



SURF COAST SHIRE COUNCIL

Onsite Wastewater Management Plan 2025 - 2030

Operational Plan

Document Control Sheet

Document and Project Details					
Document Title:	Surf Coast Shire Council Onsite Wastewater Management Plan 2025-2030 (Operational Plan)				
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Date of Issue:	24/02/2025				
Job Reference:	3420_SCSC_OWMP_Operational_Plan_001				
Synopsis:	<p>This Operational Plan has been developed to accompany the Technical Document, which together forms the Onsite Wastewater Management Plan (OWMP), to identify onsite wastewater management (OWM) issues within the Shire and recommend management actions to ensure potential risks are appropriately managed.</p> <p>A key component of the OWMP is an OWM risk assessment and mapping that have been completed for the Shire. This assessment identifies prioritised areas that need improved OWM practices. A framework for the regulation of onsite wastewater management system (OWMS) performance is also provided.</p>				
Client Details					
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Document Distribution					
Version Number	Date	Status	DISTRIBUTION – NUMBER OF COPIES (p – print copy; e – electronic copy)		
			Client	WC	Other
001	13/08/2024	DRAFT_001	1e	1e	-
002	27/11/2024	DRAFT_002	2e	-	-
003	24/02/2025	FINAL	3e	-	-
Document Verification					
Checked by: Heather Murphy 			Issued by: Connor Morton 		

Disclaimer

The information contained in this document is based on independent research undertaken by Whitehead & Associates Environmental Consultants Pty Ltd (W&A). To our knowledge, it does not contain any false, misleading or incomplete information. Recommendations are based on an appraisal of site conditions subject to the limited scope and resources available for this project, and follow relevant industry standards.

The work performed by W&A included a desktop review, and the conclusions made in this report are based on the information gained and the assumptions as outlined. Under no circumstances, can it be considered that these results represent the actual conditions throughout the entire Shire due to the regional scale of this study.

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Acknowledgement of Funding Support

Surf Coast Shire Council acknowledges funding support provided by the Victorian State Government and Barwon Water to develop this plan.

Document Certification

This Onsite Wastewater Management Plan has been prepared following the standards and guidelines set out in the following documents, where applicable:

- Department of Energy, Environment and Climate Action (2024), *Planning Permit Applications in Special Water Supply Catchment areas* (DEECA, 2024);
- Department of Environment, Land, Water and Planning (2022), *Risk Assessment Guidance Report* (DELWP, 2022);
- EPA Victoria (2024), *Guideline for Onsite Wastewater Effluent Dispersal and Recycling Systems* (EDRS, 2024);
- EPA Victoria (2024), *Guideline for Onsite Wastewater Management* (GOWM, 2024);
- Municipal Association of Victoria & Department of Sustainability and Environment (2014), *Victoria Land Capability Assessment Framework, 2nd Ed* (MAV & DSE, 2014);
- Standards Australia / Standards New Zealand (2012), *On-site Domestic Wastewater Management (AS/NZS 1547:2012)*; and
- Victoria Audit General's Office (2018), *Managing the Environmental Impacts of Domestic Wastewater* (VAGO, 2018).

To our knowledge, it does not contain any false, misleading or incomplete information. Recommendations are based on an honest appraisal of the sites' opportunities and constraints, subject to the limited scope and resources available for this project.

Acknowledgement of Country

Surf Coast Shire Council acknowledges the Wadawurrung People, and Gulidjan and Gadubanud Peoples of the Eastern Maar, their Elders and leaders past, present and emerging as the Traditional Owners of the skies, land, waters and sea country across our municipality.

We acknowledge their care and custodianship for more than 60,000 years, which continues today. We walk with them as we respectfully care for and tread lightly on these lands. We also extend that respect to all First Nations people who are part of the community.

Executive Summary

The *Environment Protection Act 2017* (EP Act 2017) has replaced the *Environment Protection Act 1970*; therefore, a new framework has been established for environmental protection. Under the EP Act 2017, the 'Order for Obligations for Managers of Land or Infrastructure' (OMLI) has been implemented, requiring councils to develop a municipal Onsite Wastewater Management Plan (OWMP).

Surf Coast Shire Council (SCSC, the Council, or Shire) has developed an OWMP to assist with the efficient and effective management of wastewater within the Shire in a way which will minimise the potential risk posed by effluent upon public health and the environment. SCSC is committed to the management of onsite wastewater management (OWM) systems within the Shire.

The OWMP has been prepared to recognise, respond to, and link with Council policies and plans, current legislation, regulations, guidelines, and the relevant direction of State Regulatory Authorities.

The OWMP describes the current situation relating to OWM in the Shire and identifies a range of action items Council seeks to implement within an Action Plan. The OWMP contains legislative controls that Council will put in place for the management of OWM in the Shire as well as details of the derivation of methodology for the constraint mapping, risk analysis, locality reports, and Cumulative Risk Assessment (CRA).

Current issues for OWM in SCSC are as follows:

- Failing onsite wastewater management systems (OWMS) potentially polluting the environment;
- Significant constraints (challenging soils, proximity to water bodies, existing small lots) limiting the effectiveness of OWMS in some parts of the Shire;
- No clear requirements for Land Capability Assessments (LCAs) in 2006 Domestic Wastewater Management Plan (DWMP), with inconsistent enforcement of LCAs;
- Submission of poor quality LCAs by assessors, resulting in the request for additional information causing drawn out application processes; and
- Long resolution time for public complaints in relation to OWM, commonly effluent transport off-site.

To ensure the effective management of OWM, SCSC will implement an Action Plan providing management strategies and action items to address priorities (refer Section 12 of this OWMP). A brief summary of the Action Plan items is as follows:

1. Preparation of procedures;
2. Staff education;
3. Continual improvement of data collection;
4. OWMS permit conditions and compliant;
5. Locality investigations and planning;
6. System owner education program;
7. Broader community education program;
8. Existing system maintenance;
9. Resource allocation / fees and charges; and
10. Reviews.

This OWMP provides solutions and management techniques for Council to mitigate OWM issues within the Shire, which has been centred on the Risk Assessment Framework (RAF). The RAF aims to quantitatively and qualitatively assess the consequences of unsewered development. The process for the RAF has been provided in Section 4 of this Operational Plan, and Sections 5 and 6 of the Technical Document.

List of Acronyms

Term	Definition
AO	Authorised Officer under <i>EP Act 2017</i>
AOI	Areas of Interest
BPO	Best Practicable Option
AWTP	Aerated Wastewater Treatment Plant
CMA	Catchment Management Authority
CRA	Cumulative Risk Assessment
DEECA	Department of Energy, Environment and Climate Action (formerly DELWP)
DELWP	Department of Environment, Land, Water and Planning (now DEECA)
DIR	Design Irrigation Rate
DLR	Design Loading Rate
DSE	Department of Sustainability and the Environment (former)
DWMP	Domestic Wastewater Management Plan
EDS	Effluent Dispersal System
EPA	Environment Protection Authority
GED	General Environmental Duty
GIS	Geographic Information System
LCA	Land Capability Assessment
LGA	Local Government Area
LRA	Land Resource Assessment
MAV	Municipal Association of Victoria
OMLI	Obligations for Managers of Land or Infrastructure
OWM	Onsite Wastewater Management
OWMP	Onsite Wastewater Management Plan
OWMS	Onsite Wastewater Management System
PIC	Plumbing Industry Commission
RAF	Risk Assessment Framework
SCSC	Surf Coast Shire Council
SWG	Stakeholder Working Group
SWSC	Special Water Supply Catchment
VCAT	Victorian Civil and Administrative Tribunal
WC	Water Corporation

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1 Introduction

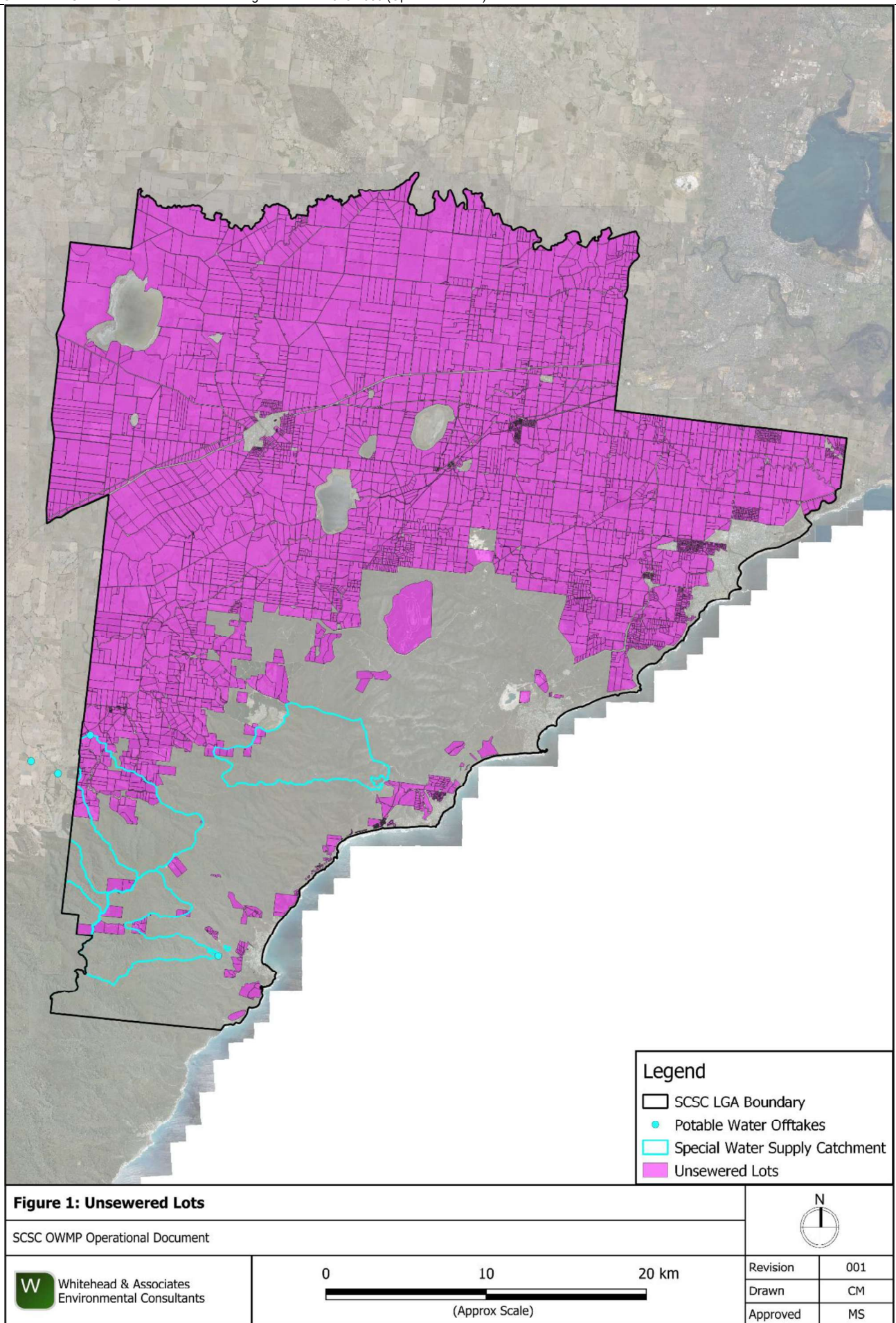
1.1 Overview and Objectives

Surf Coast Shire Council (SCSC, the Shire or Council) has an area of approximately 1,554.5km² and a population of approximately 37,694 in 2021 (ABS, 2021). There are approximately 3,800 OWMS that Council has record of within the Shire. In addition, there are unsewered commercial (non-domestic) lots, such as cafes, pubs, and farms in the Shire, which are regulated by the EPA and Council. The Shire is characterised by towns, rural residential development, farming, national parks, state forests, and coastline; and includes Special Water Supply Catchment (SWSC) areas in the southwest of the Shire (approximately 8% of the Shire). The protection of public health and the environment are requirements of the *EP Act 2017*.

The OWMP addresses the various aspects of wastewater, including treatment, effluent dispersal, and the cumulative impacts of OWM. This plan also covers the regulation of OWMS, including existing and future OWMS, monitoring of existing OWMS, and commercial systems. This Operational Plan forms the major component of the OWMP and outlines how SCSC will manage OWMS and work with system designers, installers, owners, and maintainers to minimise risk to public health and the environment. This document is supported by a Technical Document that provides detail on the regulatory framework for OWM and the methodology used to generate constraint mapping and corresponding risk analysis of the Shire and individual locality reports.

The key objectives of this OWMP are to:

- Identify the risk of harm to public health and the environment from unsewered allotments within the Shire;
- Identify and assess the risks of harm to public health and the environment associated with existing and future OWMS in the Shire;
- Identify actions with implementation timeframes to minimise the risk associated with OWMS and prevent discharge of wastewater beyond allotment boundaries (Action Plan);
- Provide strategic direction for the development and management of wastewater throughout the Shire;
- Develop and implement a risk-based monitoring / maintenance program of OWMS within the Shire;
- Provide guidance for the preparation of Land Capability Assessment/s (LCA/s) within the Shire;
- Develop a risk-based decision tool to provide guidance on the development potential of unsewered areas, with regards to environmental and public health risks from OWMS;
- Provide greater certainty for landowners about the development potential of their land;
- Provide guidance on appropriate maintenance, modifications, and upgrades for non-compliant OWMS throughout the Shire;
- Provide guidance on what types of wastewater treatment and effluent dispersal systems are appropriate for the physical constraints;
- Provide guidance on appropriate education for OWMS owners and residents of unsewered properties; and
- Provide clear direction for the assessment of new and modified OWMS applications and their ongoing compliance with legislative requirements.



1.2 Development of the OWMP

An OWMP is a planning and management document that provides a mechanism for the development, implementation, and review of programs to protect public health, environment and local amenity. Councils within Victoria are required to prepare a municipal OWMP under the *EP Act 2017* by the OMLI, as follows.

1. A council in a municipal district with OWMS must develop and publish on its website an OWMP that so far as reasonably practicable:
 - a. Identifies risks of harm to human health and the environment from unsewered allotments in its municipal district;
 - b. Identifies and assesses the risks of harm to human health and the environment associated with existing and future on-site wastewater management systems in its municipal district, including but not limited to:
 - i. The cumulative risks of existing on-site wastewater management systems that are discharging, or may in the future discharge, wastewater beyond allotment boundaries; and
 - ii. The risks of on-site wastewater management systems that are impacting, or may in the future impact, on groundwater or surface water;
 - c. Identifies actions with implementation timeframes to:
 - i. Minimise the risks identified in paragraphs 1(a) and (b); and
 - ii. Prevent discharge of wastewater beyond allotment boundaries; and
2. Sets out the council's approach to compliance and enforcement.

The OWMP establishes Council's policy on and commitment to sustainable wastewater management, processes to ensure early and comprehensive consideration of OWM in the planning cycle, and Council's responsibility for the monitoring and compliance of systems.

A Stakeholder Working Group (SWG) was established to oversee the project, comprising officers from Council and the relevant Water Corporation (WC) (Barwon Water). An inception meeting and preliminary risk assessment workshop was held at the outset of the project to determine the priority regions and issues (with regards to OWM within SCSC) that are to be address within the OWMP, as well as establishing the methodology of the RAF. A draft copy of the OWMP was provided to Barwon Water and EPA Victoria, who were invited to comment on the document prior to publishing.

1.3 Open Special Water Supply Catchment Areas

The Department of Energy, Environment and Climate Action (2024), *Guidelines - Planning Permit Applications in Special Water Supply Catchment Areas* (DEECA, 2024) provides guidelines for development in SWSC areas. The document applies where a planning permit is required to use land for a dwelling or to subdivide land or to develop land pursuant to a schedule to the Environmental Significance Overlay (ESO) that has a catchment or water quality protection as an object.

Policy 1 requires that the density of dwellings should not exceed one (1) dwelling per 40 hectares, with each lot created in a subdivision to be at least 40 hectares in area. The dwelling density is established by calculating the number of dwellings within a one (1) kilometre radius of the site of the proposed dwelling.

