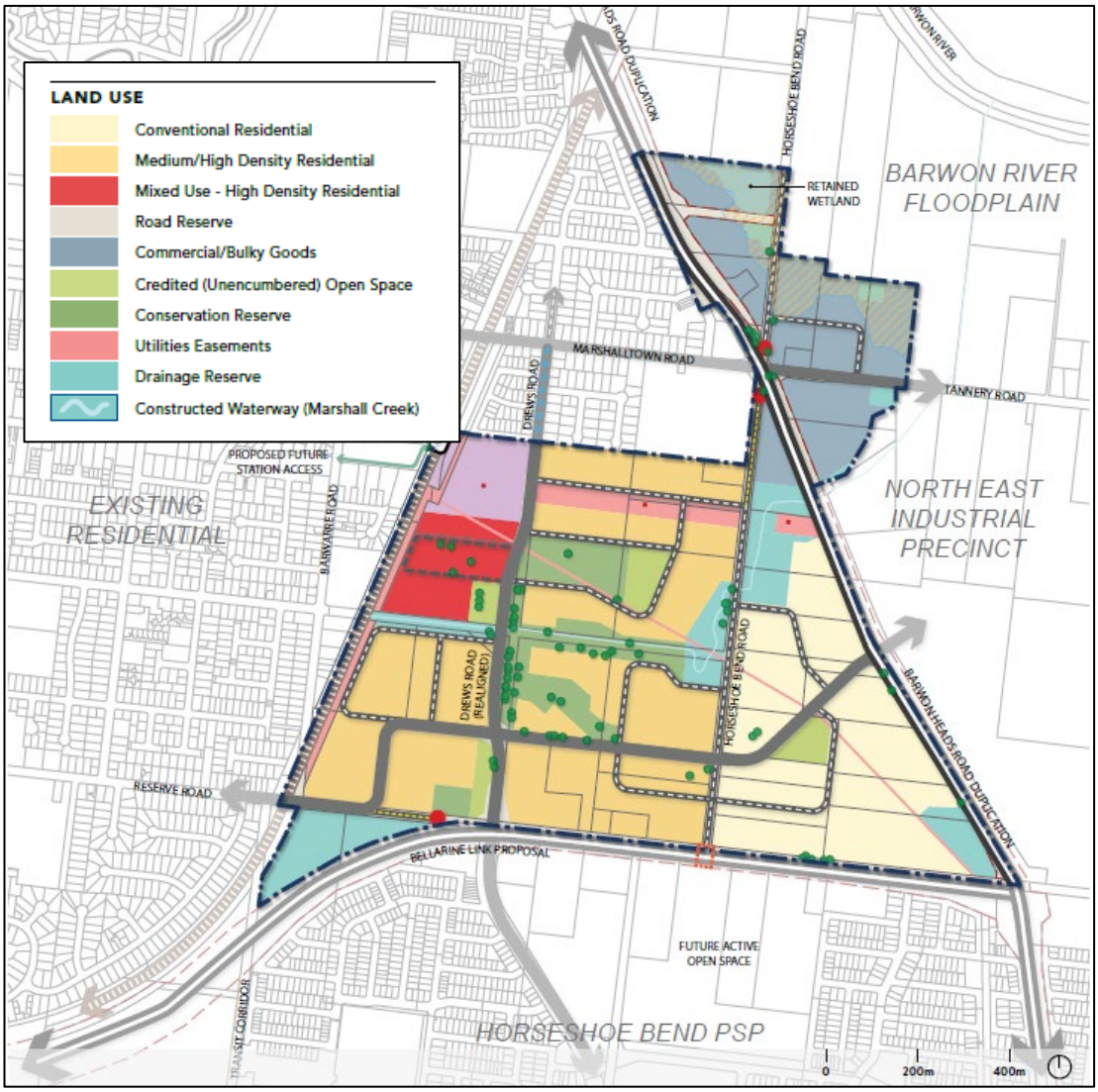


6.2 In 2017, Council committed to prepare the Marshall PSP. The Marshall PSP was supported by a number of background reports including reports relevant to drainage. These included

6.2.1 Stormwater Management Strategy December 2022 by Spiire

6.3 At its Council meeting on 26 September 2023, the Council adopted the most recent draft of the Marshall PSP and it was subsequently placed on exhibition as part of the current planning scheme amendment. The Marshall PSP is accompanied by a DCP which funds various stormwater assets as provided for in the Marshall PSP.

6.4 The Future Urban Structure Plan located at page 24 of the Marshall PSP sets out the land uses and street network for the precinct:



Draft Marshall PSP – Future Urban Structure (p 24)

6.5 Part 3.5 of the PSP deals with Integrated Water Management. There are a detailed suite of requirements and guidelines beginning at R55 on page 62 of the PSP.

6.6 The Requirements include:

R56

The storm water management system must be designed in accordance with Plan 12 Integrated Water Management and the *Marshall Stormwater Management Strategy, December 2022*, to meet the following:

- Ensure safe development at 1% Average Exceedance Probability (AEP).
- Ensure that developed conditions do not increase predeveloped flow rates.

