Attachment 1

Domestic Wastewater Management Plan

2019-2023

Nillumbik

The Green Wedge Shire

Contents

Executive Summary

Under section 29 of the *State Environment Protection Policy (Waters)*, councils that manage wastewater treatment systems (WTS) within its municipality are required to develop a *Domestic Wastewater Management Plan* (DWMP) in consultation with the local water authority and community.

The purpose of the Nillumbik DWMP is to:

- Identify current responsibilities, practices, procedures and obligations for domestic and commercial wastewater management within the Shire of Nillumbik;
- Identify and prioritise the main environmental and public health risks posed by wastewater within the Shire;
- Improve and enhance the public health and environment protection measures undertaken by Council to address the identified wastewater threats within the Shire; and
- Assist with long term planning and development of un-sewered areas in the Shire.

This Plan will provide an informed and targeted direction, through the Action Plan, for Council and its wastewater partner agencies to action the strategies that address the wastewater issues facing the Shire over the next five years. This Plan will be implemented in conjunction with other key strategic Plans of Council including the *Council Plan 2017-2021,* the *Integrated Water Management Strategy 2013* and the *Stormwater Management Plan 2002.*

Priority Action 3.6.3 "Advocate to Yarra Valley Water for extension of the sewer network" of the *Council Plan 2017-2021* is directly addressed and provided for under the third key area of the Action Plan contained within this DWMP. (See Section 4.1.3 *Sewer connection and Community Sewerage Program prioritisation* and strategy S1 of the Action Plan for specific details).

The goal of this Plan is to provide strategies to protect our community, local environment and catchments from the wastewater threats affecting Nillumbik. This will be achieved through a collaborative approach with Council's internal and external wastewater management partners.

Specifically, the DWMP provides Council with a:

- Planning tool to enable long term strategies to be developed for wastewater management;
- Framework to facilitate decision-making and policy about individual WTS installations, including enforcement and compliance options; and
- Strategic framework to facilitate the costing, funding and implementation of wastewater management within the Shire.

As part of the development process for this Plan, data was reviewed on Nillumbik's existing domestic wastewater profile in addition to current National, State and Local government policies, standards and legislation. Work previously undertaken in the development of *Nillumbik's Domestic Wastewater Management Plan 2015-2018* has also provided a development platform for this Plan.

Analysis of the data currently available to Council indicates that:

- There are approximately 5,900 existing on-site WTS in the Shire, however Council does not have records for approximately 36% of these systems.
- Historically, Nillumbik has a significant proportion of older WTS that were legally permitted (under previous lower standards) to discharge their wastewater off-site.
- Almost 1,000 properties contain WTS with permits to discharge effluent close to the ground surface (15cm from the ground surface).
- Less than 20% of WTS receive regular maintenance as required by their permit conditions.
- Approximately 30% of maintenance reports submitted to Council state that the WTS was already in a state of failure before the scheduled maintenance was performed.

There are 14 recommendations (see Section 4.1 Recommendations) of this Domestic Wastewater Management Plan which have been divided across 5 key areas:

1. Information and Data Collation
2. Education and Awareness
3. Sewer connection and Community Sewerage Program (CSP) prioritisation
4. Regulation and Enforcement
5. Collaboration and Review

In order to implement these recommendations a range of resources must be committed. Structured co-ordination of Council's existing environmental strategies and combined internal capacity toward implementation of the recommendation objectives is necessary to maximise the Shire's wastewater management and catchment protection position.

The actions of the Plan have been set across a 5-year timescale. This is to allow enough time for the scope and objectives of the Action Plan to be properly resourced and implemented.

This Plan should be read in conjunction with the *Background Paper* which includes detailed analysis of:

- the previous 2015-2018 DWMP, including its Action Plan;
- the 2019 policy and legislative (authorising) framework;
- current and future drivers of change and;
- identifies the 14 recommendations for the current DWMP strategies and actions.

Introduction

Domestic wastewater pollutants are derived from everyday household chemicals, sewage and greywater that discharge into on-site wastewater treatment systems, the reticulated sewerage system or the environment. When different WTS overflow during heavy rain or as a result of damage, failure or overuse, wastewater can leak out of systems into the local environment and waterways. The source of this pollution is almost entirely due to failing or older wastewater treatment systems within the Shire.