A working / reference group comprising Council and WC delegates will be formed to discuss OWMS applications, ensure that requests for information remain uniform, and to help ensure the implementation of this plan. Co-ordination of Council and WCs regarding the effective implementation of the OWMP is included in the Action Plan:

- ✓ Action Item 10b – Officers from Council and WC to meet to ensure the effective implementation of the OWMP in relation to special water supply catchment areas.

The frequency of reviewing risk assessments and Action Plans should be informed by the outcomes of the risk assessment process. Council is required to review and update the OWMP and publish a report on the implementation of the OWMP on the Council website at an interval no more than five (5) years.

1.4 Previous OWM Documents

This OWMP is an update of SCSC's 2006 DWMP. Various DWMPs for the townships of Bellbrae, Deans Marsh, Moggs Creek, and Moriac were also published from 2009 to 2013. These DWMPs provided an assessment of the OWM situation in targeted townships of the Shire, as well as soil assessment and system recommendations for the areas. Data from system inspections informed the previous reports and has been included in this document.

The SCSC DWMP (2006) incorporated an audit of OWMS throughout townships of the Shire. The audit found that the most common form of treatment is all waste septic tank and absorption system, followed by septic tank and sand filter systems. It was found that a small portion of properties discharge wastewater off-site. It was also found that a majority of OWMS were in sound structural condition, with a small proportion of systems having defective or failing structure. Some OWMS were also found to be irrigating secondary treated effluent from sand filters or treatment plants to street drainage or within recreation areas.

Council consulted with local plumbers and found that there are problems with malfunctioning systems. These issues occurring mainly in Moggs Creek in the form of blocked effluent drains and sand filters, and in Moriac in the form of failing effluent lines on small blocks in older parts of the township.

Throughout the Shire, it was found that 30% of OWMS were more than 24 years old, with 39% of systems being between 14 to 24 years old. As the average lifespan of an OWMS is 25 years, 69% of systems within the Shire would have reached the end of their serviceability by 2016. It was also found that 39% of absorption systems within the Shire were 24 years or older, with 60% of sand filters were more than 15 years old. Renewal / upgrade of OWMS may be difficult due to lack of space for compliant buffers, drainage or open space requirements of secondary treatment systems (i.e. larger EDS associated with irrigation areas). Very few complaints in regards to OWMS have been received by Council, suggesting that a majority of systems are functioning adequately and successfully contain wastewater onsite.

The SCSC DWMP (2006) outlined a number of recommended action items to be undertaken for improved OWM within the Shire. A number of the action items have been completed or partially completed (within Council's means). Due to the period of time since the last Action Plan (>14 years), there are no staff within Council that were employed at the publication of the 2006 DWMP; therefore, it is unclear if certain items have been completed.

Some action items are ongoing and have also been included in the revised Operational Plan as items which require continuing undertakings. Those action items which were not completed in the SCSC DWMP (2006) are detailed in Table 1. These action items were not undertaken due to resource or time limitations, or they required further actions and Council approval.

Table 1: SCSC DWMP (2006) Action Items not completed at April 2024

Action Item	Recommendation	Current OWMP
Meeting new owners onsite to explain the operation of and how to best maintain their systems	Council now supply property owners with educational material after issuing a Certificate to Use.	N/A
Conduct annual forums with plumbers, treatment plant installers, maintenance contractors, liquid waste removal contractors etc. to discuss relevant waste management issues	Deemed unnecessary by SCSC.	
Introduce monitoring program involving the following <ul style="list-style-type: none"> • Regular and random measurement of septic tank sludge levels; • Inspection of a sample of systems to ensure that tanks, pits, pumps etc. are in good working order; • Inspection of a sample of systems to ensure to identify that they are operating properly and in accordance with their permits to use; • Mapping of systems using GPS • Random testing of sand filter effluent; and • Water sampling program. 	Unable to complete due to legislative powers of entry limitations. This will be replaced with a maintenance evidence request program.	Refer Section 8.4 and Action Item 8b of Action Plan.

1.5 Implementation and Review

The effectiveness of the OWMP will depend on the ability of Council to implement the Action Plan.

Staff should be trained in OWM assessment and be familiar with plumbing requirements to ensure compliance with repair and / or upgrade orders that can be made for systems.

✓ Action Item 2a-b – Staff trained to be familiar with OWMP requirements and plumbing requirements, and will complete external training opportunities that become available.

The effectiveness of the OWMP will be measured by a monitoring and reporting process. Further to the requirements in the *EP Act 2017*, Council will monitor OWMS and report annually to Barwon Water on a range of performance indicators (permits issued, complaints investigated, maintenance evidence requests, and any non-compliance action taken, etc.). This reporting will not only indicate the progress of Operational Plan implementation, but it will also provide an indication of the effectiveness of the action items to improve public health and environmental risk in regards to OWM across the Shire.

Resource funding and time allocation must be made by Council to undertake this review.

✓ Action item 9 – Investigate budget requirements for the implementation of the OWMP (and apply for additional budget if necessary).

SCSC will review the progress of the OWMP and the effectiveness of OWMS controls as required, making necessary adjustments.

- ✓ Action Item 10a – Review progress of OWMP and effectiveness of OWMS controls, adjusting if necessary.

As per the OMLI, the OWMP must be updated every five (5) years to ensure the OWMP is being implemented appropriately, with a report on the implementation of the OWMP to be published on Councils website.

- ✓ Action Item 10c – Review of 2025 OWMP after five (5) years, with a report on the implementation of the OWMP published on Councils website.

2 Overview of Wastewater Management

2.1 The Historical Context

Historically, the management of wastewater systems throughout Victoria has been difficult. Local Councils are the regulatory authority for OWM and have generally been limited by time and financial support from implementing effective OWMPs. Many Councils throughout Victoria (and Australia) have previously provided very limited programs for OWM, focusing on an approval scheme for new OWMS and a basic system monitoring program as time permits.

2.2 What is Wastewater?

Wastewater is water-borne waste material and includes all normal wastes, as well as many forms of waste matter from other establishments. Domestic wastewater is derived from waste streams: kitchen; bathroom (basin, bath and shower); laundry; and toilet. Industrial and commercial wastewater varies widely in character and often requires specialised treatment processes as it may contain substances that are harmful to the biological processes utilised for treatment processes. Wastewater is commonly described in the following three (3) forms:

- Blackwater – “water grossly contaminated with human excreta” e.g. toilet water, composting toilet leachate;
- Greywater – “water that is contaminated by but does not contain human excreta” e.g. kitchen, bath, and laundry water. Also referred to as ‘sullage’; and
- Combined – “a combination of both blackwater and greywater”.

Wastewater quality can vary greatly due to numerous factors. Effluent is defined as wastewater following treatment. Table 2 outlines typical values for domestic and non-domestic wastewater quality parameters.

Table 2: Typical Domestic and Non-Domestic Wastewater Quality¹

Parameter (mg/L)	Domestic Wastewater	Non-domestic Wastewater
Biological Oxygen Demand (BOD₅)	150-300 mg/L	300->5,000 mg/L
Total Suspended Solids (TSS)	150-300 mg/L	>350 mg/L
Total Nitrogen (TN)	50-60 mg/L	20-100 mg/L
Total Phosphorus (TP)	10-30 mg/L	Source-specific
Faecal Coliform (FC)	10 ⁵ -10 ⁷ cfu/100mL	10 ³ -10 ¹⁰ cfu/100mL
Oil and Grease	<50 mg/L	50-150 mg/L

2.3 Wastewater Treatment

Wastewater is typically managed in urban environments in a community sewerage system, with treatment at a centralised wastewater treatment plant with effluent dispersal via discharge to waterways or land application. In areas where a centralised sewerage system cannot be provided, wastewater is managed onsite at each individual lot.

¹ Information collated from a range of sources including AS1546.1:2008, AS/NZS 1547:2012, EPA Publication 760 (2002), NRMCC (2006), and NSW DLG (1998). Note all concentrations are highly variable.

Onsite wastewater is managed by a variety of treatment systems. The variety of treatment systems and their associated effluent quality are presented in Table 3.

Table 3: Effluent Quality and OWM Treatment Systems

Treatment System	Effluent Quality
Septic Tanks Aerobic Biological Filter Systems	Primary: BOD ₅ : 150-250mg/L; TSS: 20-140mg/L; and Faecal Coliforms: 10 ⁵ -10 ⁷ cfu/100mL.
Aerated Wastewater Treatment Plant (AWTP) Sand and Media Filters Membrane Bioreactors	Secondary: BOD ₅ : ≤20mg/L; TSS: ≤30mg/L; and Faecal Coliforms: ≤10cfu/100mL (with disinfection).
	Advanced Secondary: BOD ₅ : ≤10mg/L; TSS: ≤10mg/L; and Faecal Coliforms: ≤10cfu/100mL (with disinfection).

Current best-practice is for effluent to be treated to a secondary standard or better. Any variations to this must be provided with detailed evidence and explanations to demonstrate its suitability.

Further detail about treatment systems can be found in Section 4.3 of EPA Victoria (2024), *Guideline for Onsite Wastewater Management* (GOWM, 2024) and Section 10.3 of the Technical Document provides detailed information about treatment systems.

2.4 Effluent Dispersal System

Following treatment, the effluent is dispersed within the boundaries of the lot, referred to as an effluent dispersal system (EDS). The type of EDS depends on the type of treatment system and the quality of effluent. The suitability of EDS based on treatment standard is provided in Table 4.

Table 4: Effluent Quality and EDS Suitability

EDS Type	Primary Effluent	Secondary Effluent
Conventional Absorption Trenches and Beds	✓	✓
Evapotranspiration-Absorption (ETA) Trenches and Beds	✓	✓
Modified ETA Trenches and Beds (Wick Trenches)	✓	✓
Wisconsin or Sand Mounds	✓	✓
Low Pressure Effluent Distribution (LPED)	✓	✓
Surface Irrigation	✗	✗
Subsurface Irrigation	✗	✓
Covered Surface Drip Irrigation	✗	✗

Further detail can be found in Section 2 of EPA Victoria (2024), *Guideline for Effluent Dispersal and Recycling Systems* (EDRS, 2024), and Section 10.4 of the Technical Document provides detailed information about EDS.

2.5 Public Health & Environmental Risks of OWM

Wastewater can be highly variable in quantity and quality, which can impact on the performance of OWMS. Treatment systems rely on the anaerobic (primary) and aerobic (secondary) breakdown of organic matter by microbes and the settling of solids. Shock loads or harmful chemicals in the wastewater stream (i.e. biocides) can impact on the ability of these microbes to treat the wastewater, resulting in poor effluent quality. OWMS failures are most often a result of poor system design, poor installation practices, inadequate maintenance, and insufficient land area, all of which contribute to potential public health and environmental impacts. The potential risk of OWMS, typical causes, and potential impacts are outlined in the Table 5.

Table 5: Environmental and Health Risks of OWMS

Risk	Typical Cause	Potential Impacts
Ineffective regulation	Lack of staff / time / training / experience.	Environmental, Health, and Social
Off-site discharge	Failing / poorly managed / damaged / unapproved treatment and / or EDS / previous approved practices for off-site discharges.	Environmental, Health and Social
Disinfection failure	No disinfection (chlorine) / poor upstream treatment.	Health
Failure of treatment system	Lack of maintenance / poor installation / age of system.	Environmental, Health, and Social
Surcharge from EDS	Peak loads / overload of system / failure of EDS / undersized or poorly designed system.	Environmental, Health, and Social
Failure of EDS	Clogging layer in trenches or beds / broken pipes / inappropriate hydraulics.	Environmental, Health, and Social
Human contact with effluent	Poor OH&S in maintenance / inappropriate dispersal methods.	Health and Social
Owner ignorance	Lack of knowledge of system.	Environmental, Health, and Social
Damage to EDS	Access by vehicles or stock / inappropriate boundaries.	Environmental, Health and Social
Odour	Inadequate treatment in systems / mechanical fault.	Social
Groundwater contamination	EDS overloaded (undersized and / or failing).	Environmental, Health, and Social
Surface water contamination	Surface runoff of effluent in area with reduced setback distance buffers / recharge from contaminated groundwater.	Environmental, Health, and Social
Human or animal disease outbreak	Direct or indirect pathogen exposure due to any of above causes.	Health and Social
Degradation of soils	Undersized or failing EDS / usually high strength effluent.	Environmental and Social
Increased algae growth	Excess nitrate and phosphate in surface waters.	Environmental, Health, and Social
Degradation of native vegetation	Excess nitrate and phosphate in soils and / or surface waters.	Environmental and Social

3 Legislation and Policies

The following section lists the various legislation and policy documents which have been included in the OWMP review, which are discussed further within Section 3 of the Technical Document.

3.1 Council's Plans and Policies

This OWMP has been developed in consideration of other Council Policies and Plans, as follows:

- Surf Coast Planning Scheme;
- Council Plan 2021 – 2025;
- Health and Wellbeing Plan 2021 – 2025;
- Rural Living Strategy 2007; and
- Council Budget.

3.2 Legislation

A summary of the legislation and their stipulated requirements relevant to the regulation of OWM are detailed in the Technical Document. The relevant legislation includes:

- *Environment Protection Act 2017 and Regulations 2021*;
- *Safe Drinking Water Act 2003 and Regulations 2015*;
- *Planning and Environment Act 1987*;
- *Public Health and Wellbeing Act 2008*;
- *Local Government Act 2020*;
- *Water Act 1989*;
- *Catchment and Land Protection Act 1994*; and
- *Victorian Building Regulations 2018*.

3.3 Regulatory and Legislated Authorities

OWM involves, to varying degrees, a number of regulatory agencies:

- Surf Coast Shire Council;
- Environment Protection Authority Victoria (EPA);
- Victorian Building Authority (VBA);
- Plumbing Industry Commission (PIC);
- Municipal Association of Victoria (MAV);
- Water Corporations (Barwon Water);
- Department of Energy, Environment and Climate Action (DEECA); and
- Catchment Management Authority (Corangamite Catchment Management Authority).

3.4 Administrative Authorities

The Victorian Civil and Administrative Tribunal (VCAT) deals with civil disputes, administrative decisions and appeals that are heard before a Judge or Tribunal member. It provides a dispute resolution service for both government and individuals within Victoria.

3.5 Standards and Guidelines

The design, operation, and management of OWMS are supported by a number of standards and guidelines:

- Department of Environment, Land, Water, and Planning (2019), *Guidelines for Development in Flood Affected Areas*;
- Department of Environment, Land, Water, and Planning (2022); *Risk Assessment Guidance Report*;
- Department of Energy, Environment and Climate Action (2024), *Planning Permit Applications in Special Water Supply Catchment Areas*;
- EPA Victoria (2024), *Guideline for Onsite Wastewater Effluent Dispersal and Recycling Systems*;
- EPA Victoria (2024), *Guideline for Onsite Wastewater Management*;
- EPA Victoria (2021), *Regulating Onsite Wastewater Management Systems: Local Government Toolkit*;
- Standards Australia / New Zealand (2012), *AS/NZS 1547:2012 Onsite Domestic Wastewater Management*;
- Municipal Association of Victoria & Department of Sustainability and Environment (2014), *Victorian Land Capability Assessment Framework*;
- Standards Australia / New Zealand (2008), *AS/NZS 1546.1-2 Onsite Domestic Wastewater Treatment Units (Septic Tanks / Waterless Composting Toilets)*;
- Standards Australia (2016-2017), *AS 1546.3-4 Onsite Domestic Wastewater Treatment Units (Secondary Treatment Systems / Domestic Greywater Treatment Systems)*;
- Standards Australia / New Zealand (2021), *AS/NZS 3500.1-4:2021 Plumbing and Drainage*; and
- Victoria Audit General's Office (2018), *Managing the Environmental Impacts of Domestic Wastewater*.

Where a document has become superseded, the OWMP refers to the current guidance document.

4 Risk Assessment Framework

Formal risk assessment has proven to be an effective way of making decisions in situations involving considerable complexity and uncertainty. Formal recognition of the value, intent, and application of risk assessment is provided in the international standard for formal risk management and associated guidelines (Standards Australia, 2009; IEC/ISO 31010, 2009).