- Provision of appropriate infrastructure between the precinct, Barwon River and Sparrovale-Nubitj yoorree Wetlands, to ensure changes to flow and quality conditions, including erosion risk, flood damage, loss of environmental habitat, access and legal rights to assets, and ensuring all associated permits are managed and mitigated.

To the satisfaction of the Responsible Authority.

R57

Stormwater conveyance and treatment must be designed in accordance with the *Marshall Stormwater Management Strategy, December 2022*, to the satisfaction of the Responsible Authority.

R58

The final layout and design of stormwater infrastructure including but not limited to; constructed waterways, wetlands, retarding basins, stormwater quality treatment infrastructure, and associated paths, boardwalks, bridges, and planting, must be designed to the satisfaction of the Responsible Authority and include appropriate measures to mitigate the risk of erosion.

R59

Stormwater runoff from the development must meet or exceed the performance objectives of the *Best Practice Environmental Management Guidelines for Urban Stormwater Management* (1999) and the *Urban stormwater management guidance* (2021) prior to discharge to receiving waterways as outlined on Plan 12 Integrated Water Management, unless otherwise approved by the Responsible Authority.

R63

Stormwater conveyance and treatment must ensure impacts to native vegetation and conservation reserves are avoided. Natural or pre-development hydrological patterns must be maintained in these areas and urban development catchments close to these areas, through alternative water management techniques, such as collecting localised stormwater for native hydrology, to ensure that pre development conditions are maintained or improved within these areas.

REQUIREMENTS

R68

Development staging and sequencing must provide for the timely and coordinated delivery of ultimate waterway and drainage infrastructure, including stormwater quality treatment, in accordance with the drainage staging requirements of Table 9 Precinct Infrastructure Plan and the *Marshall Stormwater Management Strategy, December 2022*, in a manner that facilitates development of adjacent land holdings.

R69

Where R68 is demonstrated to not be practically possible, and subject to R121, development proposals must demonstrate how any interim solution manages and treats storm water generated from the development and how this will enable delivery of the ultimate drainage solution. Interim drainage infrastructure will be limited to works that form part of the ultimate solution (e.g. partial construction of a basin).

Any temporary outfalls reliant on adjacent land holdings will not be considered unless the applicant obtains prior written approval from the adjacent landowner to utilise the land for drainage purposes. Temporary solutions must not be located on future public land.

Maintenance of any approved temporary outfalls must be the sole responsibility of the developer and have an agreement in place permitting appropriate maintenance, removal and returning of the site to appropriate conditions.

All to the satisfaction of the Responsible Authority.

R70

An Integrated Water Management Plan must be provided at the planning permit application stage and demonstrate:

- Building scale capture and reuse, street level amenity improvement through reduction of heat island effect (increased greening and tree canopy) and slowing runoff, cleaning and reuse where appropriate.

R71

The Integrated Water Management Plan submitted as part of the application must:

- Assess the existing surface and subsurface drainage conditions on the site;
- Nominate the location, type and surface area (m2) of proposed WSUD treatment systems, including how each internal sub-catchment area is to be treated and connected to a WSUD element, e.g. road surfaces to passively irrigate open space/street trees, and/or treated via tree pits, biofilters, wetlands;
- Include modelling of all IWM and WSUD infrastructure, including a summary of model parameters used, justification where appropriate and results, as well as a copy of all MUSIC model files (*.sqz) with corresponding MUSIC Auditor reports showing compliance to BPEM targets;
- Include a Construction Environment Management Plan that addresses the recommendations from the report: Fauna Surveys, *Marshall Precinct Plan Area, Marshall, Version B, May 2022*;
- Provide an Asset Maintenance Plan for IWM/WSUD infrastructure that includes 'as constructed' asset design elements/components, maintenance frequency and actions required to maintain assets in good operational order for the expected life of the asset, including inspection checklists for maintenance.

The Asset Maintenance Plan must outline:

- works, including temporary outfall provisions, to the satisfaction of the Responsible Authority;
- how the design of all assets takes into consideration maintenance and access requirements and seeks to minimise ongoing maintenance and operating needs and costs; and
- how the assets will be maintained and protected during the construction delivery phase and defects liability period prior to practical completion and asset handover.

R72

The design and construction of the Main Drain North and Main Drain South must not impact native vegetation within conservation reserves. The construction of both Main Drains must be within the road reserve and avoid conservation reserve areas.

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6.7 From the above requirements, we draw your particular attention to R56, which is a standard requirement, R57, which references the SWMS for Marshall, then R58 which seems to us to be in standard form, R59 which is again standard form, but then we note R63 which raises some concerns.

6.8 We are not sure what R63 is getting at or referring to. The reference to pre development conditions may refer to flow rates or may be more broad such as flow volume.

6.9 Then still within Part 3.5 of the Marshall PSP but at PDF 64, there is are requirements dealing with sequencing and delivery (R68 and 69 which seem standard form) and R71 calling for an Integrated Water Management Plan. We come back to R71 shortly below in Part 8 of this brief.