The environmental impacts associated with domestic wastewater are due to the many pollutants it contains, including:

- human faeces and waste products;
- particles of food, dirt, lint;
- oils and greases; and
- chemicals derived from detergents and other cleaning products.

These pollutants can build up in the soil, damaging its structure, altering soil acidity/alkalinity balances and harming plant growth.

Domestic wastewater pollution can also present human health risks, cause odours and attract vermin and insects. Microbial contaminants such as bacteria, viruses and algal blooms pose significant public health risks. The excess nutrients present in domestic wastewater can harm aquatic life and cause waterway conditions to become toxic.

There are approximately 5,900 WTS in use in the Shire, with a significant proportion not performing satisfactorily. This results in threats to public health and environmental pollution of land and local waterways. System failure is often due to poor maintenance and management practices by property owners and occupiers. In many cases, these systems do not comply with the current wastewater standards having been approved under the lower treatment and discharge requirements of now superceded standards; with many systems (historically) approved for offsite discharge.

Figure 1: Greywater discharge to street culvert in Howell Road, Plenty

Figure 2: Blackwater leakage and pooling at Kent Hughes Road, Eltham

Figure 3: Wastewater overflow at a property in North Warrandyte

1.1 Overview of wastewater treatment systems in Nillumbik

Across Nillumbik the two most common methods of onsite domestic wastewater treatment are primary treatment septic tank systems and secondary treatment often via an aerated wastewater treatment system (AWTS) or sandfilters.

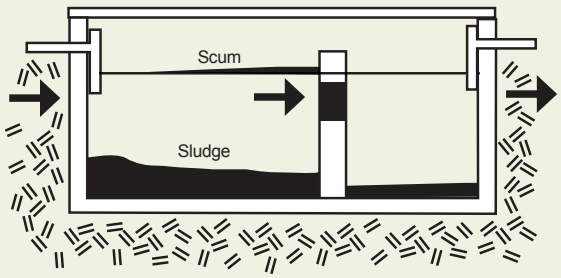
Septic tank systems (primary treatment)

The modern septic tank is usually a concrete or plastic in-ground tank that has two internal chambers separated by a baffle. The tank holds and treats wastewater from the kitchen, bathrooms, laundry and toilets. The tank houses a living ecosystem of bacteria that decompose the organic material, treating the solids and wastewater before it is drained into the natural environment by means of an effluent disposal system, most commonly via absorption trenches.

Absorption trenching incorporates perforated PVC piping to transport wastewater allowing it to pass through stone aggregate before being absorbed into the existing earth surrounding the trench. Trenching is one type of land application system available; and is the type of land application predominantly utilised for (primary treatment) septic tank systems.

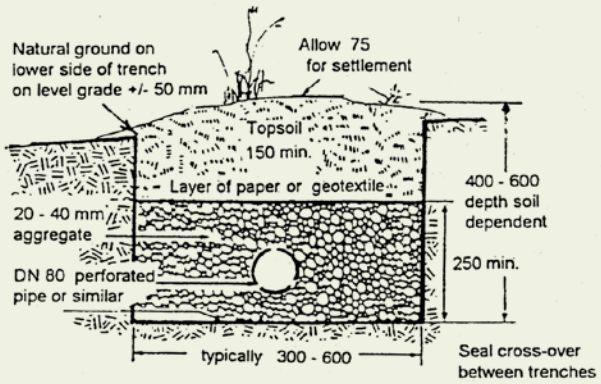
The main maintenance requirements specific to septic tanks is the removal of the build up of solids every 3-8 years. This occurs via a pump-out of the accumulated sludge performed by specialist contractors; and is commonly referred to as "de-sludging". If these solids are not removed, they can carry over to the disposal area, causing odour problems and the trenching to fail.

A septic tank system is known as a primary treatment system. Typically septic tanks have no moving parts and generally require no power.



Reasonably clear effluent is discharged to the disposal area for further treatment

Figure 4: Cross-section of a properly functioning septic tank



All dimensions in millimetres

Figure 5: Cross-section of a typical absorption trench

Aerated wastewater treatment system (secondary treatment)

Aerated wastewater treatment systems (AWTS) pass wastewater from a primary treatment tank into a secondary treatment tank where it is aerated (often by electrically powered blowers). Clarification and disinfecting chambers are also commonly included in the secondary treatment tank with sludge return to the primary treatment tank. AWTS require regular maintenance by a suitable service technician, as well as a reliable power supply. The tank requires pumping out approximately every five years. See Figure 5 below.