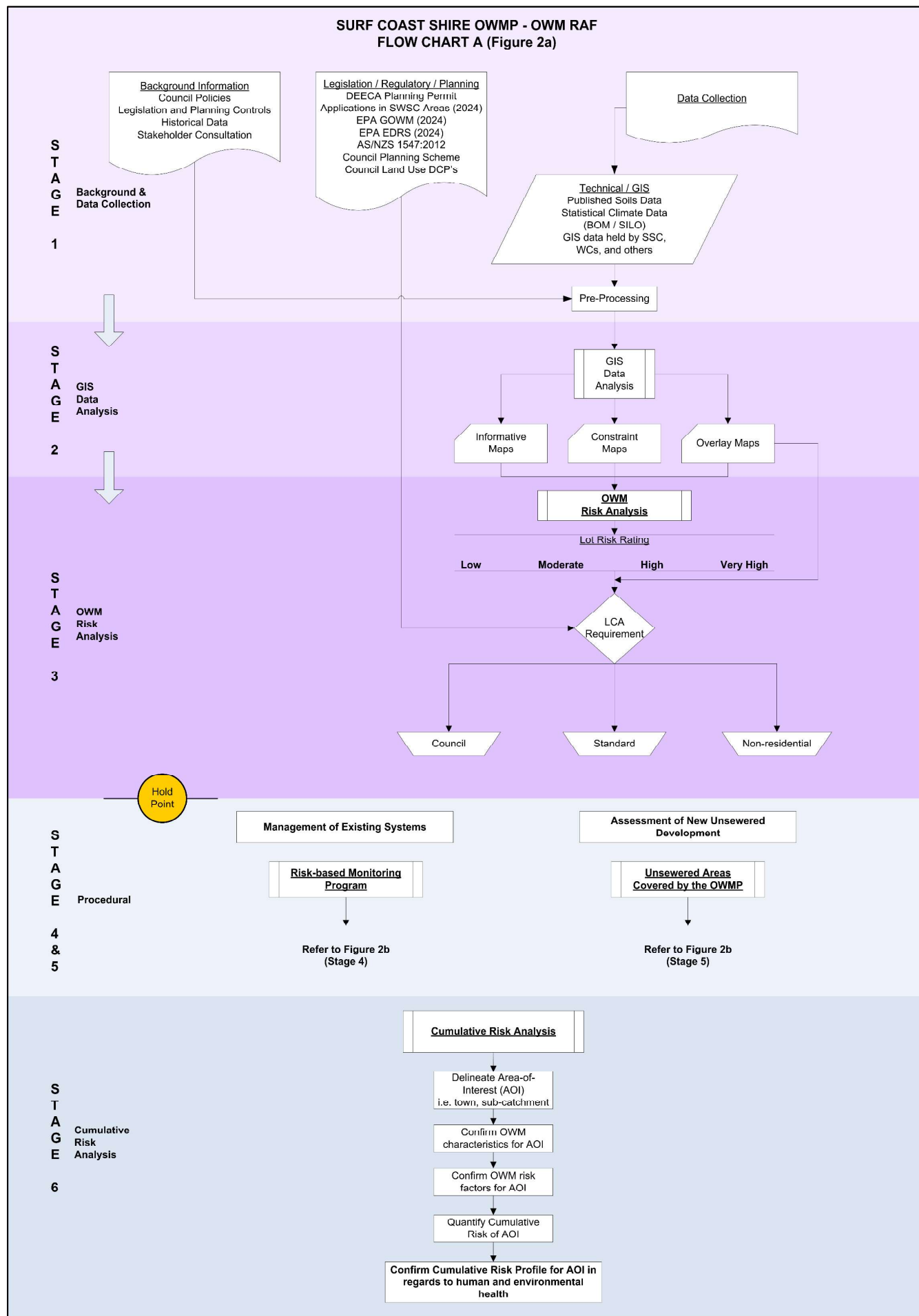
The fundamental purpose of any OWMP is the identification and management of risk from OWMS to public health and the environment. A means of addressing the OWM issues raised by unsewered townships is to prepare a risk assessment tool that systematically measures possible impacts of OWMS on public health and the environment. A comprehensive six (6) staged RAF has been developed for this OWMP to assist Council in analysing risk at variable scales. The stages of the RAF are outlined in Figures 2a and 2b.

The RAF has substantial value as a development assessment tool and provides a defensible identification and justification for prioritisation of existing management issues within the Shire. It incorporates tools that assess the bio-geophysical capability for OWM in existing unsewered towns and settlements, recently developed unsewered subdivisions, and undeveloped unsewered land. It will be primarily used:

- To determine the level of technical investigation to be undertaken as part of a development application in an unsewered area (LCA);
- To identify existing priority unsewered localities and townships that require more detailed investigations to determine needs (i.e. improvement actions or plans);
- As a guide to develop an ongoing maintenance strategy for existing OWMS in the Shire; and
- As a guide to Council for strategic planning of future unsewered development.

The overall risk assessment aims to provide Council with a reasoned and justified tool to prioritise future development, and to implement monitoring and upgrading of OWMS within the Shire by highlighting regions with elevated OWM risk profiles (e.g. townships with large numbers of small lots and older OWMS). Consideration of both individual (lot) and cumulative (catchment) OWM risk provides a versatile tool for:

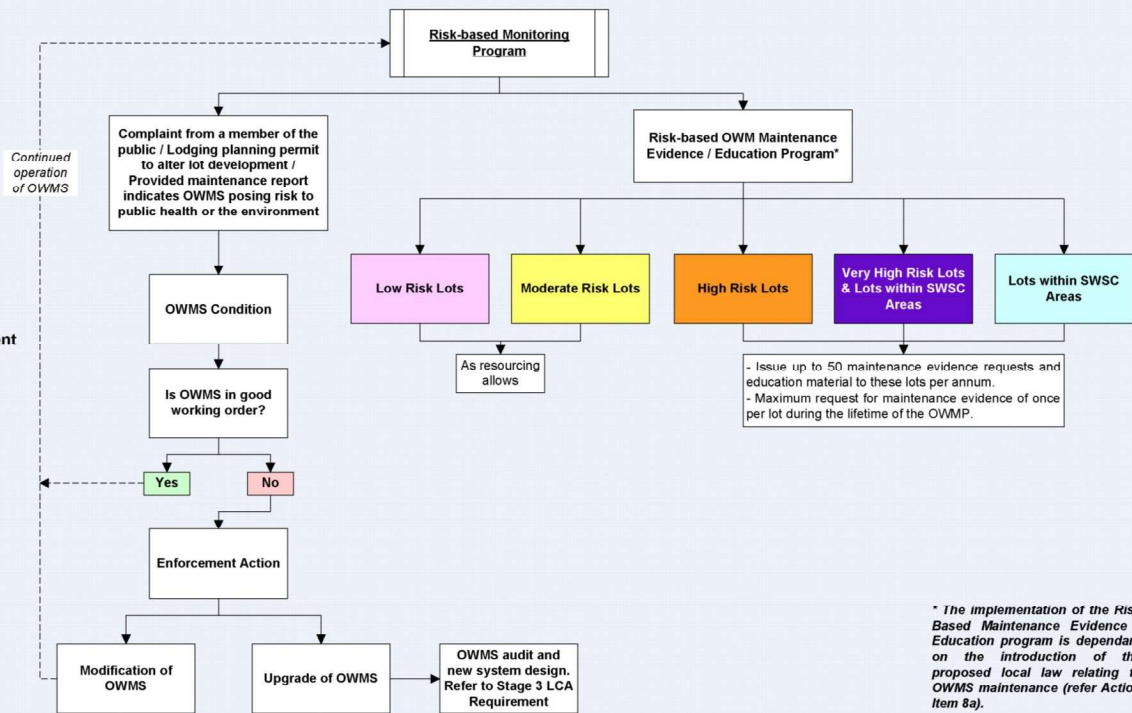
- Examining changes from an accepted 'baseline' condition (i.e. water quality or environmental indicators);
- Preparing cost / benefit analyses for upgrade / improvement options (i.e. OWM vs. sewerage); and
- Comparing alternate land use / development scenarios (i.e. development density).



SURF COAST SHIRE OWMP - OWM RAF FLOW CHART B (Figure 2b)

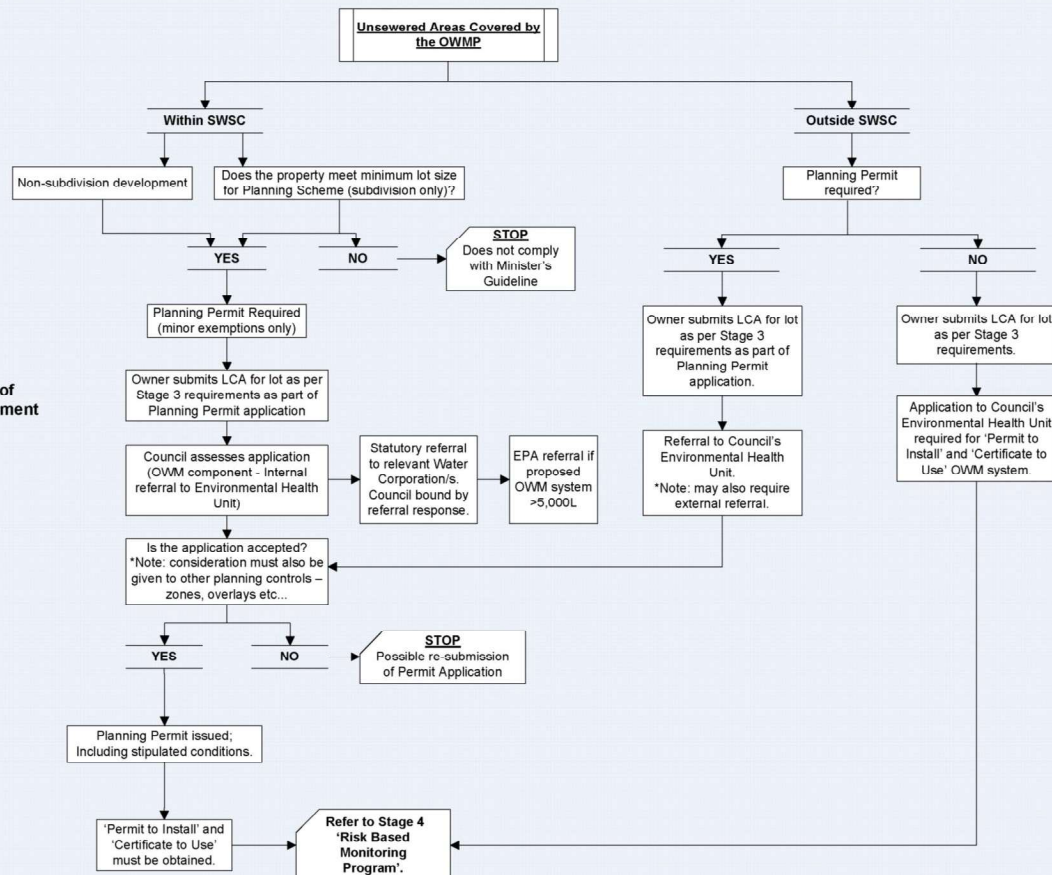
STAGE 4

Management of Existing Systems



STAGE 5

Assessment of New Development



4.1 OWM Risk Analysis

The primary objective of the OWMP is to assess all 'unsewered' and 'developable' lots within the Shire to determine their suitability to sustainably manage wastewater onsite in compliance with legislative and regulatory requirements. The inter-relationship of a wide range of individual constraints and variables affect the specific land capability for sustainable OWM.

The Risk Analysis involved assessing the cumulative effect of the individual constraints (i.e. soil type, slope, useable lot area (useable land), climate (rainfall conditions), and location (i.e. location within a SWSC) for all of the unsewered lots within the Shire. Each lot was assigned a risk rating for each individual constraint, with a final risk rating assigned on the cumulative effects of the constraints. Further detail on the Risk Analysis can be found in Section 6 of the Technical Document.

The final Risk Ratings give guidance towards the OWMS requirements as stipulated by Council. For existing OWMS, the level of risk will commonly reflect the level of challenge that has been experienced in managing the system. This information will help guide owners and Council in the ongoing management of existing OWMS. Table 6 provides a rationale for the interpretations that were used to derive the ratings.

Table 6: Risk Rating Descriptions

Risk Rating	Description
Very High	Constraints are present at a very high level, significantly restricting opportunities for sustainable OWM. Traditional primary treatment systems (i.e. septic tanks and trenches) are not appropriate and a detailed site and soil evaluation would be required to determine if OWM is achievable at all. If achievable, specialised, advanced treatment and EDS may be required to overcome the constraints.
High	Constraints are present at a high level and this substantially restricts opportunities for sustainable OWM. Traditional primary treatment systems are not appropriate and a detailed site and soil evaluation would be required to determine if they are supported. Otherwise, specialised, advanced treatment and EDS may be required to overcome the constraints.
Moderate	Constraints are present at a moderate level and this limits the range of OWM options that are appropriate for the lot. A detailed site and soil evaluation may be required to identify the most appropriate OWMS and mitigation measures to be employed.
Low	Constraints are present at a low level and are unlikely to substantially limit opportunities for OWM. In most cases appropriately designed and managed traditional systems will be accepted.

The terms relate to the underlying level of risk to OWM posed by the lot. These factors are used to direct management (planning) decisions and subsequently, the level or intensity of site-specific investigation (LCA) required. The final Risk Rating for each individual unsewered lot within the Shire is shown in Table 7 and Figure 3.

Targeted localities were highlighted as priority regions of investigation by Council. The localities considered in this OWMP are: Deans Marsh; Eastern View; Moggs Creek; Moriac; Pennyroyal; Torquay; Bellbrae; and Jan Juc. These localities were selected due to current development pressures, existing OWM issues, and existing controls in place to minimise OWM impacts. Council maintains a database of the calculated Risk Ratings for all the unsewered properties within the Shire. An owner can contact Council to obtain the data for the final Risk Rating of their land.

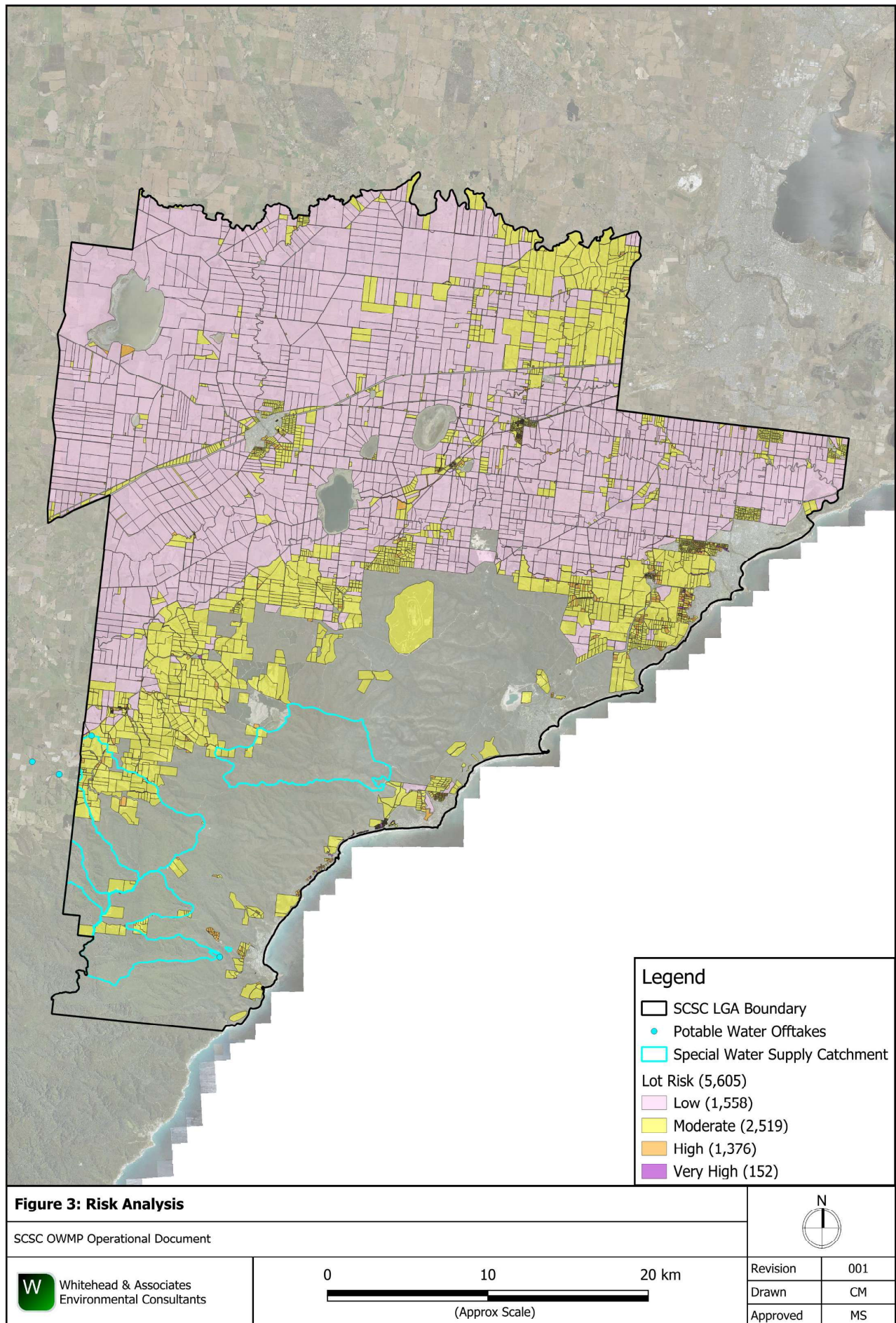
The final Risk Rating and final map for each of the targeted localities and associated townships are detailed in the respective locality reports in Appendix B of the Technical Document.