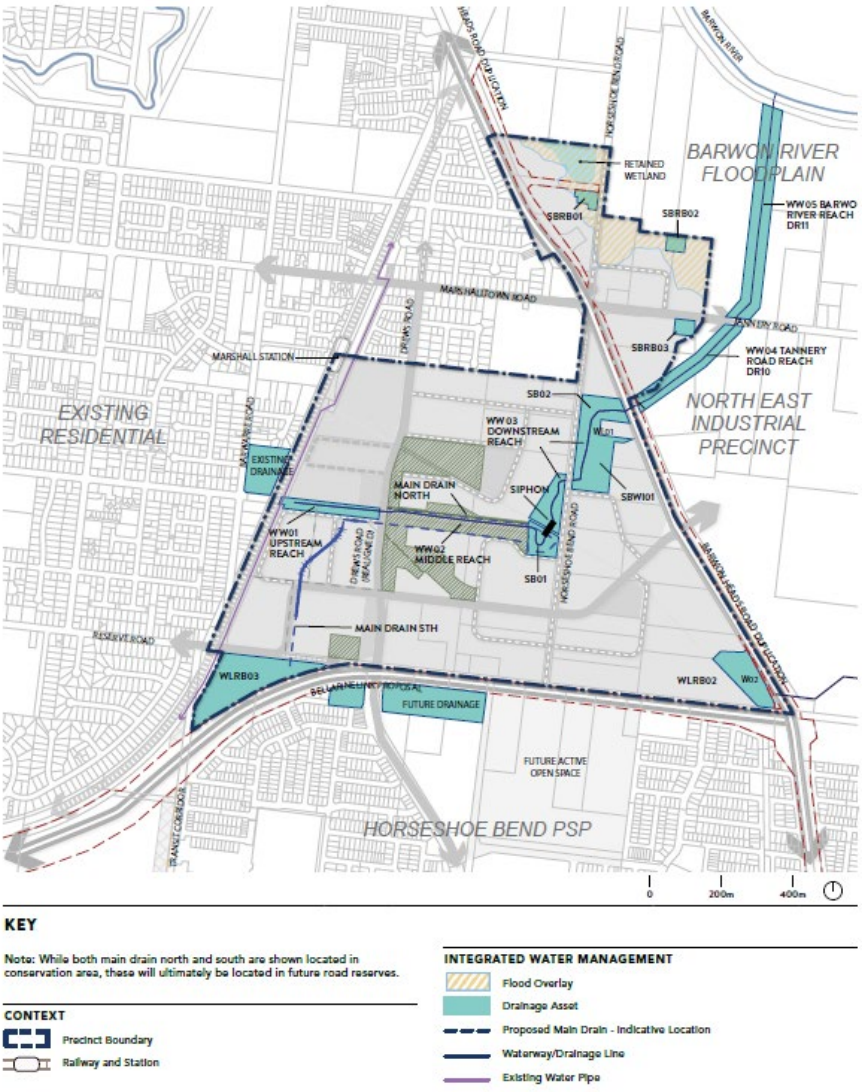
6.10 To put all of the above in context, we also note that the Marshall PSP also includes Table T5 and Plan P12 which identifies the IWM assets overall.

T5. INTEGRATED WATER MANAGEMENT ASSET SUMMARY

ASSET ID	ASSET TYPE	AREA (HA)
WLRB03	Sediment Pond, Wetland and Retarding Basin	2.90
WW01 Upstream Reach	Constructed Waterway	0.824
WW02 Middle Reach	Marshall Creek (Middle Reach)	1.16
SB01	Sediment Basin	0.61
WW03 Downstream Reach (upstream of Horseshoe Bend Road)	Constructed Waterway	0.87
WW03 Downstream Reach (downstream of Horseshoe Bend Road, upstream of Barwon Heads Road)	Constructed Waterway	1.43
WL01	Wetland	0.94
SBWL01	Sediment Basin and Wetland	0.23
SB02	Sediment Basin	0.36
WW04 Tannery Road Reach	Constructed Waterway	1.55
WW05 Barwon River Reach	Constructed Waterway	3.25
SBRB01	Sediment Pond and Retarding Basin	0.24
SBRB02	Sediment Pond and Retarding Basin	0.23
SBRB03	Sediment Pond and Retarding Basin	0.22
WLRB02	Sediment Pond, Wetland and Retarding Basin	1.22
WW06 Sparrovale – Nubijt yooree Wetlands Reach	Constructed Waterway	n/a
Main Drain North	Main Drain	n/a
Main Drain South	Main Drain	n/a
Siphon	Siphon under Main Outfall Sewer	n/a

The City of Greater Geelong is the Responsible Authority for all assets in Table 5.
* land area figures in Table 5 as per *Marshall Stormwater Management Strategy, December 2022.*

P12. INTEGRATED WATER MANAGEMENT



7. MARSHALL DCP

7.1 As we noted earlier, the Marshall DCP then provides the funding for the various stormwater assets identified in Plan P12 and Table T5. That that end, the Marshall DCP has undertaken a design of the various stormwater assets and then costed them. In this regard we refer you to the following:

7.1.1 First at Table T3, the drainage projects are identified.

7.1.2 Then at Plan P5, the various drainage projects locations are illustrated. The key projects of interest are DI_DR-01, DI_DR-01a and DR_14.