AWTS are designed to discharge their (secondary) treated wastewater to land via sub-surface drip irrigation. Sub-surface drip irrigation can only receive secondary treated wastewater in order to function properly.

Other types of systems found within Nillumbik include:

- Older 'Split' systems;
- Septic into Sand Filter systems;
- Composting Toilets; and
- Worm Farm systems.

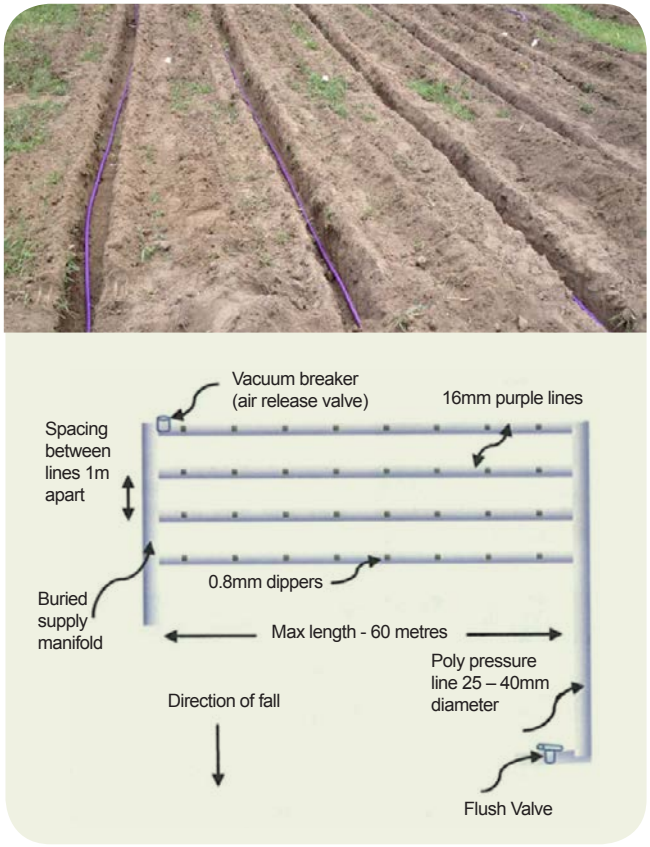


Figure 7: Images showing typical sub-surface irrigation layout

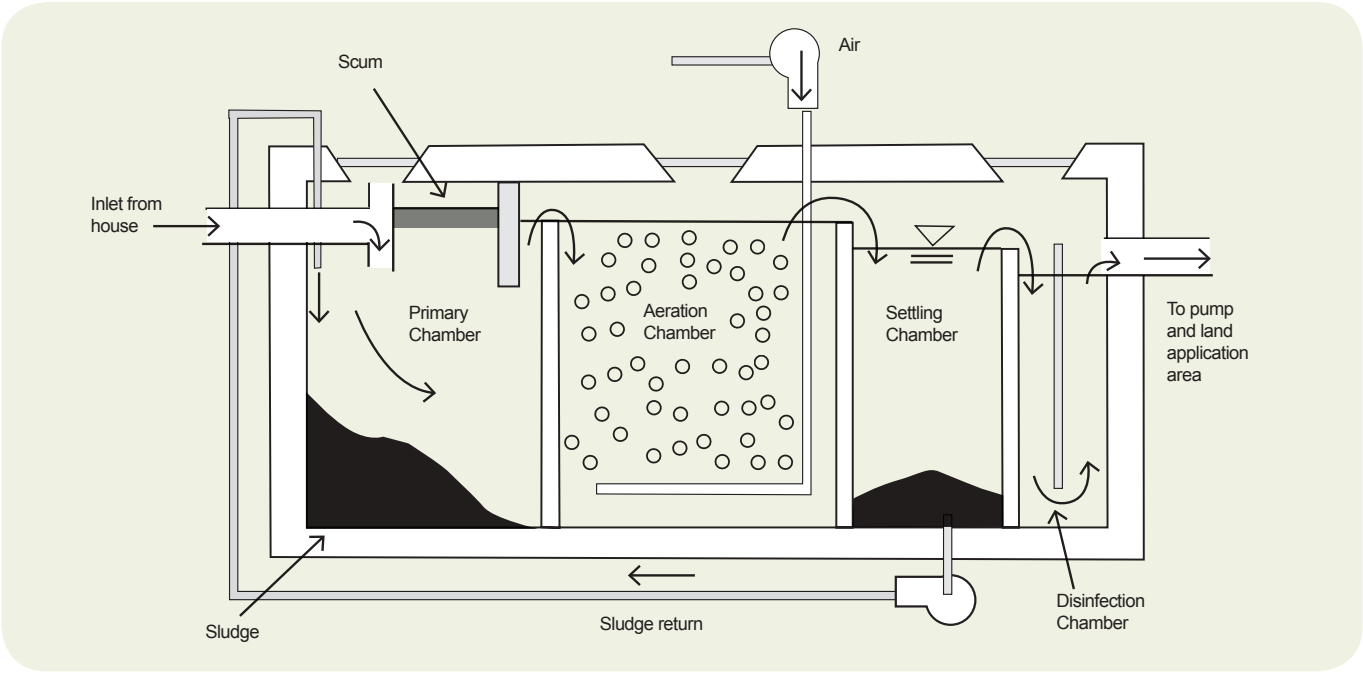


Figure 6: Typical schematic of an aerated wastewater treatment system

1.2 Overview of reticulated sewerage in Nillumbik

2013/2014 saw considerable activity relating to the provision of reticulated sewer services in Nillumbik. This involved an area of approximately 180 properties in the Eltham/Research area being declared as a sewered area (by YVW). The provision of a reticulated sewerage system to North Warrandyte across 2015/2016, servicing nearly 1,000 properties was completed and declared sewered in December 2016.

Planning for the Eltham South Sewerage Project began in 2017 with an initial design presented to the community at an information session in September 2017. The design involved providing a limited sewerage network service to approximately half the properties referred to YVW by Council.

Following feedback on the design from the community and Council, YVW revisited the project design to extend the scope and detail. This led to a revised project schedule, which anticipates that the contract for the project should be awarded by mid 2019, with construction to commence around October 2019 and completion in late 2020.

1.3 Policy and Legislative framework

There is an extensive and complicated policy and legislative framework around domestic onsite wastewater management which includes several State Acts and subordinate legislation, along with guidelines, Codes, Australian Standards and local policies.

Please refer to the *Background Paper* for further details on how the state legislation and policies impact domestic onsite wastewater management in Victoria.

Victorian State Legislation

Environment Protection Act (1970 & 2017)

Water Act 1989

Public Health and Wellbeing Act 2008

Local Government Act 1989

Building Act 1993

Subordinate legislation, Policy, Codes, Strategies and Guides

State Environment Protection Policy (Waters)

EPA Code of Practice - Onsite Wastewater Management (891.4) July 2016