Table 7: Final Risk Rating Summary

Locality	Total Unsewered Developable Lots	Total Number in Final Risk Rating			
		Very High	High	Moderate	Low
Shire	5,605	152	1,376	2,519	1,558
Deans Marsh	327	13	139	148	27
Eastern View	63	49	10	4	0
Moggs Creek	205	3	133	69	0
Moriac	377	0	198	129	50
Pennyroyal	97	6	22	69	0
Torquay	446	9	122	283	32
Bellbrae	409	9	139	204	57
Jan Juc	114	12	52	50	0

Council staff will be trained in accessing and updating the Risk Analysis to ensure the database it up to date.

✓ Action Item 3 – Create GIS layer for the Risk Analysis and OWMS permits in the Shire.



4.1.1 Evaluation of Risk Analysis

The Risk Analysis resulted in a majority of lots within the Shire being assigned a Moderate Risk Rating (~45%). The final risk analysis mapping highlights that only one (1) or two (2) individual constraints (e.g. soil type and useable lot area) generally influence the final Risk Rating of any given lot. This relationship is described further in the individual Locality Reports in Appendix B of the Technical Document.

The Risk Analysis identifies approximately:

- 28% of lots with a Low Risk Rating;
- 45% of lots with a Moderate Risk Rating;
- 24% of lots with a High Risk Rating; and
- 3% of lots with a Very High Risk Rating.

The spatial distribution of the level of risk appears to be distinctly influenced by proximity to township areas with smaller lots size, as well as topographical features such as the Otway Ranges in the southwest. The northern half of the Shire appears to pose a lower risk to sustainable OWM, whereas, the southern half of the Shire generally poses a higher risk to sustainable OWM.

According to the individual constraint maps as detailed in the Technical Document, the parameters contributing the greatest limitation to OWM within the Shire are soil type (slowly permeable clayey soils) and useable lot area (small lots with constraining features).

It is essential that the limitations of the data used to compile these maps are recognised when using the risk analysis map. Whilst individual lots have been assigned a risk rating, it is not sufficiently detailed to allow determination of individual system performance or land capability for individual lots. This is why the term risk assessment is used to describe the methodology and resultant outputs. An allotment categorised as having a Very High Risk rating will not necessarily be totally unsuitable for OWM or currently be experiencing poor system performance or system failure; however, it is likely to contain a number of significant limitations to the safe operation of OWMS assessed at a very broad scale.

Overall Risk Ratings has been used to justify the requirement for more detailed individual lot investigation (LCA), more rigorous assessment of development proposals and to prioritise any monitoring activities of existing OWMS, rather than to define system performance or land capability.

Furthermore, the degree of risk depends on the type of EDS and generated effluent quality (e.g. subsurface irrigation can be installed on slopes up to 15 – 20% in some cases, but this would be impractical for trenches). This relationship is detailed further in Section 6.2 of the Technical Document. Physical constraints can often be overcome or substantially mitigated by a range of measures (such as terracing, importing topsoil fill, installing stormwater diversions, removing vegetation or planting nutrient tolerant vegetation), thereby increasing the 'suitability' of the available area.

4.2 Cumulative Risk Assessment

A Cumulative Risk Assessment (CRA) is an indicative risk assessment tool used to identify potential risks associated with existing or proposed development in unsewered areas, and provides a means of quantifying risks within a specific Area-of-Interest (AOI).

A CRA looks at existing OWMS within an AOI, such as a sub catchment or township area, to determine the risk posed from OWM to environmental and human health contamination endpoints. It also has potential to be used to assess the impact of increased development and number of OWMS within a particular AOI.

The CRA within the OWMP has been carried out in line with the DELWP 'Risk Assessment Guidance' report (DELWP Report, 2022), with OWM details and catchment characteristics input into the DELWP 'Risk Calculation' spreadsheet tool (DELWP Tool, 2022).

The CRA is based on the 'likelihood' and 'consequence' of OWM failure within study catchments. Likelihood is defined as the possibility of wastewater transfer off-site towards a defined endpoint. Consequence is defined as the contaminant load once wastewater has reached the endpoint.

The areas of Deans Marsh, Eastern View, Moggs Creek Moriac, Pennyroyal, and Torquay were defined as AOIs and have been evaluated in the CRA. These areas were selected by Council due to current development pressures, OWM issues / complaints, controls in place to minimise OWM impacts, and location within / proximity to sensitive areas (SWSC areas).

Study catchments are presented as Figures 5 – 9 of the Technical Document. Section 6.4 of the Technical Document outlines the methodology, process, and results of the CRA.

4.2.1 Evaluation of Cumulative Risk Assessment

The CRA indicates that the study catchments exhibit a Low to Moderate Risk in regards to public health and the environment.

Wastewater within a majority of the study catchments were managed within primary treatment systems (septic tanks) and absorption systems (trenches / beds). However, even though these systems are considered a High Risk, it is noted that the risk factors associated with the systems trend towards the Low Risk for proximity to sensitive features.

Soil type was the most common constraint across all catchments, with a majority containing Category 6 soils that present a High Risk to surface water features. All study catchments also had a relatively low OWMS density, with no study catchment exceeding one (1) OWMS per hectare.

The outcomes of the CRA will be used as a 'baseline' assessment for the selected study catchments within the Shire, and can be used as a basis for the assessment of risk for future development within the associated catchments.

4.3 Limitations of the Risk Assessment Framework

There are several limitations inherent in the methodology adopted to assess the variation in onsite wastewater related risk throughout the Shire. Briefly, these are due to:

- The use of broad-scale mapping and desktop analysis;
- A lack of digital data in some areas;
- The present level of scientific understanding and uncertainties relating to the physical and chemical processes and their implications for sustainable OWM;
 - Current best practice derived from wide experience in Australia, New Zealand and the United States was used in this assessment;
- The limited availability, quality, and accuracy of attribute data; and
- Limitations in the method of assessing the inter-relationship and cumulative effect of individual attributes and constraints.

The recognised limitations emphasise that the Risk Analysis should only be used as a preliminary attempt to distinguish regions within the Shire with relatively higher levels of risk to public health and / or the environment with the objective of determining preliminary priority for future wastewater servicing.

5 Existing OWMS

5.1 Management of Existing OWMS

The *EP Act 2017* and *Regulations 2021* provides councils with the power to enforce compliance. Council can issue infringement penalties (*EP Regulation 2021*, Schedule 10), improvement notices (*EP Regulation 2021*, Section 271), order maintenance (*EP Regulation 2021*, Regulation 163), and prohibition notices (*EP Regulation 2021*, Section 272), if they have reasonable belief that any of the grounds listed in the relevant sections of the *EP Act 2017* or *Regulations 2021* are satisfied.

To ensure compliance with the *EP Act 2017*, owners or occupiers of the land are to maintain their OWMS in good working order. Supporting information for the OWM maintenance and rectification of issues can found in the following sections.

Stage 4 of the RAF (Figure 2b) outlines the procedural framework under which SCSC will carry out an existing system maintenance evidence request and education program (refer Section 8.4), and, if necessary, how they will enforce the management of OWMS in the Shire. The program will be based on the Risk Analysis as per Section 4 of the Operational Plan, and is described in Section 8.4 of this OWMP. It should be noted that due to legislative constraints, this program is reliant on a Council local law being introduced in relation to OWMS maintenance.

The implementation of a proactive risk-based OWMS monitoring (inspection) and compliance program using existing legislative tools was investigated during the development of this OWMP; however, this was not considered feasible due to current legislative limitations (i.e. powers of entry) of the *EP Act 2017*. In addition, a maintenance request and order program was considered, but again was not deemed feasible due to powers of entry limitations and the need to conduct an inspection prior to issuing a maintenance order under the *EP Act 2017*. Under the *EP Act 2017*, the General Environmental Duty (GED) was introduced, requiring any owners or occupiers of the land managing or controlling an OWMS to take reasonable steps to maintain the OWMS in good working order, keep maintenance records (service reports / pump-out reports), respond to any problems that arise, and notify Council of a failure and rectification steps.

5.2 Maintenance of Existing OWMS

Maintenance actions should be undertaken by the owner or occupier of the land, or a qualified service agent in order to minimise the risk of system failure and contravening the *EP Act 2017*. Potential actions are outlined in the following:

- Regular desludging of septic tank (or primary tank in secondary system);
- Checking of all system chambers and other checks as required by system manufacturers;
- Addition of chlorine for disinfection where chlorination is used;
- Ensuring occupants do not discharge chemicals used within the dwelling to the system (i.e. bleaches, antibacterial cleaning products, paints, dyes etc.);
- Ensuring that the system is not turned off at any time;
- Responding to system alarms as this usually indicates a system failure or problem;
- Monitoring of secondary treatment system effluent for commercial systems, as required; and
- Ensuring EDS, sprinklers, or irrigation area is maintained.

5.3 Non-compliant OWMS

It is recognised that there are many older OWMS located on lots with unsuitable characteristics for OWM. These systems may be undersized or have direct greywater discharge off-lot, resulting in non-compliant OWM.

It is noted that 100% compliance with Standards and EPA Guidelines may not be achievable for all lots due to the characteristics of a property, such as small lots with heavy textured clay soils. When 100% compliance cannot be made, a 'Best Practicable Option' (BPO) approach may be applicable where as much compliance with the Standards and EPA Guidelines is made, with some concession from SCSC. The BPO should be discussed and agreed upon with SCSC, with a clearly identified improvement on the current OWM situation. An example of this is the improvement from a septic tank (primary treatment) to secondary treatment, with EDS improvements as outlined in Sections 5.4 and 5.5. The approval of all BPOs will be at the discretion of SCSC.

Sections 5.4 and 5.5 of the Operational Plan outline the range of options available to improve OWM performance of non-compliant OWMS. Section 8.4 outlines the procedure for identifying and managing existing OWMS in the Shire through a risk-based monitoring program.

5.4 Modifications for Existing OWMS

In some cases, it is not necessary to replace all OWMS components to rectify issues. Risks from non-compliant systems may be appropriately managed by modifying a system. Potential modifications include, but are not limited to:

- Minor repairs (crack repair, replace components, etc.);
- Outlet filters for septic tanks; and
- Access risers for septic tanks.

Required modifications should be determined on a risk-based basis, and discussed with Council prior to implementation. Septic tanks that are to be modified or repaired must be structurally sound and adequately sized. Further information on the modification of existing systems can be found in Section 8.1 of the Technical Document.

5.5 Replacement / Upgrade of Existing OWMS

Where an existing system is shown to be operating effectively but does not comply with the current Standards or EPA Guidelines, the system is not required to be upgraded but should be monitored. In the event that failure occurs, effluent is discharging off-site, or development alterations increasing wastewater generation are proposed (i.e. addition of bedrooms), the OWMS must be replaced or upgraded. Where a new system or upgrade works are required, the system must comply with the current Standards and EPA Guidelines.

Potential upgrade and replacement options include, but are not limited to:

- Septic tank replacement;
- Absorption system rejuvenation;
- Absorption system replacement, replication, or expansion;
- Soil amelioration; and
- Alternative absorption system design.

Replacement of systems and components should be carried out according to the site-specific conditions and requirements of the lot by an appropriately qualified and experienced person. Further information on the replacement of existing systems can be found in Section 8.2 of the Technical Document.

5.6 Subdivision of Developed Land

During the process of subdivision of land that is currently developed, the OWMS servicing existing development must be reviewed to ensure it is compliant with the current Standards and EPA Guidelines. Common situations where an OWMS upgrade is required for existing development include (but are not limited to): poorly maintained septic tank and absorption systems in heavy textured (clay) soils; or an OWMS is located in newly created lot.

In the case that this occurs, the OWMS must be upgraded to be in line with the current Standards and EPA Guidelines. OWMS requirements can be inferred from the LCA provided for the subdivision, assuming the site and soil conditions are relevant to the existing development.

6 Future OWMS

Stage 5 of the RAF outlines Council's 'procedural' steps for determining the management requirements for future unsewered development.

6.1 Development Potential in Unsewered Localities

The Department of Transport and Planning (2023), *Victoria in Future 2023 Report* has projected the population of the Shire to increase to 48,012 (~27.4% increase) by 2036 due to the decentralisation and migration from metropolitan Melbourne to regional Victoria over recent years. The number of OWMS within the Shire is anticipated to increase with the population.

The Surf Coast Shire Rural Living Strategy (2007) investigated existing localities for their future development potential. It was identified that all future development will be focussed on existing townships, with development limited within key agricultural zones to protect the Shire's agricultural land for production. It was noted that community consultation highlighted ongoing trends of lifestyle developments in the developed areas of Moriac, Deans Marsh, Freshwater Creek, and Modewarre.

6.2 Assessment of Future OWMS

Proposals for development exempt from planning permit requirements (e.g. dwelling in Township Zone that is not covered by any overlays) will proceed directly to the preparation of an LCA as per the requirements set out in Section 6.3 of this document.

Development and planning proposals for lots located within a SWSC must comply with the minimum lot size specified for the current land zoning per the Planning Scheme (subdivision only), as outlined in Table 8. Further information can be found at the following.

[Surf Coast Planning Scheme - Ordinance](#)

If a lot does not achieve the minimum area, then it is deemed as non-compliant with DEECA (2024).

Table 8: Minimum Lot Size for Planning Scheme

Planning Scheme Zone		Minimum Lot Size (ha)
Farming Zone (FZ)	Barrabool Hills, Deans Marsh District	40
	Thompson Creek Catchment, Otway Hills, Coastal Hinterland	60
	Winchelsea Plains	80
Low Density Residential Zone (LDRZ)	Winchelsea – Barley Street Estate, Collins Street Estate, Trebeck Court Estate	2
	Winchelsea – Quambatook Estate - Precinct A	0.4
	Winchelsea – Quambatook Estate - Precinct B	1
	Torquay-Jan Juc – Bells Boulevard, Briody Drive Estate	1.5
	Torquay-Jan Juc – Torquay Heights ²	0.7
	Bellbrae – Part of 460 Grossmans Road	0.25
	Bells Beach – Addiscott Road Estate	2

² The average area of lots within a subdivision must be at least 1ha.

Planning Scheme Zone		Minimum Lot Size (ha)
	Thompson Creek – Lower Duneed, Connewarre	1
	Moriac – West side township	1
	Fairhaven – Ridge Road, Timbara Cluster	0.4
Rural Conservation Zone (RCZ)		60
Rural Living Zone (RLZ)		4
Township Zone (TZ)		0.4

Council's procedures for assessing OWM proposals are detailed in Section 7 of this Operational Plan. All OWM proposals must be submitted to Council with a 'Permit to Install' application form for the proposed treatment system and EDS.

The requirements for LCAs based on the Risk Analysis in Section 4 of this Operational Plan are to be followed when applying for a Permit to Install. OWM proposals in SWSC areas will be referred to the relevant WC.