7.1.3 Then Plan P6 identifies the land required for the above drainage projects.

7.1.4 Table T9 contains the calculation of costs;

7.1.5 Appendix B contains Project Sheets for all projects including the above 3 key projects of interest;

7.2 Unlike for road projects, the DCP does not include plans of any of the drainage projects. Therefore, we are not sure how it is that project DI – DR-14 in the DCP was costed.

7.3 However, the Stormwater Management Strategy by Spiire includes an indicative outfall arrangement at PDF 59. At PDF61 there is Part 6.13 of the SWMS which relates to WLRB02 Outfall to Sparrovale Wetlands.

7.4 More relevantly, the Marshall DCP does not provide for any stormwater projects that contribute to volumetric reduction as far as we are able to discern.

8. CRITICAL MATTER - VOLUMETRIC TARGETS

8.1 Noting what is provided for in the Marshall PSP and the Marshall DCP and the projects that are funded in the Marshall DCP, as part of the submission process, there are two key submissions relevant to stormwater. The first is submission 2 by Barwon Water (PDF2) and the second is the submission by DEECA PDF 129 of the submissions to exhibition document.

8.2 You will also note that Re-Grow's submissions at PDF 39 and 54 raise the issue of volumetric targets and have requested Council to make clear what is proposed. No response is forthcoming so far.

8.3 Both the agency submissions contend that the PSPs requirements for an Integrated Water Management Plan at R71 should extend to meeting the volume reduction targets of the EPA Publication 1739.1 June 2021. The Barwon Water submission is less direct as to the part of the PSP which should be amended but it is of the same effect.

8.4 Re-Grow has two key concerns.

8.4.1 First it is concerned that if the submissions by these agencies has any traction at Marshall PSP, it will also have traction at the NEIP PSP. The volumetric reduction of stormwater is a critical consideration given how difficult and, if plausible, how costly it would be to achieve.

8.4.2 Second it is concerned that if volume reduction targets are given effect to for the NEIP, then part of the cost of the works for volume reduction from the common outfall should be shared by Marshall PSP/DCP. In other words, the issue of whether there is to be volumetric reduction from the outfall to Sparrovale must be determined now as part of this Marshall PSP/DCP so that the issue is fairly dealt with by all sources of the stormwater.

8.5 Re-Grow would like you to address what *reasonably practical* opportunities there are to reduce the volume of stormwater runoff from the impermeable catchments in the Marshall and NEIP PSP areas given that they both drain to the common outfall and in that context consider the implications for the design and cost of DI DR 14.

9. DESIGN AND COSTING OF THE PROPOSED CROSS INTERSECTION BETWEEN THE EAST-WEST CONNECTOR AND BARWON HEADS ROAD AND THE NEIP (PROJECT ID DI_IT_02)

9.1 Re-Grow has retained Mr Reece Humphries of Stantec to advise it on the adequacy of the 4 way cross intersection (DCP ID **DI_IT_02**), which is described as *'construction associated with the East-West Connector/Barwon Heads Road/NEIP,'* . The advice is that the design of this intersection is deficient because it under estimates the volume of traffic generated from the NEIP. Consequently, Stantec is currently reviewing the design of the intersection and preparing a revised design for Re-Grow that we propose to put to Council.

9.2 When the design is completed, we request that you prepare a revised costing for the intersection. The costing must be sufficient to provide a high level of confidence in including it within the DCP to ensure that the likely costs of the intersection are levied by the Marshall DCP and eventually the NEIP DCP when it is refreshed.

10. INSTRUCTIONS

10.1 You are requested to:

10.1.1 prepare a revised costing of the intersection DI IT 02 when a revised design is provided to you;

10.1.2 address what *reasonably practical* opportunities there are to reduce the volume of stormwater runoff from the impermeable catchments in the Marshall and NEIP PSP areas given that they both drain to the common outfall and in that context consider the implications for the design and cost of DI DR 14;

10.1.3 review the costing of the drainage infrastructure that will be shared with the NEIP as referenced in the DCP (**DI DR -14**) to ascertain if the cost is reasonable given and given the material available, provide an indication of what the amount allowed may provide for;

10.1.4 review what likely works and allowance has been made in the Marshall DCP and the Marshall PSP drainage infrastructure to enable NEIP to connect to the outfall;

10.1.5 review the outfall drain project DI DR01a for its adequacy;

10.1.6 consider the stormwater drainage implications of the Marshall PSP/DCP including the various requirements of the PSP and particularly the submissions of the two agencies namely Barwon Water and DEECA as they relate to volumetric flows and then express a view whether achieving the targets that they may be referring to is reasonably practicable for urban development having regard to your knowledge of PSPs, the Marshall PSP, the NEIP PSP and stormwater drainage generally;

10.1.7 prepare two expert witness reports dealing with the above issues; the reports should be kept separate - Intersection costing and stormwater - given that they relate to different subject matter.