Victorian Land Capability Assessment Framework (January 2014)

Melbourne Water's Healthy Waterway Strategy 2018

VCAT Decisions & Precedents

National Standards

Australian/New Zealand Standards and JAS-ANZ Certification

Nillumbik Shire Council Strategic Plans and Policies

Nillumbik Planning Scheme

Council Plan 2017-2021

Shire of Nillumbik Health and Wellbeing Plan 2017-2021

Nillumbik Storm Water Management Plan 2002

Nillumbik Integrated Water Management Strategy 2013

1.4 Roles and Responsibilities

Environment Protection Authority Victoria

Environment Protection Authority (EPA) Victoria is responsible for the protection of the Victorian environment by developing policies and guidelines, encouraging best practice environmental management and maintaining a complaints register. EPA also performs a regulatory and enforcement role to protect the quality of the environment.

EPA's responsibilities in relation to the management of domestic wastewater disposal are as follows:

- Developing policies and legislation in relation to domestic wastewater disposal.
- Developing and reviewing the *Code of Practice – Onsite Wastewater Management* and other relevant publications.
- Approving the type of domestic wastewater treatment systems that can be installed in Victoria via the JAS-ANZ Certificate of Conformance process.
- Providing advice to local Councils where required.
- Approval of systems discharging more than 5,000 litres per day (Works Approvals)

Nillumbik Shire Council

Under the *Environment Protection Act 1970* and through the *EPA Code of Practice - Onsite Wastewater Management,* Council (in particular, Environmental Health, Planning and Building Services) is responsible for:

- Providing educational information and advice regarding WTS to the community;
- Ensuring new residential subdivisions in unsewered areas are provided with reticulated sewerage - or that the allotments are capable of treating and containing all domestic wastewater on site;
- Issuing permits to install or alter WTS and issuing a certificate to use the WTS;
- Refusing to issue a permit if the system does not hold a current Certificate of Conformance or if the site is unsuitable and/or the area available for the treatment and disposal of effluent is not sufficient;
- Ensuring that WTS are operating correctly and that property owners comply with conditions on WTS permits and certificates; and
- Submitting an annual report to the EPA on WTS activity.