The Action Item 1 of the Action Plan includes a review and finalisation of Council procedures for the assessment of OWM proposals.

- ✓ Action Item 1 – Prepare and document SCSC procedures and associated checklist / assessment tools to ensure they are in line with this Operational Plan and current legislation, standards, and guidelines.

Records of development and rezoning applications in unsewered localities provide useful data about development pressures across the Shire and can be used to inform strategic land use and development planning decisions in the unsewered townships and their surrounds. It is important to ensure that the broader planning processes and decisions take into consideration the OWMP and ongoing inspections; therefore, all the Planning Officers and EHO should be briefed on the requirements.

- ✓ Action Item 5 – Brief Planning staff on the OWMP and how it will influence Environmental Health referral responses.

6.3 Land Capability Assessment

The level of detail required by the LCA is to be inferred by the Risk Analysis provided in Section 4 of this Operational Plan. Council maintains a database of the calculated Risk Ratings for all the unsewered lots within the Shire. An owner can contact Council to obtain the data for the final Risk Rating of their land.

Copies of the minimum requirements for assessment and reporting for each level of LCA are provided in Appendix B of this Operational Plan. The specific LCA requirements are detailed in the following sections.

The LCA must be conducted in accordance with the standards outlined in Section 3.4 of GOWM (2024), and should be guided by MAV & DSE (2014), *Victorian Land Capability Assessment Framework*.

With regards to OWMS selection and sizing, the permeability and corresponding 'design' loading rate for the most limiting soil horizon within 600mm from the base of the EDS must be used to ensure the loading of wastewater on the soil can be supported for the entire soil profile.

6.3.1 Low Risk Lots

It is envisaged that an LCA will generally be unnecessary for Low Risk lots, unless deemed so by Council staff. Council may request a Soil Assessment to be provided in addition to a Site Plan on a case-by-case basis.

Applications for Low Risk lots can be assessed using the Risk Pro-forma Checklist, as per Appendix A, and / or the 'Site Information Sheet' template in Appendix D of AS/NZS 1547:2012. The proposed treatment and EDS combination may be selected from the system compatibility (Table 4 of this Operational Plan) and Sizing Tables (Appendix B and D of the Technical Document).

Council may conduct a site visit to confirm site and soil details are as per the Pro-forma sheet and the proposed OWM treatment and EDS is appropriate for the site. If a Low Risk Rating lot is located within a region of increased risk or OWM constraint, Council staff may require a Standard LCA and Report to be completed (refer Table B1, Appendix B).

6.3.2 LCA for Moderate Risk Lots

It is envisaged that an LCA will generally be unnecessary for Moderate Risk lots unless deemed so by Council staff. Council may request for a Soil Assessment to be provided in addition to a Site Plan on a case-by-case basis. If a Moderate Risk lot meets any of the following criteria, a Standard LCA (refer Table B1, Appendix B) will be required:

- Located within following areas;
 - Ocean Acres / Frog Hallow Estate, Torquay;
 - 305 Great Ocean Road Subdivision, Jan Juc;
 - Deans Marsh Township;
 - Moggs Creek;
 - Bellbrae;
 - Moriac;
 - Pennyroyal;
 - Benwerrin;
- Useable lot area of <1ha; and / or
- Location within a SWSC.

If applicable, a Standard LCA is required for Moderate Risk lots (Table B1, Appendix B), which includes Site Inspection and Field Investigations, as well as a water balance and nutrient modelling. If deemed appropriate by Council, system design can be determined using the system compatibility (Table 4 of this Operational Plan) and Sizing Tables (Appendix B and D of the Technical Document). For all lots <0.4ha, site specific detailed hydraulic design for the EDS suitable for supplier quotation and construction must be prepared.

Applications for Moderate Risk lots that do not require an LCA can be assessed using the Risk Pro-forma Checklist, as per Appendix A, and / or the 'Site Information Sheet' template in Appendix D of AS/NZS 1547:2012. The proposed treatment and EDS combination may be selected from the system compatibility (Table 4 of this Operational Plan) and Sizing Tables (Appendix B and D of the Technical Document).

6.3.3 LCA for High and Very High Risk Lots

A Standard LCA is required for all High Risk and Very High Risk lots (refer Table B2, Appendix B), which includes Site Inspection and Field Investigations, as well as a water balance and nutrient modelling. For all lots <0.4ha, site specific detailed hydraulic design for the EDS suitable for supplier quotation and construction must be prepared. System Selection and Sizing Tables are not available for High Risk and Very High Risk lots.

6.3.4 Subdivision LCA Requirements

LCAs must be performed early in the planning phase of land development before rezoning or subdivision as it achieves a more sustainable result, because areas with higher degrees of limitation can be appropriately zoned and subdivision layouts can make best use of the constraints and opportunities of the land.

Under the SCSC Planning Scheme, it is required to demonstrate that the land is suitable for the development of a dwelling prior to subdivision approval. Chapter 5 of MAV & DSE (2014) broadly discusses LCAs for subdivisions.

Regardless of the scale of an LCA, the objective is the same, that is, the determination of a sustainable OWM strategy for all proposed lots. Different management strategies may be required within the same subdivision due to varying constraints identified through the LCA across the site.

Only concept OWMS designs are necessary at this stage to determine the minimum size of the EDS, options may be left as broad technology types suitable for the lots, with detailed system design required at the individual lot development stage.

The subdivision LCA must provide an assessment based on a minimum of five (5) bedroom dwelling for residential subdivisions to ensure no issues arise at the individual lot stage. Each proposed lot must meet the minimum lot size requirements specified in the relevant Planning Scheme. If no minimum lot size is provided for the Planning Scheme (i.e. TZ), a minimum lot size of 0.4ha (4,000m²) is to be followed as per Section 6.4 of the Operational Plan.

The LCA requirements detailed within Section 6.3 are applicable to all scales of development assessment. The Risk Rating of the existing lot will direct the level of detail required for an LCA for a subdivision or rezoning of a lot. A Standard LCA (refer Table B1, Appendix B) must be provided for all subdivision.

6.3.5 Non-residential LCA Requirements

Non-residential developments (i.e. cafes, pubs, restaurants, etc.) present a higher risk to OWM when compared to residential developments as they are complex due to variability in wastewater generation and wastewater composition. Therefore, a high degree of assessment should be carried out.

A Non-residential LCA (refer Table B2, Appendix B) is required for all non-residential developments, which requires a higher level of assessment and reporting due to the inherent constraints and risks associated with generated wastewater. The LCA requires in-situ permeability testing, soil chemical analysis, conservative monthly (or daily) water balance, an annual nutrient balance, and a detailed site-specific hydraulic design in addition to the standard LCA requirements.

All non-residential developments are to install a flow meter to aid in monitoring water usage and flow rates from the development. As per GOWM (2024), EDRS (2024), and AS/NZS 1547:2012, flow meter data may be used in place of standard flow rates for existing developments as this representative of the development, and can avoid under / over design of an OWMS.

If the development contains a commercial kitchen, it is required that an adequately sized grease trap be installed on the greywater waste stream to ensure excess fats, oils, and greases are not discharged to the treatment system. Grease traps are to be a minimum of 600L and have a minimum one (1) hours retention time at the maximum flow rate (whichever value is larger), or as directed by Barwon Water. Further information can be found in Barwon Water (2023), *Trade Waste Policy Guidelines*.

6.3.6 Generic LCA Requirements

As detailed in each LCA procedure (Appendix B), confirmation of any relevant risk overlays (e.g. landslip, flooding) with Council is required. If any risk is identified, this needs to be specifically addressed within the LCA. Discussion with Council is required to determine the necessary requirements to be met. If the site is located within an identified landslide region, then a geotechnical report (OWM relevant) will likely need to be completed. If the site is located within a known shallow groundwater region, the depth to (permanent and shallow) groundwater will need to be determined and discussed within the LCA report.

Additional LCA requirements:

- All upgrades to OWMS or new OWM systems within a SWSC must result in a minimum secondary treatment standard, regardless of site and soil conditions or Risk Rating.

6.4 Minimum Lot Size for New Developments

Historically, wastewater management was overlooked in early planning stages and it has resulted in a number of subdivided parcels within towns and low density residential areas (i.e. settlements) being significantly undersized. Due to small lot size, these lots have resulting in a higher risk rating in the Risk Analysis, and OWM on these lots is generally constrained and potentially unsustainable. Where OWM is not supported on small lots, consolidation with adjacent undeveloped lots may be the most likely pathway to allowing development proposals. Such approval will also consider other planning controls relating to the land. Where rezoning of land is being considered or Structure Plans are being developed, Council can use the Risk Analysis to determine suitable development potential and density.

The results of the Risk Analysis display that higher OWM risk is associated with lots with ≤0.4ha of total land area. Therefore, for Planning Schemes without minimum lot size specifications, this value is to be used as the minimum lot size. Analysis of the relationship between lot size and OWM risk is presented in Section 6.5 of the Technical Document.

6.5 OWMS Design

6.5.1 Wastewater Generation

Wastewater generation rates for residential dwellings are to be estimated based on the occupancy rate outlined in Section 4.2 of the GOWM (2024), which is based on the number of bedrooms plus one (1). Additional rooms that could potentially serve as a bedroom (i.e. study, office) are to be considered in the assessment. Commercial accommodation units are to be based on an occupancy rate of two (2) persons per bedroom.

Wastewater flow rates are to be based on those outlined in the current Standards and Section 4.2 of GOWM (2024). It should be noted that flow rates presented in GOWM (2024) take precedence over those in *AS/NZS 1547:2012*. Further information can be found in Section 7 of the Technical Document.

6.5.2 Treatment Systems

Due to the higher associated risk with primary treatment systems, all new developments within SWSC areas are required to implement a secondary treatment system to mitigate the risk of OWM to public health and the environment.

For the installation of new proprietary systems, the selected system must have a current certificate of conformity from a conformity assessment body, conforming to the relevant Australian Standard. The appropriate standards for the different types of treatment systems are as follows:

- Septic tanks (and vermiculture systems) – AS/NZS 1546.1:2008, On-site domestic wastewater treatment units, Part 1: Septic tanks.
- Waterless composting toilets – AS/NZS 1546.2:2008, On-site domestic wastewater treatment units, Part 2: Waterless composting toilets.
- Secondary treatment systems – AS 1546.3:2017, On-site domestic wastewater treatment units, Part 3: Secondary treatment systems.
- Domestic greywater system – AS 1546.4:2016, On-site domestic wastewater treatment units, Part 4: Domestic greywater treatment systems.

EPA holds a register of the OWMS with valid Certificates of Conformance within Victoria, which can be found at the following:

[Onsite wastewater treatment systems with valid certificates | Environment Protection Authority Victoria \(epa.vic.gov.au\)](https://www.epa.vic.gov.au/onsite-wastewater-treatment-systems-with-valid-certificates)

The current EPA Guidelines provides useful guidance on factors to consider when selecting an EPA approved OWMS. Site constraints (including for effluent dispersal or reuse) are a major factor when deciding on a treatment system.

6.5.3 Effluent Dispersal System

The key components that influence the selection and design of EDS are:

- The level of treatment of the effluent (primary, secondary, or advanced secondary);
- Soil characteristics (texture, structure, depth, dispersibility, and phosphorus adsorption capacity);
- Site characteristics (slope, aspect, and exposure); and
- Proximity to sensitive receiving environments (surface waters and groundwater).

The degree of constraint for sustainable effluent dispersal can be a major factor in selecting a treatment system.

The design of the EDS must be carried out consistently with the guidelines cited in this document, as well as the AS/NZS 1547:2012. Table 4 of this Operational Plan details the compatibility of treatment systems and EDS options.

6.5.4 Installation

Often system failures will occur as a result of poor installation practices. The installation of OWMS must be undertaken by a licensed plumber or system installer who is familiar with the requirements of Council, the Guidelines and Standards, and has experience in installing OWMS.

For a system to operate and perform as it was designed, the system must be installed in accordance with the manufacturer's requirements. Issues such as poor drainage around tanks and uneven distribution of effluent throughout trenches or irrigation systems can all result in effluent ponding, runoff or impacts on public health and the environment which can easily be avoided.

Further detail on OWM installation can be found in Section 5 of the GOWM (2024), and Section 6 of the EDRS (2024).

6.5.5 Maintenance

For a system to operate and perform as it was designed, the system must also be maintained in accordance with the manufacturer's requirements and regular maintenance must be undertaken in accordance with the maintenance procedures outlined in Section 5.2 of this Operational Plan.

As a minimum, it is recommended that all treatment systems are to be inspected and maintained every three (3) years by a suitably qualified service agent, and are pumped out / desludged unless deemed unnecessary by the agent. Further, it is recommended that secondary treatment systems are inspected and maintained by a suitably qualified service agent at the prescribed intervals (i.e. quarterly).

By undertaking these regular maintenance tasks, a system can operate effectively without major problems; however, a lack of care for any one, or all, of these items can result in system failures.

Further detail on OWM installation can be found in Section 6 of the GOWM (2024), and Section 7 of the EDRS (2024).

6.5.6 Tiny House on Wheels System Requirements

A Tiny Houses on Wheels (THOW) is defined by SCSC as "a provisional form of accommodation designed to be used as a dwelling and registered or required to be registered under the *Road Safety Act 1986*, an excludes recreational registerable vehicles such as caravans, wagons, or vans". THOWs are permitted for affordable housing and key worker accommodation, and are not to be used a short-stay (commercial) accommodation.

It is understood that THOWs present a reduced risk to public health and the environment due to their lower occupancy and wastewater generating fixtures. Therefore, it is anticipated that reduced investigation and testing is required.

A 'standard design' for OWMS servicing THOWs has been provided in this section. The design only applies to THOWs located on lots considered a Low to Moderate Risk, with the following characteristics. Any THOW developments on High to Very High Risk lots will require an LCA (refer Section 6.3).

- Contains one (1) bedroom;
- Maximum two (2) person occupancy;
- A standalone OWMS;
- Only contains a composting toilet (no flush, or low flush);
- Only generates wastewater from a kitchen sink, basin, laundry, and shower; and
- Does no contain a bath, spa bath, or dishwasher.

Daily wastewater loads for THOWs are estimated at 185L/day, and includes an allowance for leachate from a composting toilet. Both leachate from the composting unit and greywater should be treated to a minimum primary standard in an approved 1,800L septic tank.

The EDS for THOW developments are to be sized on Category 6 soil loading rates. If an alternate loading rate is to be used, it must be supported by a soil investigation as outlined in the following. One (1) soil borehole should be taken at the mid-point of the proposed EDS and excavated to a minimum depth of 1.2m. The only soil testing required is one (1) soil textural test and a Modified Emerson Aggregate Test of the limiting soil layer within 0.8m of the soil surface. If the soil sample is dispersive, it should automatically be considered a Category 6 soil due to reduced permeability over the lifetime of the EDS.

Effluent is to be applied to the mid-point of an absorption bed, with a minimum bed width of 1m and maximum bed width of 2m (depending on slope), with a maximum individual bed length of 20m. The bed must have a minimum gravel depth of 0.4m. Where two (2) beds are implemented, a minimum internal spacing of 1m is required, with effluent split evenly across the beds by way of a distribution box. Beds are to be finished with a level base and constructed along the contour for even distribution across the EDS. Table 9 presents the required absorption bed sizing for THOWs.

Table 9: THOW EDS Sizing

Soil Category	EDS basal area required (m ²)	Length for 1m wide beds (m)	Length for 2m wide beds (m)
1 (Gravels and Sands)	15	15	7.5
2 (Sandy Loams)			
3 (Loams)	20	20	10
4 (Clay Loams)	40	2 x 20	20
5 (Light Clays)			
6 (Medium to Heavy Clays)			

If the proposed THOW will be connected to an existing OWMS servicing the property, an audit and capacity assessment of the existing system must be provided to ensure the existing system has adequate capacity (treatment system and EDS) to accommodate the additional load. It is likely that the upgrade / enlargement of the existing EDS will be required.

If no existing OWMS is located at the property and a standalone OWMS cannot be achieved, the THOW may potentially be managed by a pump-out system; however, the applicability of this approach is up to the discretion of SCSC. Further detail for pump-out systems can be found as 10.2 of the Technical Manual.