10.2 Terry Montebello and Charlie Wurm will be your instructing solicitors. Paul Connor KC barrister will be appearing for Re-Grow instructed by Maddocks.

10.3 You are kindly asked to review the accompanying brief of documents and provide a fee proposal for Council's consideration.

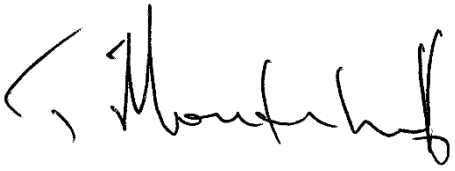
10.4 If your fee proposal is approved, all accounts for this matter should be referred directly to Maddocks (marked to the attention of Terry Montebello/Charlie Wurm (Reference **TGM:CWUR:9407846**).

11. BRIEF OF DOCUMENTS

11.1 Please find **attached** an indexed brief of documents, provided electronically. Please let us know if you require printed copies.

11.2 If you have any queries concerning the above, or the documents which are enclosed, you should not hesitate to contact Charlie Wurm on 9258 3570 or at charlie.wurm@maddocks.com.au or Terry Montebello on 9258 3698 or at terry.montebello@maddocks.com.au

Date delivered: 21 August 2024



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Maddocks
Terry Montebello & Charlie Wurm

Amendment C278ggee | Marshall PSP & DCP
Re-Grow Geelong Pty Ltd

Brief of Documents to Stephen Watters

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Tab	Description	Date
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1.	*Armstrong Creek North East Industrial Precinct Structure Plan*	May 2010
2.	Permit PP-661-2010/A	23 March 2012
3.	*Armstrong Creek Urban Growth Plan – Framework Plan*	Amended June 2015
4.	*Draft Marshall Precinct Structure Plan*	July 2023
Amendment C278ggee - Exhibited		
Draft Ordinance		
5.	Clause 37.07 Urban Growth Zone - Schedule 7 (**UGZ7**) - Exhibition	-
6.	Clause 45.06 Development Contributions Plan Overlay - Schedule 10 (**DCPO10**) - Exhibition	-
7.	Clause 43.02 - Design And Development Overlay - Schedule 51 (**DDO51**) - Exhibition	-
8.	Clause 52.16 Schedule - Native Vegetation Precinct Plan - Exhibition	-
9.	Clause 66.04 Schedule - Referral Of Permit Applications Under Local Provisions - Exhibition	-
10.	Clause 72.03 Schedule - What Does This Planning Scheme Consist Of - Exhibition	-
11.	Clause 72.03 Schedule (Track Changes) - What Does This Planning Scheme Consist Of - Exhibition	-
12.	Clause 72.04 Schedule - Incorporated Documents - Exhibition	-
13.	Clause 72.04 Schedule – (Track Changes) Incorporated Documents – Exhibition	

Tab	Description	Date
Explanatory Report & Instruction Sheet		
14.	Amendment C278ggee – Explanatory Report - Exhibited	-
15.	Amendment C278ggee – Instruction Sheet – Exhibition	-
Map Sheets		
16.	Zone Maps - Exhibition	-
17.	DDO Map - Exhibition	-
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19.	EAO Map - Exhibition	-
PSP, DCP and Native Vegetation Precinct Plan – Proposed Incorporated Documents		
20.	*Marshall Precinct Structure Plan* (**Marshall PSP**)	July 2023 - Amended March 2024
21.	*Marshall Development Contributions Plan* (**Marshall DCP**)	August 2023
22.	*Marshall Native Vegetation Precinct Plan*	October 2022
Supporting Documents		
23.	*Servicing Plan* prepared by TGM	13 September 2018
24.	*Fauna Surveys* prepared by Ecolink Consulting	May 2022
25.	*Stormwater Management Strategy* prepared by Spiire	December 2022
26.	*Preliminary Environment Assessment* prepared by WSP	September 2023
27.	*Marshall PSP – Background Report* prepared by Greater Geelong City Council	March 2024
28.	*Vegetated Habitat Assessment* prepared by EcoLink Consultung	5 April 2024
Re-Grow submission		
29.	Bundle of Submissions to Amendment C278ggee which includes the submissions by Re-Grow	various

Stephen WATTERS

From: Charlie Wurm <Charlie.Wurm@maddocks.com.au>
Sent: Friday, 18 October 2024 11:40 AM
To: Stephen WATTERS
Cc: Terry Montebello
Subject: RE: Tannery Road / Marshall Creek Culverts [MADD-M.FID3862907]

Importance: High

Thanks for providing this input Stephen. Would you be able to include your consideration of the matters you have identified below in your report?

In addition, we provided you with a copy of the concept design for the intersection which was prepared by Reece Humphreys, in respect of which Reece clarified some matters. It has now been decided that you should not include a costing of the concept intersection design in your report, and are instructed to cease your assessment of the costings of the concept design for the time being. We will let you know if anything changes.