Landowners and occupiers

A landowner's wastewater responsibilities consist of the following:

- Connecting to the mains sewerage system where it is available (in a declared sewer area) and the existing WTS does not meet EPA standards at the time the sewer (connection point) became available;
- In unsewered areas, obtaining a permit to install or alter a WTS before a building permit is issued and any WTS installation or alteration works commence; and
- Obtaining a certificate to use the system once installation has been completed and approved.

With regard to the on-going maintenance of a WTS system, it is the land occupier's responsibility to ensure that:

- The maintenance requirements of the WTS are implemented, including de-sludging (every 3-8 years, depending on the system loading), and any specified monitoring conditions under the permit (including annual sampling);
- If the system type is a secondary treatment plant – it undergoes maintenance checks every three months by an accredited maintenance provider;
- The effluent disposal area remains clear from development, impermeable surfaces and unsuitable vegetation; and
- Copies of all maintenance, based on the type of system in use, is provided to Council in accordance with permit conditions.

WTS Installers (Plumbers) and Maintenance Providers

WTS Installers are responsible for:

- Ensuring that any plumbing work is either undertaken by a licensed plumber, or under the direct supervision of a licensed plumber;
- Only installing WTS approved for installation in Victoria (with a current JAS-ANZ Certificate of Conformance); and
- Ensuring that all of the plumbing work complies with the Plumbing Regulations 2018 the Plumbing Code of Australia (Volume 3 of the National Construction Code) and any referenced Australian Standards relevant to the plumbing work undertaken; and issuing a compliance certificate for any plumbing work valued at $750 or more.

Compliance certificates must be issued by licensed plumbers for specific plumbing work carried out in Victoria. A compliance certificate signed by a licensed plumber is a certification that their work complies with the prescribed plumbing standards.

A licensed plumber is not able to issue a certificate for plumbing work that has been carried out by someone else, except in limited circumstances.

WTS Maintenance Providers are responsible for:

- Ensuring that they are an accredited maintenance service provider;
- Ensuring that any maintenance plumbing work requiring a compliance certificate is either undertaken by a licensed plumber, or under the direct supervision of a licensed plumber; and
- Ensuring that any wastewater pumped out of a WTS as part of a maintenance service is only disposed of at a licensed facility.

Standards Australia and JAS-ANZ

Standards Australia is the peak non-government standards development body in Australia, recognised through a Memorandum of Understanding with the Australian Government.

Standards Australia develops internationally aligned Australian standards (AS) and participates in standards-related activities that deliver benefit nationally. Standards Australia and Standards New Zealand also work together to develop joint standards (AS/NZS).

Although Standards Australia develops and publishes different national standards, they are not responsible for enforcing, regulating or certifying compliance with those standards. The responsibility for system assessment and the evaluation of minimum performance requirements for WTS sits exclusively with the accreditation authority JAS-ANZ (Joint Accreditation System of Australia and New Zealand) and is carried out by the accredited certification body; Global Certification Pty Ltd (GC) under the GC Domestic Wastewater Treatment Units (Septic Tanks) certification scheme. WTS that pass the certification scheme are provided with a Certificate of Conformance. Only systems with a valid Certificate of Conformance can be installed in Victoria.

JAS-ANZ utilise the published joint Australian/New Zealand Standards for on-site domestic wastewater as the basis for the majority of the performance criteria applied to their certification scheme (for WTS). For example, the current certification scheme for secondary treatment systems requires the different manufactured systems to have completed and passed a comprehensive testing program by 2020 based upon the requirements of AS/NZS 1546.3:2017 *On-site domestic wastewater treatment units: Part 3: Aerated wastewater treatment systems* to receive a Certificate of Conformance post 2020.