7 OWMS Design, Approval, Installation, & Operation

This section broadly describes the responsibilities across planning, installation and operation of OWMS in unsewered localities of the Shire, with reference to the Risk Analysis described in detail in the Technical Document. The level of detail required to support a proposal for OWM on an unsewered lot is outlined Section 6.3 of this document.

7.1 Council's Responsibilities

Council is responsible for assessing permit applications; issuing permits for new and altered OWMS; monitoring of existing systems; and ensuring compliance with Council, EPA, and policy / legislative requirements (i.e. *EP Act 2017* and *Regulations 2021*, OMLI, etc.) (as outlined in Section 3 of this Operational Plan). Council will advocate for the inclusion of OWMS maintenance within the Local Amenity Law to aid in their ability to manage OWMS within the Shire.

- ✓ Action Item 8a – Investigate, and if supported, develop of a local law in relation to OWMS maintenance in Council's Local Amenity Law.

Council will utilise the EPA '*Regulating onsite wastewater management systems: local government toolkit*' (publication 1974:2021) to assist regulating OWMS within the Shire and adhering to the *EP Act 2017*. The flowchart for investigating OWM is detailed in Appendix 3 of the toolkit gives an overview of Council's responsibilities in OWM.

Criteria to be considered when assessing a permit application is found in Regulation 26 of the *EP Regulations 2021*, with circumstances for refusal provided. Permits will be issued for a maximum two (2) years. Under Regulation 33 of the *EP Regulations 2021* Council staff may inspect the site of a proposed OWMS during the assessment and installation process prior to issuing a Certificate to Use, as determined on a case-by-case basis.

7.2 Land Owner and Occupier Responsibilities

Persons that own or occupy land with an OWMS are to take all reasonably practicable steps to eliminate or reduce risks of harm to public health and the environment, so far as reasonably practicable by: taking reasonable steps to maintain the OWMS in good working order; providing information to a person in management of an OWMS (i.e. tenant) regarding correct operation and maintenance of the system; keeping maintenance records; responding to problems that arise; and notifying Council of a failure and rectification steps. Further detail can be found in Part 5.7 of the *EP Regulations 2021*.

This requires a proactive approach from owners and occupants, with Table 2 of the new EPA '*Regulating Onsite Wastewater Management Systems: Local Government Toolkit*' (publication 1974:2021) outlining the requirements for the operation and maintenance of an OWMS for both the owner and occupier of the land.

Objectives to achieve better OWMS management in the Action Plan include:

- ✓ Action Item 1 – Development of Council procedures and associated checklists and assessment tools; and
- ✓ Action Item 7b – Revise existing OWMS owner/user education material and if necessary, develop new material for distribution. Communicate educational material to owners/users.

Under Section 173 of the *Planning and Environment Act 1987*, Council can enter into a legal agreement with the owner of land to prohibit, restrict or regulate the use of land, or can relate to conditions subject to which the land may be used or developed for specified purposes. These agreements are legally binding instruments.

A planning permit condition can require that the owner enters such a legal agreement, which is subsequently registered on the title of the property. Such agreements may be required by Council or the WC for planning applications within SWSC areas. In such cases, the agreements often contain maintenance requirements for OWMS, which on the sale of a property, transfer to an incoming owner. The implementation of Section 173 agreements for OWMS maintenance requirements is being investigated by Council.

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| ✓ Item 8c – Investigate the use of Section 173 agreements within SWSC areas through the Planning Permit process in relation to OWMS maintenance. |
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7.3 LCA Assessor / System Designer Responsibilities

The EPA Guidelines and Victorian LCA Framework (MAV & DSE, 2014) outline minimum requirements for land capability assessors with regards to qualifications, experience, association, insurances and independence.

The professional engaged to undertake the LCA and the OWMS design has a responsibility to prepare a site-specific OWM design and supporting documentation that demonstrates that the requirements of the *EP Act 2017* will be achievable. The LCA must include sufficient information regarding treatment performance (effluent standard) and EDS (sizing and layout) to allow for an appropriate OWMS design to be provided with an application.

The assessor / designer is required to undertake the level of investigation and reporting appropriate (LCA) to the Risk Rating applied to the lot, as outlined in Section 6.3. Section 6.5 provides general advice on design, installation, and maintenance of OWMS, that applies to all unsewered properties in the Shire.

8 Compliance Monitoring

8.1 Record Keeping

Electronic database records of applications and permits for OWMS in the Shire date back to the early 2000s, with hardcopies to the 1970s. The current record system for OWMS applications and permits is as follows:

- Applications and permits are electronically registered in the Health Manager database. Details of the type of system, the permit conditions, the issue dates and the inspection results are kept on the database. The electronic database is linked to Council's main lot database which allows for the effective integration and recovery of information.
- Hard copy records of plans, permits, and inspection notes are kept offsite by an external document storage provider. It is thought that information should be available for most of the OWMS that have been installed since 1970 (and all since 2000).
- Offsite hard copies of records can be accessed on request by the Environmental Health Unit.

8.2 Electronic Records of Inspections

The use of a paper-based records system for field work can be time consuming and requires extra staff to enter the details into the database upon return to the office.

It is recommended that any onsite inspections are supported by a portable hand-held device (e.g. tablet or small laptop) loaded with software that includes the system inspection pro-forma sheet (i.e. the inquiry fields to be completed by the Council Officer). The device should also record the GPS coordinates of the system components (treatment system and EDS).

✓ Action Item 4b – Develop and implement an electronic inspection tool used for completing OWMS inspections.

In the absence of electronic inspection software, hard-copy inspection checklists have been developed based on existing templates in use by SCSC and current best practice.

8.3 Fees or Charges for System Owners

Many rural and regional Councils with a high proportion of OWMS have introduced an annual fee or charge for owners of unsewered properties to help resource monitoring and education programs. Adequate resourcing is a prerequisite to implementing the OWMP and monitoring its effectiveness. It is recommended that SCSC investigate the options for implementing an appropriate fee or charge to fund the Action Items and programs in this Plan (Action 9).

8.4 Monitoring Program

8.4.1 Overview

The effective management of OWMS requires a robust and well-resourced monitoring program. However, since the implementation of the *EP Act 2017*, Councils no longer have permission for entry to “residential premises” without consent, unless Council reasonably believes that a person has contravened, is contravening or is about to contravene the *EP Act 2017* or *Regulations 2021*. In addition, Council is unable to issue a ‘maintenance order’ without firstly completing an onsite inspection. The EPA has been made aware of these legislative limitations.

Therefore, the following factors may be used to trigger an OWMS monitoring inspection:

- A complaint made by a member of the public in relation to a system;
- The owners of a system lodge a planning permit to alter the lot development; and
- Council receives a maintenance report which indicates that the system may be failing, pose a risk to the public health or the environment, or is not in good working order.

8.4.2 Legislation

There are two (2) pieces of legislation applicable to management of OWMS, the *Public Health and Wellbeing Act 2008* and the *EP Act 2017*, which deals with new OWMS, historic systems with permits and the setting of current standards for OWM, and the older legacy systems that were not required to obtain a permit and pose, or may pose, a risk to human health or the environment, or are not, or may not be, in good working order.

Each piece of legislation has different, but compatible objectives, and requirements for the exercising of powers by authorised officers and mechanisms that may apply to improvement of OWMS.

8.4.3 Monitoring Program

The monitoring program involves the following features. It is recommended that all records are to be incorporated into the Health Manager database.

1. Permit approval inspections;
2. Ad-hoc inspection by request or nuisance complaint; and
3. Monitoring of existing OWMS.

Permit approval process:

Following the review of the proposed system application, if it is deemed suitable for the site, Council will issue a 'Permit to Install' and stipulate any conditions. Council inspects an OWMS prior to approving it for use and issues a 'Certificate to Use'.

✓ Action Item 4a – Undertake compliance audits of new installations / alterations.
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Ad-hoc inspection by request or complaint:

Inspections can be made in response to nuisance complaints from system owners or the general public or in response to other actions as Council deems appropriate, on a case-by-case basis.

Monitoring of existing OWMS:

SCSC will assess the operational condition of OWMS throughout the Shire, ensuring compliance with the *EP Act 2017* and *Regulations 2021*. The implementation of a proactive and risk-based OWMS monitoring and compliance program (by use of existing legislative tools) was investigated during the development of this OWMP; however, this was not considered feasible due to the legislative limitations (i.e. powers of entry) of the *EP Act 2017*. Therefore, SCSC will aim to introduce a local law in relation to OWMS maintenance, which is a requirement under the *EP Act 2017*.

Following the adoption of a local law, SCSC will then develop a maintenance evidence request program. The program will involve SCSC issuing educational material as well as requesting owners and operators of OWMS to provide evidence of OWMS maintenance, specifically to those properties identified as High and Very High Risk in the Risk Analysis (refer Section 4.1), as well as lots within SWSC areas.

If a maintenance report indicates that the system may be failing, pose a risk to the public health or the environment, or is not in good working order, Council will follow up with an inspection of the OWMS.

Lot Risk Ratings (refer Section 4.1) will be used to prioritise the maintenance evidence request program. Action Items 8a-b of the Action Plan detail the projected timeframes for completion and the resources required for the maintenance evidence request and education program. An overview of the maintenance evidence request program is provided in the following:

1. Introduce local law in relation to OWMS maintenance;
2. Develop an OWMS owner education and maintenance evidence request program;
3. Provide owner education and request maintenance evidence (failure may result in infringement being issued); and
4. Lots assigned a **Very High** and **High** Risk Rating, as well as lots located within **SWSC areas**, and are to be prioritised.

✓ Action Item 8b – Develop an OWMS owner maintenance evidence request program.

8.4.4 Inspection Protocol

Appendix C provides an example system inspection pro-forma covering virtually all possible attributes that may be used to record details and observations in the field, for entering into Council's Health Manager database. In summary, the inspection should record key OWMS information, including (but not limited to):

- Exact location and GPS coordinates of system components;
- Type of treatment system and EDS; and
- Performance and compliance of systems (e.g. if there are any maintenance issues which need to be addressed, and their urgency).

The results of inspections are highly valuable for improving and refining the risk assessment tools and for providing a rationale for the rectification or replacement of poorly functioning OWMS.

When the GED and / or Regulation 159(2) is contravened, Council will follow up with an inspection of the OWMS, and will issue a maintenance order or improvement notice for the rectification of any identified issue/s. SCSC may utilise powers of entry to inspect OWMS under Part 9.3 of the *EP Act 2017*. The property owner will be notified of the inspection date, and will be given the opportunity to contact the Authorised Officer in regards to the inspection details or rescheduling. Monitoring will continue on an ongoing basis throughout the Shire.

9 Commercial OWMS

9.1 Overview

Schedule 1 of the *EP Regulations 2021* defines which activities require EPA prescribed permission under the *EP Act 2017*. Wastewater treatment systems with a design or actual flow rate of >5,000L/day on any day require an A03 development and operating licence from the EPA.

An A03 development and operating licence are statutory documents which allow scheduled works to be constructed and operated, subject to conditions set by the EPA during the assessment process. As part of the approval process, the EPA assesses any potential environmental impacts from the proposal, mitigation for any impacts, compliance with policy requirements (including protection of beneficial uses), and comments from referral agencies and the general public.

The EPA licences set acceptable waste discharge and management criteria. They are publicly available documents that can be viewed at the following:

[Permissioning decisions register | Environment Protection Authority Victoria \(epa.vic.gov.au\)](https://epa.vic.gov.au/permissions/permissions-register)

In some cases, the EPA may approve an exemption from the need to obtain licences.

The EPA periodically inspects all licenced sites, with the frequency informed by a range of factors related to the degree of public health and environmental risk posed by the site. Targeted inspections can also be made based on intelligence and pollution report information.

Licensed sites are required to submit an Annual Performance Statement detailing their performance against the licence conditions. These are also public documents that can be searched on the above link. The EPA conducts a combination of targeted and random assessments of Annual Performance Statements.

There are other types of industrial activity (not wastewater treatment) that are not directly regulated under the *EP Regulations 2021* that still have potential to impact on water quality. Examples include dairy farm effluent management and stormwater from commercial and light industrial operations, particularly in unsewered areas. The EPA has a role in pollution prevention and response in these activities. The approach of the EPA to these issues is outlined in the Compliance and Enforcement Policy, Publication 1388. The Compliance and Enforcement Policy articulates the approach of the EPA, method and priorities for ensuring compliance with the relevant Acts and statutory documents and carrying out compliance and enforcement powers.

Council is responsible for the regulation of all OWMS <5,000L/day, which includes some commercial systems. It is important to note that commercial enterprises, such as small factories and cafes operating in unsewered areas, often generate <2,000L/day and therefore are regarded from an operational perspective as domestic systems. The characteristics of the wastewater will differ from a typical residential dwelling, but the wastewater is expected to contain the same broad ranges of contaminants. This is unless the commercial enterprise is producing high strength or unusual wastes, such as small-scale food, alcohol, or chemical processing, in which case it should be regarded as a commercial development. Commercial enterprises generating up to 5,000L/day in the Shire include restaurants, pubs, and tourist accommodation.

Without proactive enforcement from the regulator, system maintenance, monitoring, and record-keeping can become lax over time, with system performance suffering as a result. Generally speaking, older commercial systems are often non-compliant with current expectations and standards. However, they continue operating until improvements are triggered, typically by the identification of problems, the redevelopment of the premises, or proactive intervention by regulators (local government or other agencies).

9.2 Risks Associated with Commercial Systems

The most common causes of failure or underperformance of commercial wastewater treatment systems include the following:

- Surge loads (e.g. peak holiday seasons or production cycles in factories);
- Irregular and / or ineffective maintenance and upgrades;
- Inadequate desludging; and
- AWTP and other aerobic systems being switched off for long periods of time, leading to die-off of aerobic microorganisms and delayed start-up and poor performance when switched back on.

The most common causes of failure or underperformance of commercial effluent dispersal or reuse systems include the following:

- Inappropriate design, including undersized effluent dispersal system for peak loads without appropriate load buffering;
- Inadequate setback distances from sensitive receptors, such as watercourses, which no longer meet the minimum setbacks in the current EPA Guidelines;
- Poor or inappropriate installation;
- Inadequate maintenance, including regular back-flushing of irrigation systems with clean water to prevent solids build-up and delays to repairs (e.g. broken sections of pipe); and
- 'Creeping failure' of trench and bed systems as soils and media become blocked with suspended solids from poorly designed and/or poorly maintained treatment systems.

9.3 Management Strategies for Commercial OWMS

9.3.1 Wastewater Treatment Systems

All commercial wastewater treatment systems should have an up-to-date Operation and Maintenance (O&M) Plan or Manual which includes a diagram of the system and provides instructions for all maintenance schedules required for the system, and details of who is responsible for the management and maintenance of the system.

Commercial systems <5,000L/day should be serviced and maintained in accordance with the system manufacturer's requirements. Secondary treatment systems will require servicing quarterly; however, some commercial systems will require daily monitoring by an onsite system operator. Results of system servicing should be submitted to Council on a quarterly basis or in accordance with the approved conditions. Where system maintenance records are not supplied to Council as required, follow up action should be taken by Council to ensure the system is serviced appropriately.

For commercial OWMS >5,000L/day, regular maintenance by appropriately trained staff and / or contractors is essential. Depending on the scale and complexity of the treatment system, and the nature of the wastewater to be treated, daily low-level maintenance may be required. This can often be carried out by appropriately trained staff (e.g. checking effluent levels, visually checking and / or testing samples of effluent for treatment performance, etc.). More specialised maintenance must be carried out by appropriately qualified and experienced personnel.

Routine inspections of the treatment systems and EDS at EPA licensed commercial properties should be carried out by an appropriately qualified and experienced contractor. The contractor should be independent, i.e. not an employee or regular contractor. More recent EPA licences typically include a schedule of inspections.

Commercial systems which are licensed by the EPA will require effluent quality monitoring at the outlet point of the treatment system to ensure the effluent quality meets the requirements for its end use. For example, surface irrigation requires disinfection, with performance indicated by concentrations of pathogen indicator organisms, as well as residual chlorine levels, if chlorine is the method of disinfection used.