On that basis, please continue to prepare your draft report on that basis and, if you are in a position to provide us with a draft without the intersection costings, please do so when you are in a position to.

Let me know if you have any issues or queries in the meantime.

Charlie

Charlie Wurm (he/him)
Senior Associate
Public Law | Planning & Environment
Direct +61 3 9258 3570 **Mobile** +61 419 095 471
charlie.wurm@maddocks.com.au

Maddocks

Collins Square | Tower Two, Level 25
727 Collins Street, Melbourne VIC 3008

Our office is located on the traditional lands of the Wurundjeri Woi-wurrung peoples.

Stephen WATTERS

From:	Terry Montebello <Terry.Montebello@maddocks.com.au>
Sent:	Tuesday, 22 October 2024 5:25 PM
To:	Stephen WATTERS
Cc:	Charlie Wurm
Subject:	Re-Grow Geelong Marshall PSP and DCP additional instructions. [MADD-M.FID3862907]
Attachments:	PPV SOEE MP 20 Oct 2024.pdf; 304400943-1000-FS03 Offsets Rev03.pdf; 304400943-1000-FS04 Controls Rev03.pdf; 304400943-1000-FS02 Access Tracks Rev4.pdf

Stephen

Since we provided you with instructions, a number of other matters have become clearer in relation to the Sparrovale wetlands which we think we should provide you with so that your report has all available information. This arises from information provided by Council and further reading of historical material.

In the information below, the following abbreviations are used

VS – Venant Solutions
WT – Water Technology
DU – Deakin University

Sparrovale (Levee) outlet capacity:

i. We are now aware via recent detail survey that the Sparrovale (Levee) outlet has been reduced from its original 2No. 2.44*1.22 RCB (Craigie) design to 1No. 1.8*0.9 RCB. This is a reduction of 73% from the Craigie design, modelled in the Venant Solutions (VS) 2018 modelling studies. Please find attached detail survey drawings 00943-1000-FS04 Rev 3 (4 sheets).
ii. We are now aware that the WT modelling (Technical Report, Sparrovale Wetland Operating Rules, City of Greater Geelong, 22 December 2022 Page 18) appears to adopt Sparrovale (Levee) outlet dimensions of 1No. 2.44*1.22 RCB (2.98m2) which is different to both the Craigie / VS 2No. 2.44*1.22 RCB (5.95m2) (in relation to which WT's adopted is 50% smaller), and to the as-constructed 1No. 1.8*0.9 RCB (1.62m2) (in relation to which WT's adopted is 84% larger).
iii. We have no visibility of the Sparrovale (Levee) outlet assumptions underlying the DU modelling, however it is clear that the DU observations are made under as-constructed existing conditions 1No. 1.8*0.9 RCB (1.62m2) which is a 73% reduction on that modelled by VS (5.95m2), and a 46% reduction on that modelled by WT 1No. 2.44*1.22 RCB (2.98m2).
iv. As such, we are now aware that there is inconsistency regarding Sparrovale (Levee) outlet between the (Craigie) VS modelling, the WT modelling, and potentially the DU modelling and there is inconsistency between the VS modelling, the WT modelling, and the DU observations.

WR 2022 Standard Operating Rules and Lower Barwon Wetlands Seasonal Watering Plan 2024-2025 19 04 2024:

v. The current Standard Operating Rules for Sparrovale (Levee) outlet is for the gate over the single culvert to be closed **all year** except if circumstances dictate otherwise.
vi. VS assumed that the gates would be closed December to March inclusive and opened for the rest of the year except if circumstances dictated otherwise.
vii. The WT work is reflective of current SOR and is distinct from VS in this respect.
viii. DU observations are made under actual operating conditions which include exceptions and as such are inconsistent with the VS modelling and the WT modelling.

Catchment development conditions:

ix. VS and WT modelled ultimate development conditions (excluding NEIP and Marshall).
x. The DU studies deal with emerging development across the catchments (excluding NEIP and Marshall) as distinct from both VS and WT.
xi. As such, the DU studies are not consistent with VS or WT.

We are unsure if this affects your opinions or not but please at least be aware of these matters.

We are now in receipt of the Council Part A submission and a copy has already been provided to you. Please note Council's comments in relation to drainage of the Marshall PSP and what it has said in relation to the NEIP.

Neil Craigie has now all but completed his expert report and a copy is attached for your attention. It provides information in relation to the background of Sparrovale that may be relevant to your report.

Please note that Council has now briefed Mr Rob Swan to give evidence in this matter. His report will be available this Friday and we will provide you with a copy on Friday for review before settling of your evidence.

Additional Matter for Review

Our client has raised with us an issue concerning the waterway between Barwon Heads Road and Tannery Road. The waterway is aligned so that there is a piece of land within the NEIP which is "orphaned" or severed from the NEIP on the north west side of the waterway. We request that you turn your mind to whether that design outcome is inevitable or whether there may be a solution to how the NEIP land may be treated in a more efficient manner.