Yarra Valley Water

Yarra Valley Water (YVW) is the local water authority for supplying and maintiaining reticulated water and sewerage services to the Shire of Nillumbik (and across their catchment). YVW works in partnership with local councils in planning and implementing appropriate infrastructure developments; determining which properties are unable to contain wastewater within their boundaries and to recommend priorities for the provision of sewerage services. They are the key primary authority in setting the scope and direction of the extension of mains sewerage infrastructure across the Shire through the continuing rollout of the Community Sewerage Program (CSP).

Melbourne Water Corporation

Melbourne Water (MW) is the regional drainage authority for Metropolitan Melbourne and is also the Waterway Manager for natural waterways within Metropolitan Melbourne of which Nillumbik is a part. Melbourne Water is responsible for:

- Major trunk services for stormwater, sewer and reticulated water;
- Monitoring and maintaining the ongoing viability and health of major waterways and major catchments; and
- Providing information on floods and their control.

Opportunities exist for Council to access funding through partnering with Melbourne Water in local healthy waterway initiatives in which the effective management of pollutants such as wastewater and stormwater play key roles in improving the health of waterways within the Shire.

Department of Environment, Land, Water and Planning

The Department of Environment, Land, Water and Planning (DELWP) is responsible for the management of Victoria's natural resources (water, land, etc.).

DELWP was also responsible for the management of the Country Towns Water Supply and Sewerage Program (CTWSSP). This State Government program was initiated in 2004 to:

- Introduce sewerage solutions to rural and regional towns that have critical public health and environment problems.
- Introduce new water supplies or upgrade existing water supplies.
- Identify sewerage needs to prevent future risks to public health and the environment.

The CTWSSP saw the State Government invest $42 million over a number of projects across the State. Nillumbik Shire Council was unable to apply for funding through this program to improve domestic wastewater management in rural areas and townships, as the municipality did not meet the rural or regional criteria. Council has previously advocated to the State Government for an expansion of the program, however was unsuccessful in getting the funding criteria expanded.

Nillumbik Profile

Ewings Tree Frog - Photo by: John Wardzynski

The Shire of Nillumbik is an interface Shire located approximately 25 kilometres to the north-east of Melbourne's central activities area and extends to the Kinglake Ranges. It has the following characteristics:

- An area of approximately 430 square kilometres, 80 per cent of which is non-urban.
- The non-urban land uses within the Shire are predominantly rural, residential, hobby farms and conservation bush blocks, but also include various agricultural activities such as grazing, piggeries, poultry farms and vineyards. A significant area of land is covered by native forest.
- The Shire is generally bounded by the Yarra and Plenty Rivers and the Kinglake Ranges.
- The municipality includes the urban areas of Diamond Creek, Eltham, Plenty, Research, Wattle Glen and parts of Greensborough.
- Low density residential development generally exists around Eltham, Plenty, Yarrambat, North Warrandyte and Research.
- A number of smaller townships and communities are dispersed throughout the municipality and include Hurstbridge, Panton Hill, St Andrews, Arthur's Creek, Christmas Hills, Cottles Bridge, Doreen, Kangaroo Ground, Nutfield, Smiths Gully, Strathewen and Watson's Creek.

The Council has a strong environmental focus and a keen desire to maintain and enhance the natural values of the Shire which attract both residents and visitors alike. The Council actively promotes responsible environmental management practices, both within the Council and to its residents. The Shire includes one of Melbourne's Green Wedges and has a reputation for its protection and preservation of the natural environment.

2.1 Receiving Waterways and Catchments

Nillumbik is a critically important water catchment area for greater Melbourne. There are five significant waterways in Nillumbik:

1. The Yarra River;
2. Plenty River;
3. Diamond Creek;
4. Watsons Creek; and
5. Arthurs Creek

The Yarra River forms the southern boundary of Nillumbik, snaking alongside the Bend of Islands, Kangaroo Ground and North Warrandyte.

Diamond Creek runs through the centre of Nillumbik, taking in the townships of Diamond Creek and Hurstbridge.

The Plenty River forms part of western boundary of Nillumbik. The headwaters of the Plenty River provide the water supply to the Yan Yean Reservoir.

These waterways provide stock and domestic water, form important habitat links and are a recreation resource for current and future generations. (Source: *Nillumbik Biodiversity Strategy 2012*).

Arthurs Creek, Running Creek and the Upper Diamond Creek all form the headwaters of Diamond Creek. Running Creek meets Arthurs Creek at the township of Arthurs Creek and the Upper Diamond Creek joins Arthurs Creek at Hurstbridge.