Council is responsible for monitoring commercial systems <5,000L/day. These systems should be included in a Council monitoring program and, where problems or complaints are received, Council should assess and regulate the system in a similar fashion to a domestic system and also inform the EPA of the investigation, where relevant. The EPA is responsible for carrying out additional investigations at its own discretion, including in response to complaints about a system from Council or members of the public.

Council is required to maintain a database of all commercial systems within the Shire. This database should also include a list of EPA licensed sites. The database will be maintained and updated annually and include any maintenance records of the premises (2,000-5,000L/day) under Council control.

9.3.2 Effluent Dispersal Systems

The issues surrounding selection, design, installation, and maintenance of commercial-scale EDS are largely the same as for domestic systems. However, potential problems associated with scale and flow-balancing are introduced with large and / or irregular effluent flows. For seasonal developments, part of the EDS may need to be switched off, or alternatively the off-season (reduced) effluent load can be distributed throughout the entire area over longer time periods using a flow sequencing control system.

EDS require regular maintenance and should be closely monitored to ensure effective operation and even distribution of effluent. An O&M Plan or Manual should be developed, as for the treatment system. EDS that are turfed will require regular mowing, with lawn clippings removed from the area. Other vegetation types should be pruned and maintained as necessary to ensure nutrients are being removed by plant uptake.

10 Community Education Program

The SCSC website has a section dedicated to OWM in the Shire, which explains how owners and occupants of unsewered properties can best manage their systems in order to protect public health and the environment.

[Septic and wastewater - Surf Coast Shire](#)

This online content is distributed digitally via email to property owners and residences prior to the issuance of a Certificate to Use.

Details on the permit application process for OWMS installation or alteration can also be found on the SCSC website.

[Septic and wastewater - Surf Coast Shire](#)

✓ Action Item 7b – Revise existing OWMS owner/user educational material and if necessary, develop new material for distribution. Communicate educational material to owners/users.
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Council will endeavour to respond to any OWM enquiries from owners.

✓ Action Item 6a – Discuss individual systems upon owner request.

11 Risk Mitigation in OWM Design and Installation

The OWM risks identified across unsewered areas in the OWMP are based on the predominance of standard (primary) septic tanks with conventional absorption trenches throughout the Shire (as confirmed by Council records). Table 10 outlines some possible ways these risks can be mitigated.

Table 10: Risk Mitigation for Various Constraints

Risk Category	Issue	Possible solutions	Methods	Benefits
Soils	Poor soils make it difficult for the site to effectively disperse effluent.	Enhanced treatment of effluent.	Secondary treatment (20/30/30).	Higher standard of treatment suitable for subsurface EDS in poor soils.
		Remediate soils.	Advanced secondary treatment (10/10/10).	Disinfection stage decreases public health risk. Higher standard of treatment suitable for subsurface EDS in poorer soils.
		Import better quality soils.	Addition of gypsum / lime as per LCA recommendation.	Can assist in improving effluent adsorption capabilities of dispersive soil.
			Sandy loams, loams, and clay loams with <10% gravel content.	Soils can be selected for suitable characteristics (e.g. permeability) and also increase profile depth.
Slope	Steep slopes can be destabilised by effluent, and it is difficult to contain effluent onsite.	Terracing.	Reduce slopes by creating flatter areas, ensure soil depth is adequate if using cut and fill.	Ease of access and maintenance (e.g. mowing) and other controls (e.g. erosion).
		Pressure dosing	Apply effluent evenly across the EDS via pressure dosing.	Reduces the risk of effluent breakout / surface surcharge as effluent doesn't accumulate at a single point in the EDS.
Lot size	The smaller the lot the less area is available for effluent management.	Reduce dwelling size (number of bedrooms).	To be done at the planning and design stage.	If a dwelling is smaller with fewer occupants, it will generate less wastewater

Risk Category	Issue	Possible solutions	Methods	Benefits
		Reduce footprint of dwelling and other improvements.	To be done at the planning and design stage.	To ensure there is enough area to use for effluent dispersal, reduce the space occupied by the dwelling, shed, driveway etc.
		Consider mound system as effluent dispersal option.		Permits highest effluent loading rate per square metre.
		Consider secondary treatment to absorption systems.		
Water-courses/ Groundwater Bores	Setback distances from watercourses and groundwater bores.	Ensure entire system (including dwelling) is located outside of setbacks and consider treatment options.	Increase wastewater treatment standard.	Setbacks can be reduced when higher treatment standards (e.g. advanced secondary with disinfection) are used.
Flood Prone Land	Flood prone land.	Ensure entire system (including dwelling) is located away from flood prone land.	To be done at the planning and design stage.	Waters are protected from contamination, and the system is protected from inundation of water which eliminates the potential need for costly system replacement or repair.

12 Action Plan Timeline

This Action Plan Timeline outlines the management strategies and action items to address priorities. The Environmental Health Unit will have the primary responsibility for the coordination and implementation of the recommendations. Council's Planning, Environment, Infrastructure, Building and GIS staff will assist them.

Table 11: Action Plan Timeline

Item Number	Action	Description	Term	Due Date	Responsibility	Resource Funding	Monitoring Indicators
1	Preparation of procedures	<p>Prepare (or revise / finalise) and document the following to ensure they are in line with this Operational Plan and current legislation, standards, and guidelines:</p> <ul style="list-style-type: none"> • 'Permit to Install / Alter' procedure; • Certificate to Use procedure; • OWMS permit inspection procedure; • Complaint investigation procedure; • Planning permit referral response procedure; and • Any associated checklists and assessment tools. 	Short	September 2025	Coordinator Environmental Health and Environmental Health Officers	Within current resourcing	Procedures, checklists and assessment tools reviewed and updated.
2a	Staff Education	Staff internally trained to be familiar with OWMP requirements.	Short	September 2025	Coordinator Environmental Health	Within current resources	Internal training completed.
2b		Staff to complete external OWMS training opportunities that become available.	Ongoing		Coordinator Environmental Health / Environmental Health Officers	Within current resources. Subject to training and development approval.	External training completed.
3	Continuation of improvement	Create a GIS layer for the Risk Analysis and OWMS permits in the Shire.	Medium	December 2026	GIS Officer / Coordinator Environmental Health /	Within current resourcing	GIS layer updated.

Surf Coast Shire Council Onsite Wastewater Management Plan 2025-2030 (Operational Plan)

Item Number	Action	Description	Term	Due Date	Responsibility	Resource Funding	Monitoring Indicators
	of data collection				Environmental Health Officers		
4a	OWMS Permit Conditions and Compliance	Undertake compliance audits of new installations / alterations.	Long	Ongoing	Environmental Health Officers	Within current resources	Permit compliance audits undertaken.
4b		Develop and implement an electronic inspection tool used for completing OWMS inspections.			Coordinator Environmental Health / Environmental Health Officers	Budget Bid	Electronic inspection tool developed and implemented.
5	Planning	Brief Planning staff on the OWMP and how it will influence Environmental Health referral responses.	Short	September 2025	Coordinator Environmental Health / Environmental Health Officers	Within current resources	Meeting held.
6a	System Owner Education Program	Discuss individual systems upon owner request.	Long	Ongoing	Environmental Health Officers	Within current resources	Responses to enquiries provided.
6b		Investigate and where possible develop mechanisms to prompt pro-active education upon purchase of lot.			Coordinator Environmental Health / Environmental Health Officers	Within current resources	Pro-active education options investigated and where possible implemented.
7a	Broader Community Education Program	Circulate OWMP and any key requirements/changes to installers, land capability assessors and any other relevant stakeholders.	Short	September 2025	Coordinator Environmental Health and Environmental Health Officers	Within current resources	Requirements communicated.
7b		Revise existing OWMS owner/user educational material and if necessary, develop new material for distribution. Communicate educational material to owners/users.	Medium	December 2025	Coordinator Environmental Health and Environmental Health Officers	Within current resources	Educational material reviewed, updated and communicated.

Item Number	Action	Description	Term	Due Date	Responsibility	Resource Funding	Monitoring Indicators
8a	Existing System Maintenance	Investigate, and if supported, develop a local law in relation to OWMS maintenance in Council's Local Amenity Law.	Medium	November 2026	Coordinator Environmental Health and Environmental Health Officers	Budget bid	Local law investigated and developed (if supported).
8b		Develop an OWMS owner maintenance evidence request program. Lots rated high risk, very high risk and those located within SWSC areas to be prioritised*. Issue 50 maintenance evidence requests and education material to high risk, very high risk and those located within SWSC areas. <i>*Action subject to completion of action 8a (local law developed).</i>	Long	July 2027 - March 2030	Coordinator Environmental Health and Environmental Health Officers	Budget bid	Request for maintenance evidence sent to owners and received.
8c		Investigate the use of Section 173 agreements within SWSC areas through the Planning Permit process in relation to OWMS maintenance.	Medium	November 2026	Coordinator Environmental Health and Environmental Health Officers	Within current resources	Use of Section 173 agreements investigated.
9	Resource Allocation	Investigate budget requirements for the implementation of the OWMP (and apply for additional budget if necessary).	Ongoing	Annually (November)	Manager Community Safety and Coordinator Environmental Health	Within current resources	Budget requirements investigated. Budget bids submitted (if necessary).
10a	Reviews	Review progress of OWMP and effectiveness of OWMS controls, adjusting as necessary.	Ongoing	Annual	Coordinator Environmental Health	Within current resources	OWMP progress reviewed. Adjustments made and communicated.

Surf Coast Shire Council Onsite Wastewater Management Plan 2025-2030 (Operational Plan)

Item Number	Action	Description	Term	Due Date	Responsibility	Resource Funding	Monitoring Indicators
10b		Officers from Council and WC to meet to ensure the effective implementation of the OWMP in relation to special water supply catchment areas.	Ongoing	Annual	Coordinator Environmental Health and Planning Officer (TBC)	Within current resources	Meeting held. Adjustments made and communicated.
10c		Review of 2025 OWMP after five (5) years, with a report on the implementation of the OWMP published on Councils website.	Long	2030	Coordinator Environmental Health	Budget bid	OWMP reviewed. Report provided on website.

13 Glossary of Terms

Term	Definition
Aerobic treatment	Biological treatment processes that occur in the presence of oxygen (i.e. aerobic bacteria digest wastewater contaminants). Aerobic bacteria are organisms that require oxygen to survive and grow.
Anaerobic treatment	Biological treatment processes that occur in the absence of oxygen.
Blackwater	Wastewater from toilets.
Desludging	Removal of the semi solid waste from a tank.
Effluent	Liquid that flows out of a wastewater treatment plant following treatment.
Evapotranspiration	Transfer of water from the soil to the atmosphere through evaporation and plant transpiration.
Organic Matter	Material that comes from the tissues of organisms (plants, animals, or microorganisms) that are currently or were once living.
Greywater	Wastewater from showers, baths, hand basins, washing machines, laundry troughs and kitchens.
Hardpan	A hardened, compacted and/or cemented horizon.
Locality	The broader locality surrounding a town (place name within mapped boundaries).
Non-Potable	Water not suitable for human consumption.
Parcel	The smallest unit of land able to be transferred within Victoria's cadastral system, usually having one proprietor or owner (land.vic.gov.au). For the purposes of this OWMP, parcel and lot are given to have the same meaning.
Peds	An aggregate of soil particles.
Permeability	The ability of the soil to allow water to pass through.
P-sorb	Phosphorus adsorption capacity of soil.
Property	Land under common occupation (land.vic.gov.au). May include multiple lots.
Risk	The 'likely' consequence of off-site (OWM) impacts based on the cumulative effect of individual lot constraints (soil suitability, slope, useable lot area, climate and location) and variables affecting the specific land capability and associated limitations of the lot to sustainably manage wastewater in compliance with <i>EP Act 2017</i> objectives.
Settlement	An area of residential development within the Rural Living Zone or Rural Conservation Zone.
Sewage	Wastewater containing any of human excreta, urine and toilet flush water and includes greywater (which is also called sullage and may include water from the shower, bath, basins, washing machine, laundry trough and kitchen) (<i>EP Regulation 2021</i>).
Sewerage	A system of sewers.
Town	The town servicing a locality, which is predominantly zoned Township Zone. It contains both residential and commercial development.

14 References

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Appendix A

Risk Pro-form Checklist

Parameter	Site specific input
PFI Identification Number	
Lot Address	
Locality	
Zoning	
Area (ha)	
Soil Texture	
Soil Depth (m)	
Soil Structure	
Soil Limitations	
Permeability (Ksat) (m/day)	
Slope (%)	
Presence of Surface Waters	
Useable Lot Area (ha)	

Appendix B

Land Capability Assessment Checklists

Table B1: Minimum Requirement for a Standard LCA and Report

Report Element	Standard LCA Requirements	Completed
1. Introduction and Background	Report summary / executive summary.	<input type="checkbox"/>
	Acknowledgement of lot Risk Rating.	<input type="checkbox"/>
	Confirmation of any relevant risk overlays (e.g. landslip) as per communications with Council.	<input type="checkbox"/>
	Confirmation that lot(s) meets minimum lot size criteria for SCSC Planning Scheme Zone.	<input type="checkbox"/>
	Current land use and development overview (including occupancy); single lot, increase in building entitlements (subdivision) or non-domestic development.	<input type="checkbox"/>
	Name, contact details, and qualifications (insurances) of LCA assessor (author).	<input type="checkbox"/>
	Site location (including address and lot details) and owner.	<input type="checkbox"/>
	Lot area.	<input type="checkbox"/>
	Proposed / existing water supply.	<input type="checkbox"/>
	Availability of sewer.	<input type="checkbox"/>
	Locality map showing the site in relation to surrounding region.	<input type="checkbox"/>
2. Site Inspection and Field Investigations	Gather information on relevant Council, Water Corporation, Catchment Management Authority, and State Government requirements, including restrictions and caveats on title, and planning / building / bushfire / flood controls (e.g. zones and overlays).	<input type="checkbox"/>
	Note: Environmental Significant Overlays and SWSC areas. Impose this information on a base map (or site plan) which shows their location with respect to title boundaries.	<input type="checkbox"/>
	Broad overview of locality and landscape characteristics that may pose a constraint to the sustainable application of wastewater on the site and adjacent land, e.g. climatic information, groundwater and bore water information.	<input type="checkbox"/>
	Details of date, time, and methodology of site inspection and field investigations.	<input type="checkbox"/>
	Site assessment that considers all of the parameters as described in Table 1 of the Victorian LCA Framework (2014). Detailed explanation of the level of constraint with regards to OWM and recommended mitigation measures to overcome these constraints.	<input type="checkbox"/>
	Minimum of two (2) soil test pits or auger holes within the identified area available for effluent management, with additional test pits required for more than one (1) soil type (multiple soil landscapes or facets).	<input type="checkbox"/>
	Soil assessment that considers the following parameters from Table 2 of the Victorian LCA Framework (2014): <ul style="list-style-type: none"> • Colour and mottling; • Electrical conductivity; • Emerson Aggregate Class; • Permeability and design loading rate (using soil texture); • pH; • Rock fragments; • Soil depth; • Soil texture (field textural analysis); and • Depth to watertable (if required). 	<input type="checkbox"/>