Finally, we note that the culverts under Tannery Road are sized smaller than the culverts under Barwon Heads Road and there is the prospect that with flows from Marshall PSP, there will be an overtopping of the waterway so as to flood property on either side. Can you examine the Marshall SWMS to ascertain whether that issue was envisaged or whether there are any additional works that should be planned as part of the Marshall PSP/DCP to address that circumstance where the downstream culvert is larger than the upstream culvert.

Regards

Terry Montebello
Partner
Maddocks Lawyers.

Appendix B

Curriculum vitae – Stephen Watters

Years of Industry Experience

- 34+ years

Qualifications and Memberships

- Bachelor of Engineering (Civil) Honours
- CPEng, NER
- Professional Registered Engineer (Victoria)
- MBA
- Graduate Diploma Computer Studies
- UDIA Greenfields Development Committee (VIC)
- Previous President of the Association of Land Development Engineers (ALDE

Key Skills and Competencies

- Project Management
- Land Development Process
- Service Authorities Policies & Procedures
- Cost Estimation and Budget Preparation
- Stakeholder liaison and consultation
- Precinct Structure Plan development

Professional History

- 2022 – Present | SMEC, National Manager Urban Engineering
- 2008 – 2022 | SMEC, Manager Engineering, Melbourne
- 1994 – 2008 | SMEC, Engineer and Project Manager
- 1991 – 1994 | Wyndham City Council, Traffic & Design Engineer

Stephen Watters

National Manager - Urban Engineering

Professional Overview

Stephen is a Civil Engineer with over 34 years' experience in engineering design and project management in urban development and civil infrastructure fields. He first joined Fisher Stewart (predecessor company of SMEC) in 1994 after 3 years' experience with Wyndham City Council working as a traffic and design engineer. Stephen has worked in the Urban Development Group in Melbourne, as well as being Senior Design Engineer in the Wangaratta and Echuca offices of Earth Tech (also a predecessor company of SMEC), before returning to the Melbourne office in 1999. As well as undertaking project delivery roles such as Project Manager and Project Director, Stephen has also held management positions including Manager of Engineering Design, Manager of the Urban Engineering Group, and currently the National Manager of Urban Engineering at SMEC.

Stephen has had extensive experience in engineering design and project management, including design of major highway duplication projects. Stephen also has qualifications in management (MBA) and computer studies and his skills in this area are utilised to ensure that the design and project management teams are maximising the use of state-of-the-art technology. Stephen's experience in both local government and consulting allows him to make use of his extensive knowledge of authority requirements for the efficient delivery of civil infrastructure projects.

Stephen is actively involved in industry associations, and has previously been a board member of the Association of Land Development Engineers (ALDE), including being holding the role of President for two years. He is currently a committee member of the Urban Development Institute of Australia (UDIA) Greenfield Infrastructure Committee.

Relevant Project Experience

Stephen has fulfilled Project Manager and Project Director roles for the following projects:

- Deanside Village, Rockbank
- Caroline Springs including Urban Wetland and Cascades
- Laurimar Estate, Doreen
- The Boulevard, Grices Road, Clyde North
- Kilora, Grices Road, Clyde North
- Circa 1886, Grices Road, Clyde North
- Kinbrook, English St, Donnybrook
- Quarters Estate, Cranbourne West
- Connex Modal Interchanges
- Strzelecki Highway design
- Sunshine Golf Course

Planning Panel Experience

The majority of Stephen's civil engineering career has been associated with the delivery of land development projects including associated infrastructure works throughout metropolitan Melbourne and regional Victoria. He has particular experience in relation to the design and delivery of projects, which includes leading teams of design engineers and construction engineers, and this includes review of Precinct Structure Plans (PSPs) and Infrastructure Contribution Plans (ICPs).

Stephen has prepared Expert Witness reports related to panel hearings for a number of Precinct Structure Plans, which are summarised in the table below, which also details the nature of his involvement in each instance:

PSP	My role	Panel representation
Sunbury South and Lancefield Road ICP	Prepared an Expert Evidence report related to the ICP	Participated in the ICP conclave in relation to the estimated cost of projects
Clyde North PSP	Prepared an Expert Evidence report related to Drainage	Appeared before the PSP panel in relation to drainage issues
English Street PSP	Reviewed the PSP and provided feedback to the VPA	Participated in the conclave related to the Bridge over Merri Creek
Officer South Employment PSP	Prepared an Expert Evidence report related to the ICP and Drainage Issues	Participated in the Drainage conclave and was involved in round table discussions at the panel in relation to ICP and Drainage issues
Jetty Road Stage 2	Expert Evidence at appearance at panel related to drainage and costing matters	Participated in the Drainage conclave and appeared at the planning panel in relation to ICP and Drainage issues
Toolern PSP	Expert Evidence at appearance at panel related to drainage DCP matters	Participated in the Engineering conclave and appeared at the planning panel in relation to DCP and Drainage issues

Infrastructure Contribution Plans (ICPs) and Developer Contribution Plans (DCPs)

Stephen has experience in relation to the practical implementation of projects identified in DCPs and ICPs, which includes detailed negotiations with Councils and Road authorities, including the following projects shown below:

Project	PSP	My role
Deanside	Kororoit	Project Manager for the Deanside project. Negotiated with Council and oversaw the delivery of a number of ICP projects.
Kinbrook	English Street	Project Manager for the Kinbrook Estate. Negotiated with Council and oversaw the delivery of a number of ICP projects.
The Boulevard	Clyde North	Oversaw the design and delivery of the first phase of the Grices Road project.
Kilora	Clyde North	Project Manager for the Kilora project. Negotiated with Council and oversaw the delivery of a number of ICP projects.
Atherstone	Toolern	Oversaw the design and delivery of a number of DCP projects. Negotiated with Council in relation to WIK and reimbursements for works completed.
Kingsfield	Lancefield Road	Oversaw the design and delivery of the Lancefield Road and Rolling Meadows Drive signalised intersection.

Industry Involvement

Stephen has always taken an active interest in the Urban Development Industry, and was a long term executive committee member of the Association of Land Development Engineers (ALDE), and acted as President of this association during 2016 – 2017. Currently he is a member of the Urban Development Institute of Australia (UDIA) Greenfields committee, and this has provided opportunities to provide technical engineering input to the committee, and to liaise closely with authorities in relation to policies and standards.

He has participated on numerous committees including:

- The Urban Development Water Advisory Group (UDWAG) Technical Committee which enables MWC to collaborate with industry
- The Engineering Design and Construction (EDCM) Technical Committee

Professional Awards

- Bill Foley (Association of Land Development Engineers) Award, December 2021
  This award recognises people who have contributed at a high level in the industry.
- High commendation in the SJ awards in 2021.
- Recipient of the Local Government Overseas Study tour award in 1999.
- Earth Tech Innovation Award in 2003.

Career History

1991-1994

Design and Traffic Engineer – City of Werribee (now Wyndham City Council)

- Detailed design of Council capital works projects.
- Feature Survey of Council capital works projects.
- Traffic Engineering investigations and responses to residents.

1994-1996

Design Engineer at Fisher Stewart

- Detailed design of residential subdivisions,
- Detailed of highway projects such as the duplication of the Western Port Highway.
- Detailed design related to local government projects

1996-1997

Senior Design Engineer/ Manager of the Wangaratta office – Fisher Stewart

- Senior Design Engineer and Manager of the Wangaratta office
- Detailed design related to delivery of the Rural City of Wangaratta's capital works program
- Detailed design of VicRoads main road projects.

1997-1999

Senior Design Engineer/ Manager of the Echuca office – Fisher Stewart

- Senior Design Engineer and Manager of the Echuda office
- Detailed design related to delivery of the Campaspe Shire's capital works program
- Detailed design of VicRoads main road projects.

1999-2007

Project Manager – Fisher Stewart/ Earth Tech (Melbourne Office)

Project Manager in the Urban Development group in the Melbourne office of Fisher Stewart (later Earth Tech after Fisher Stewart was acquired).

Project Management of residential and industrial Urban development projects including:

- Caroline Springs including Urban Wetland and Cascades
- Laurimar Estate, Doreen
- Mount Derrimut Industrial Estate
- Bayside City Council capital works program during the period between 1999 and 2002, which involved a number of projects including road and drainage design, intersection treatments, the Beach Road shared path and the upgrade to the Middle Brighton Baths.
- Other general civil projects including:
  - the design of the re-alignment of the Strzelecki Highway at Morwell, where the highway was deviated to allow the Hazelwood coal mine to expand.
  - Six Connex Modal Interchanges for MTM on the Melbourne rail network
  - The development of the Sunshine Golf Course, which included a sewer mining project to produce Class A water for irrigation purposes
  - The duplication of Victoria Street in Richmond, as part of the Victoria Gardens commercial development. These works included the relocation of the tram tracks and relocation of significant telecommunications/ electrical and water mains.

2007-2011

Manager Engineering Design/ Project Manager – SM Urban (Melbourne office)

Project Management of a number of Urban Development projects including:

- The Boulevard, Grices Road, Clyde North
- Kilora, Grices Road, Clyde North

2011 – 2016

Manager Engineering/ Senior Project Manager – SMEC Urban (Melbourne office)

Project Management of a number of Urban Development projects including:

- Circa 1886, Grices Road, Clyde North
- Quarters Estate, Cranbourne West

2017 – 2019

Regional Functional Manager Urban, Southern (Vic/Tas/SA/WA) – SMEC Australia

Project Director for several large scale Urban development projects, including:

- Kinbrook, English St, Donnybrook

2019 – 2022

State Sector Manager Urban Communities (Vic/Tas/SA/WA) – SMEC Australia

Project Director for several large scale Urban development projects, including:

- Kingsfield, Sunbury
- Deanside Village, Rockbank
- Olivine, Donnybrook

2022 – current

National Manager Urban Engineering – SMEC Australia

Stephen is currently the Project Director on several large scale Urban development projects, including:

- Atherstone, Strathtulloh
- The Grove, Tarneit

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