There are four main water catchment areas within Nillumbik:

- Diamond Creek;
- Plenty River;
- Watson's Creek; and
- Yarra River Main Stream.

Using these catchments is a way of simplifying the assessment of the values and threats posed by domestic wastewater and failing systems. This allows management actions to be prioritised to the catchment areas of highest priority.

Figure 8 (next page) shows the location of the above four main catchments within the Nillumbik Shire boundaries; including the rivers and tributaries within them.

Main Water Catchments

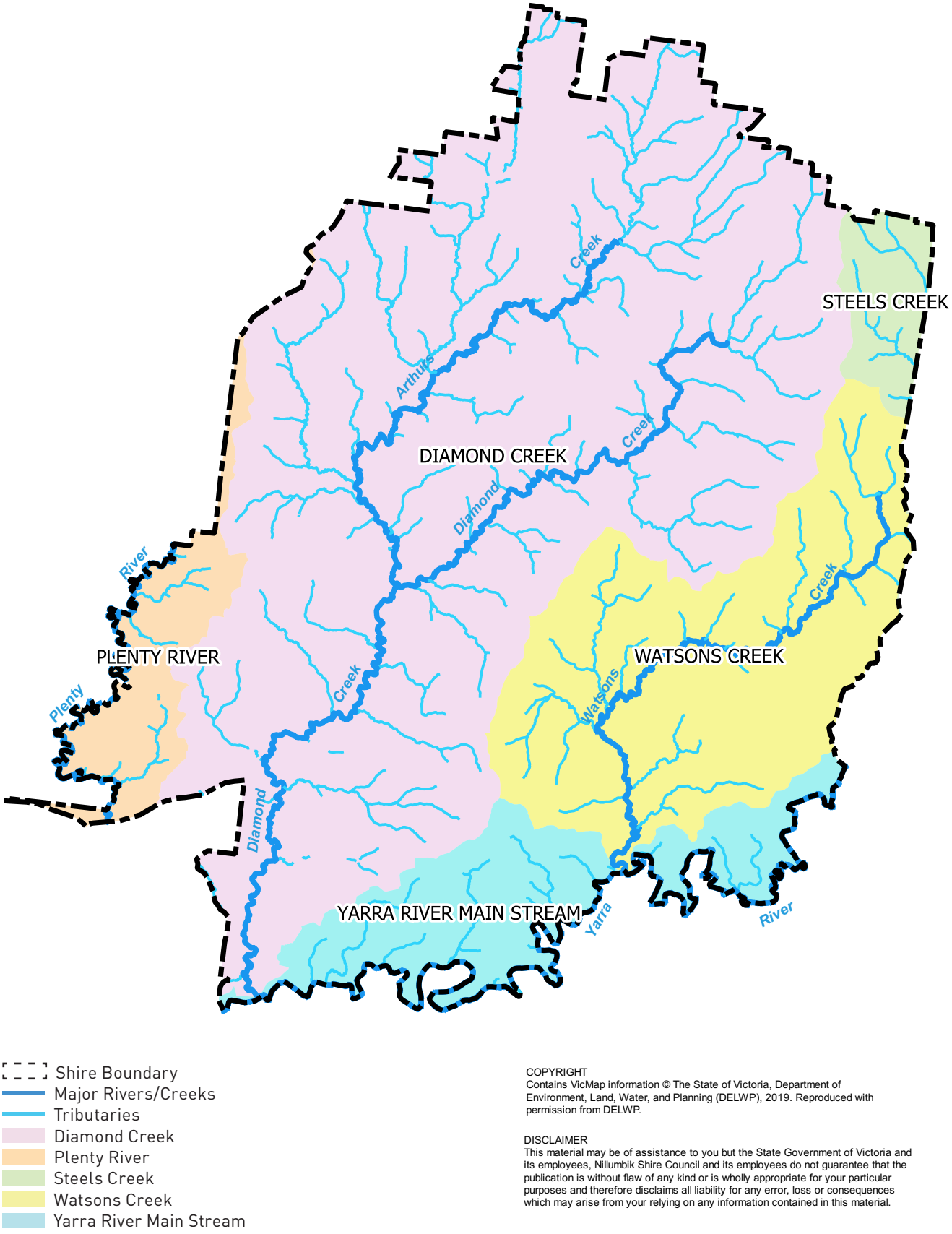


Figure 8: Main Water Catchments within Nillumbik

2.2 Unsewered townships

Reticulated sewerage has been provided to Greensborough, the majority of Eltham, Eltham North, Diamond Creek, North Warrandyte and parts of Plenty, Research, Wattle Glen and Hurstbridge. The remainder of the Shire is unsewered.