Report Element	Standard LCA Requirements	Completed
	Detailed explanation of the level of constraint with regards to OWM and recommended mitigation measures to overcome these constraints.	<input type="checkbox"/>
3. Available Area and Setback Distances	Calculation of area available for effluent management and location on the Site Plan.	<input type="checkbox"/>
	Discussion regarding the achievability of the applicable setback distances, as per the Section 4.5 of GOWM (2024).	<input type="checkbox"/>
4. Cumulative Impacts	Using the desktop and site assessment information for the site, comment on any possible cumulative detrimental impacts that the development may have on beneficial uses of the surrounding land, surface water and groundwater.	<input type="checkbox"/>
5. System Selection and Design	Design maximum wastewater load (generation rates) and organic load for the proposed development, as per Section 4.2 of the GOWM (2024).	<input type="checkbox"/>
	Description of existing system (if applicable).	<input type="checkbox"/>
	Target effluent treatment quality, as per Section 4.3 of GOWM (2024).	<input type="checkbox"/>
	Description and location of applicable OWM treatment system options (refer to relevant Locality Report and EPA website for list of currently approved systems).	<input type="checkbox"/>
	Monthly water balance (refer to Appendix 1 of Victorian LCA Framework (2014)) of the preferred EDS using median rainfall and mean evaporation data for the proposed development. All inputs, results and justification to be shown in the report.	<input type="checkbox"/>
	Undertake annual nutrient modelling (refer to Appendix 2 of Victorian LCA Framework (2014)) of the preferred EDS for the proposed development. All inputs, results and justification to be shown in the report.	<input type="checkbox"/>
	For all lots <0.4ha, prepare a site specific detailed hydraulic design for the EDS suitable for supplier quotation and construction.	<input type="checkbox"/>
6. Mitigation Measures	Detailed discussion of mitigation measures to overcome any site or soil constraints posed to the sustainable treatment and application of wastewater on-site. This may include the following:	<input type="checkbox"/>
	• Storm water management;	<input type="checkbox"/>
	• Soil amelioration; and	<input type="checkbox"/>
	• Vegetation establishment and management.	<input type="checkbox"/>
7. Site Management Plan	Description of ways to improve wastewater and OWMS performance for residents' reference.	<input type="checkbox"/>
	Operation and Management Plan.	<input type="checkbox"/>
8. Conclusion	Conclusion summarising all the important design, sizing and mitigation requirements to ensure sustainable on-site OWM.	<input type="checkbox"/>
9. Site Plan Requirements	Site address, including lot number and street number.	<input type="checkbox"/>
	All title boundaries.	<input type="checkbox"/>
	All relevant zones and overlays and / or restrictions (e.g. Council zoning and overlays, including Environmental Significant Overlays and SWSCs).	<input type="checkbox"/>
	Type of catchment (e.g. potable or other special water supply catchment).	<input type="checkbox"/>
	North arrow.	<input type="checkbox"/>
	Location of groundwater bores.	<input type="checkbox"/>
	Contour lines (10m intervals), direction of slope and grade.	<input type="checkbox"/>

Report Element	Standard LCA Requirements	Completed
	Location of soil test pits or auger holes.	<input type="checkbox"/>
	Location of other utilities i.e. electricity, gas, telecommunications (which must be located outside the effluent dispersal systems)	<input type="checkbox"/>
	Location of any significant site features e.g. rock outcrops or waterlogged regions.	<input type="checkbox"/>
	Location of intermittent and permanent surface waterways (dams, creeks, reservoirs and springs).	<input type="checkbox"/>
	Location of 1% and 5% Annual Exceedance Probability flood level contours lines (if applicable).	<input type="checkbox"/>
	Location, depth, and specified use of groundwater bores on the site and adjacent properties from the register of the relevant Water Corporation.	<input type="checkbox"/>
	Depth to groundwater table in winter (if less than 2.1m deep).	<input type="checkbox"/>
	Vegetation cover (can use aerial image as base map).	<input type="checkbox"/>
	Relevant setback distances as per Section 4.5 of GOWM (2024).	<input type="checkbox"/>
	Location of existing and proposed buildings, sheds, driveways, paths and any other improvements.	<input type="checkbox"/>
	Area available for effluent management.	<input type="checkbox"/>
	Location of proposed EDS (sized to scale).	<input type="checkbox"/>
	Location of proposed stormwater cut-off drains adjacent to the EDS.	<input type="checkbox"/>
	Location of proposed OWMS (nominal).	<input type="checkbox"/>
	Location of reserve EDS (sized to scale).	<input type="checkbox"/>
10. Appendices	Figures.	<input type="checkbox"/>
	Site Plan.	<input type="checkbox"/>
	Soil bore logs for all test pits or auger holes.	<input type="checkbox"/>
	Certificate of Title(s) for lot (plan).	<input type="checkbox"/>
	Proposed building plans.	<input type="checkbox"/>
	Planning Permit application (where applicable).	<input type="checkbox"/>

Table B2: Minimum Requirement for a Non-Residential LCA and Report

Report Element	Non-residential LCA Requirements	Completed
1. Introduction and Background	Report summary / executive summary.	<input type="checkbox"/>
	Acknowledgement of Risk Rating.	<input type="checkbox"/>
	Confirmation of any relevant sensitivity overlays (e.g. landslip) as per communications with Council.	<input type="checkbox"/>
	Confirmation that lot(s) meets minimum lot size criteria for SCSC Planning Scheme Zone.	<input type="checkbox"/>
	Current land use and development overview (including occupancy, number of seats, site attendance).	<input type="checkbox"/>
	Name, contact details, and qualifications (insurances) of LCA assessor (author).	<input type="checkbox"/>
	Site location (including address and lot details) and owner.	<input type="checkbox"/>
	Lot area.	<input type="checkbox"/>
	Proposed / existing water supply.	<input type="checkbox"/>
	Availability of sewer.	<input type="checkbox"/>
	Locality map showing the site in relation to surrounding region.	<input type="checkbox"/>
2. Site Inspection and Field Investigations	Site survey plan (2m contours) will need to be conducted by a qualified surveyor, or surveys obtained from current data from government sources (i.e. ELVIS).	<input type="checkbox"/>
	Gather information on relevant Council, Water Corporation, Catchment Management Authority, and State Government requirements, including restrictions and caveats on title, and planning / building / bushfire / flood controls (e.g. zones and overlays).	<input type="checkbox"/>
	Note: Environmental Significant Overlays and SWSCs. Impose this information on a base map (or site plan) which shows their location with respect to title boundaries.	<input type="checkbox"/>
	Broad overview of locality and landscape characteristics that may pose a constraint to the sustainable application of wastewater on the site and adjacent land, e.g. climatic information, groundwater and bore water information.	<input type="checkbox"/>
	Details of date, time, and methodology of site inspection and field investigations.	<input type="checkbox"/>
	Site assessment that considers all of the parameters as described in Table 1 of the Victorian LCA Framework (2014). Detailed explanation of the level of constraint with regards to OWM and recommended mitigation measures to overcome these constraints.	<input type="checkbox"/>
	Minimum of two (2) soil test pits or auger holes within the identified available effluent management area with additional test pits required for more than one soil type (multiple soil landscapes or facets).	<input type="checkbox"/>
	Soil assessment that considers all of the parameters in Table 2 of the Victorian LCA Framework (2014): <ul style="list-style-type: none"> • Colour and mottling; • Electrical conductivity; • Emerson Aggregate Class; • Permeability and design loading rate (using soil texture); • pH; • Rock fragments; • Soil depth; • Soil texture (field textural analysis); • Depth to watertable; • Cation exchange capacity (CEC); and • Sodicity (Exchangeable Sodium Percentage ESP). 	<input type="checkbox"/>

Report Element	Non-residential LCA Requirements	Completed
	Phosphorous Sorption Capacity is also required to be measured for the soil to which the effluent will be applied to.	<input type="checkbox"/>
	Detailed explanation of the level of constraint with regards to OWM and recommended mitigation measures to overcome these constraints.	<input type="checkbox"/>
	Soil permeability testing conducted in situ for the soil within the available effluent management area as per constant head well permeameter method (Appendix G of AS/NZS 1547:2012) may be undertaken to determine the sustainable daily effluent loading rates.	<input type="checkbox"/>
	Detailed review of available published soils information for the site. Soil landscapes and different soil facets should be mapped on the Site Plan.	<input type="checkbox"/>
3. Available Area and Setback Distances	Calculation of area available for effluent management and location on Site Plan.	<input type="checkbox"/>
	Discussion regarding the achievability of the applicable setback distances (as per Section 4.5 of GOWM (2024)). Justification required.	<input type="checkbox"/>
4. Cumulative Impacts	Using the desktop and site assessment information for the site, comment on any possible cumulative detrimental impacts that the development may have on beneficial uses of the surrounding land, surface water, and groundwater.	<input type="checkbox"/>
5. System Selection and Design	Discussion about the variability in wastewater load and organic load (i.e. weekend and annual peaks) for the proposed development.	<input type="checkbox"/>
	Design (maximum or balanced) wastewater load (generation rates) and organic load for the proposed development.	<input type="checkbox"/>
	Description of existing system (if applicable).	<input type="checkbox"/>
	Minimum grease trap sizing for commercial kitchen (if applicable).	<input type="checkbox"/>
	Target effluent treatment quality, as per Section 4.3 of GOWM (2024).	<input type="checkbox"/>
	Description and location of applicable OWM treatment system options (if applicable, refer to EPA website for list of currently approved systems).	<input type="checkbox"/>
	List of EDS options and detailed description of preferred option and location. EDS to be sized on the most limiting balance as detailed below.	<input type="checkbox"/>
	Monthly water balance (refer to Appendix 1 of Victorian LCA Framework (2014)) of the preferred EDS using median rainfall and mean evaporation data for the proposed development. All inputs, results and justification to be shown in the report.	<input type="checkbox"/>
	Undertake annual nutrient modelling (refer to Appendix 2 of Victorian LCA Framework (2014)) of the preferred EDS for the proposed development. All inputs, results and justification to be shown in the report.	<input type="checkbox"/>
6. Mitigation Measures	Prepare a site specific detailed hydraulic design for the EDS suitable for supplier quotation and construction.	<input type="checkbox"/>
	Detailed discussion of mitigation measures to overcome any site or soil constraints posed to the sustainable treatment and application of wastewater on-site. This may include the following: <ul style="list-style-type: none"> Storm water management; Soil amelioration; and Vegetation establishment and management. 	<input type="checkbox"/>
7. Site Management Plan	Description of ways to improve wastewater and OWMS performance for residents' reference.	<input type="checkbox"/>
	Operation and Management Plan.	<input type="checkbox"/>
8. Conclusion	Conclusion summarising all the important design, sizing and mitigation requirements to ensure sustainable on-site OWM.	<input type="checkbox"/>
9. Site Plan Requirements	Site address, including lot number and street number.	<input type="checkbox"/>
	All title boundaries.	<input type="checkbox"/>

Report Element	Non-residential LCA Requirements	Completed
	All relevant zones and overlays and / or restrictions (e.g. Council zoning and overlays, including Environmental Significant Overlays and SWSCs).	<input type="checkbox"/>
	Type of catchment (e.g. potable or other special water supply catchment).	<input type="checkbox"/>
	North arrow.	<input type="checkbox"/>
	Location of groundwater bores.	<input type="checkbox"/>
	Contour lines (2m intervals from survey plan or Council provided data), direction of slope and grade.	<input type="checkbox"/>
	Location of soil test pits or auger holes.	<input type="checkbox"/>
	Location of other utilities i.e. electricity, gas, telecommunications (which must be located outside the effluent dispersal systems)	<input type="checkbox"/>
	Location of any significant site features e.g. rock outcrops or waterlogged regions.	<input type="checkbox"/>
	Location of intermittent and permanent surface waterways (dams, creeks, reservoirs and springs).	<input type="checkbox"/>
	Location of 1% and 5% Annual Exceedance Probability flood level contours lines (if applicable).	<input type="checkbox"/>
	Location, depth, and specified use of groundwater bores on the site and adjacent properties from the register of the relevant Water Corporation.	<input type="checkbox"/>
	Depth to groundwater table in winter (if less than 2.1m deep).	<input type="checkbox"/>
	Vegetation cover (can use aerial image as base map).	<input type="checkbox"/>
	Relevant setback distances as per Section 4.5 of GOWM (2024).	<input type="checkbox"/>
	Location of existing and proposed buildings, sheds, driveways, paths, and any other improvements.	<input type="checkbox"/>
	Area available for effluent management.	<input type="checkbox"/>
	Location of proposed EDS (sized to scale).	<input type="checkbox"/>
	Location of proposed stormwater cut-off drains adjacent to the EDS.	<input type="checkbox"/>
	Location of proposed OWMS (nominal).	<input type="checkbox"/>
	Location of reserve EDS (sized to scale).	<input type="checkbox"/>
10. Appendices	Figures.	<input type="checkbox"/>
	Site Plan.	<input type="checkbox"/>
	Soil bore logs for all test pits or auger holes.	<input type="checkbox"/>
	Certificate of Title(s) for lot (plan).	<input type="checkbox"/>
	Proposed building plans.	<input type="checkbox"/>
	Planning Permit application (where applicable).	<input type="checkbox"/>
	Copy of the Survey Plan.	<input type="checkbox"/>
	Copy of the water (hydraulic) balance calculations.	<input type="checkbox"/>
	Copy of the nutrient balance calculations.	<input type="checkbox"/>

Appendix C

Example System Inspection Pro-forma

Date & Time of Inspection		GPS Coordinates of Effluent Dispersal Area				
Property Address:		South		East		Aspect:
Property Owners/Contact:		Owner Present:				
Inspected By:		Yes			No	
Inspection Protocol						
Risk Rating		Low (1)	Medium (2)	High (3)	N/A	Comments
Treatment System						
Grease Trap						
Is grease trap adequately sized, maintained and functioning (if applicable)?		Yes	No			
Greywater						
Is greywater directed to street / drain?		No		Yes		
Is greywater diversion device operating correctly (if applicable)?		Yes		No		
Septic Tank						
Is tank(s) accessible for inspection and maintenance?		Yes		No		
Is tank(s) and lid(s) appear structurally sound?		Yes		No		
Is tank(s) adequately sealed?		Yes		No		
Is tank area subject to stormwater or groundwater inundation?		No		Yes		
Is tank(s) require urgent repair or replacement?		No		Yes		
Tank dimensions:						
Type	Plastic Concrete Other:					
Volume (L):						
Baffle?	Yes No Damaged	Yes		No / Damaged		
Outlet height (mm):						
Liquid height (mm):						
Scum Depth (mm):						
Sludge Depth (mm):						
Operation:	Are T-junctions attached and working?	Yes		No		
	Is desludging required?	No		Yes		
	Is adequate anaerobic treatment provided?	Yes		No		
Pump / pump wells / controls						
Is the pumpwell(s) of adequate capacity (e.g. emergency storage)?		Yes		No		
Is the system fitted with a high level alarm?		Yes		No		
Are there any electrical hazards / issues with the system?		No		Yes		
Is there a suitable control system for the pump?		Yes		No		
Is the pump operational and in a satisfactory condition?		Yes		No		
Is pump well in satisfactory condition? (Yes - Low, No - Medium or High)		Yes		No		
AWTS						
Is the AWTS operating satisfactorily? (Yes - Low, No - Medium or High)		Yes		No		
Are the blowers working?		Yes		No		
Is there sludge or scum accumulation in aeration chamber, clarification chamber or irrigation chamber?		No		Yes		
Is the chlorine dispenser filled and functioning?		Yes		No		
Residual Chlorine (mg/L)						
Is system regularly serviced by a contractor?		Yes		No		
Effluent Dispersal Area						
Absorption System						
Dimensions (m)	Slope (%) approx.	<6%	6-10%	>10%		
Is the effluent dispersal area of adequate size?		Yes		No		
Is there a suitable vegetation cover over the effluent dispersal area?		Yes	Partial	No		
Is there adequate exposure of the effluent dispersal area?		Yes	Partial	No		
Is the effluent dispersal area wet or boggy?		No		Yes		
Is there evidence of surface ponding or runoff from the effluent dispersal area?		No		Yes		
Is the effluent dispersal area prone to poor drainage, flooding or high groundwater?		No		Yes		
Are there any damaged or collapsed sections of the effluent dispersal area?		No		Yes		
Is there evidence of, or access for vehicle and animal traffic?		No				
Does the effluent dispersal area appear to be level and in line with contours?		Yes		No		
Are buffer distances to effluent dispersal area adequate?		Yes		No		
Surface / Subsurface Irrigation						
Dimensions (m²):	Approximate slope (%):					
Is the effluent dispersal area wet or boggy?		No	Yes	Yes		
Is there evidence of surface ponding or runoff from the effluent dispersal area?		No	Yes	Yes		
Are buffer distances to effluent dispersal area adequate?		Yes	No	No		
Are all sprinklers working?		Yes	No	No		
Overall Assessment						
Was the whole system located and accessed?		Yes		No		
Was the system discharging effluent to the ground surface in an unsatisfactory manner?		No		Yes		
General Condition of system	Good (Low) Satisfactory (Medium) Unsatisfactory (High)	Good	Satisfactory	Unsatisfactory		
Overall Highest Risk Rating						
Are works required on the system?		Minor	Moderate	Major	Nil	
Details of Required Works:						