The following table provides a breakdown of the number of properties across the Shire with WTS systems. It is an estimate based on the data available from Council's WTS Licencing Database (Pathway), validated against sewer connection data received from YVW and Council's GIS mapping system (Exponare) in June 2018.

Township	No. of properties with WTS system	Undeveloped properties
Arthurs Creek	197	21
Bend of Islands	120	21
Christmas Hills	190	49
Cottles Bridge	241	12
Diamond Creek	271	26
Doreen	161	13
Eltham	452	40
Hurstbridge	315	19
Kangaroo Ground	473	61
Kinglake / Kinglake west	6	12
North Warrandyte	863	34
Nutfield	78	3
Panton Hill	408	46
Plenty	348	43
Research	95	14
Smiths Gully	218	6
St Andrews	502	48
Strathewen	96	13
Watsons Creek	22	6
Wattle Glen	209	11
Yan Yean	8	1
Yarrambat	617	20
SUB-TOTAL	**5,890**	**519**
TOTAL (Unsewered)	**6,409**	

Table 1: WTS property data for townships (grouped area by postcode)

See Section 3 for cumulative risk assessment calculations and results undertaken across the above areas.

2.3 Yarra Valley Water Community Sewerage Program

As a result of many properties in Melbourne being built before sewerage infrastructure was available, over 14,000 homes in the northern and eastern suburbs of Melbourne are using a range of different WTS to manage their domestic wastewater, many of which do not meet current acceptable standards.

These substandard systems present a potential risk to public health, local waterways and the environment. As such, an identified proportion have been placed on the Yarra Valley Water Community Sewerage Program to be provided with a sustainable sewerage service at a cost of more than $400 million (until 2032).

Council will continue to work with Yarra Valley Water in the development of the Nillumbik Community Sewerage Program (CSP). The priority and timing of the development of effective wastewater services in areas within Nillumbik are determined based on the following factors:

- Level of risk to the environment and/or human health posed by failing WTS systems;
- Level of interest from residents to connect to a reticulated sewerage system;
- Number of residents/properties likely to be affected by the provision of a reticulated sewer service;
- Degree of difficulty in the design and construction of reticulated sewerage systems;
- Costs involved in the different possible wastewater solutions; and
- Priority in relation to other townships/areas serviced by YVW.

As a result, larger rural properties beyond the inner "township" zone of the townships throughout the Shire where the above criteria are not met, will not be included in the CSP and are likely to require WTS management permanently.

Nillumbik is in direct competition with other municipalities also serviced by Yarra Valley Water with regards to the CSP. The priority for towns or areas to be provided with a reticulated sewerage supply is determined through the risk prioritisation schedule developed by YVW. **The next YVW prioritisation process will occur in 2021.**

The number of properties currently on the CSP and the cost to YVW for the implementation of the program often results in significant delays for the provision of reticulated sewerage. It is therefore important that Council continues to work in partnership with YVW and their prioritisation timeframes. Table 2 indicates the current scheduled dates for the provision of reticulated sewerage across the Nillumbik CSP. These dates were the result of the 2016 Prioritisation initiated by YVW.

Figure 9 (right) shows the extent of existing Sewer Catchment Area within Nillumbik (i.e. areas serviced with sewer) and areas that are on the Community Sewerage Program (CSP); that have not yet been provided with a service. The 'township' areas listed on the CSP, are limited to properties within a centralised area of the township. It does not include larger, more rural properties on the outskirts and surrounds.

This map demonstrates that following completion of the Nillumbik CSP, on-site domestic wastewater management will still require significant input and management on a permanent basis.

CSP Area	Township/Area	Number of lots	Project dates
BA012	Eltham (North) / Research	180	complete
BA004A/B/C/D	North Warrandyte	975	complete
BA005	Eltham (South)	~300	2019
CSA007	Hurstbridge / Wattle Glen / Diamond Creek	~75	2031/32
CSA042	St Andrews	~117	2031/32
CSA041	Panton Hill	~119	2031/32
CSA040	Yarrambat	36	2030/31

Table 2: CSP timetable showing all the included Nillumbik Townships

Community Sewerage Program

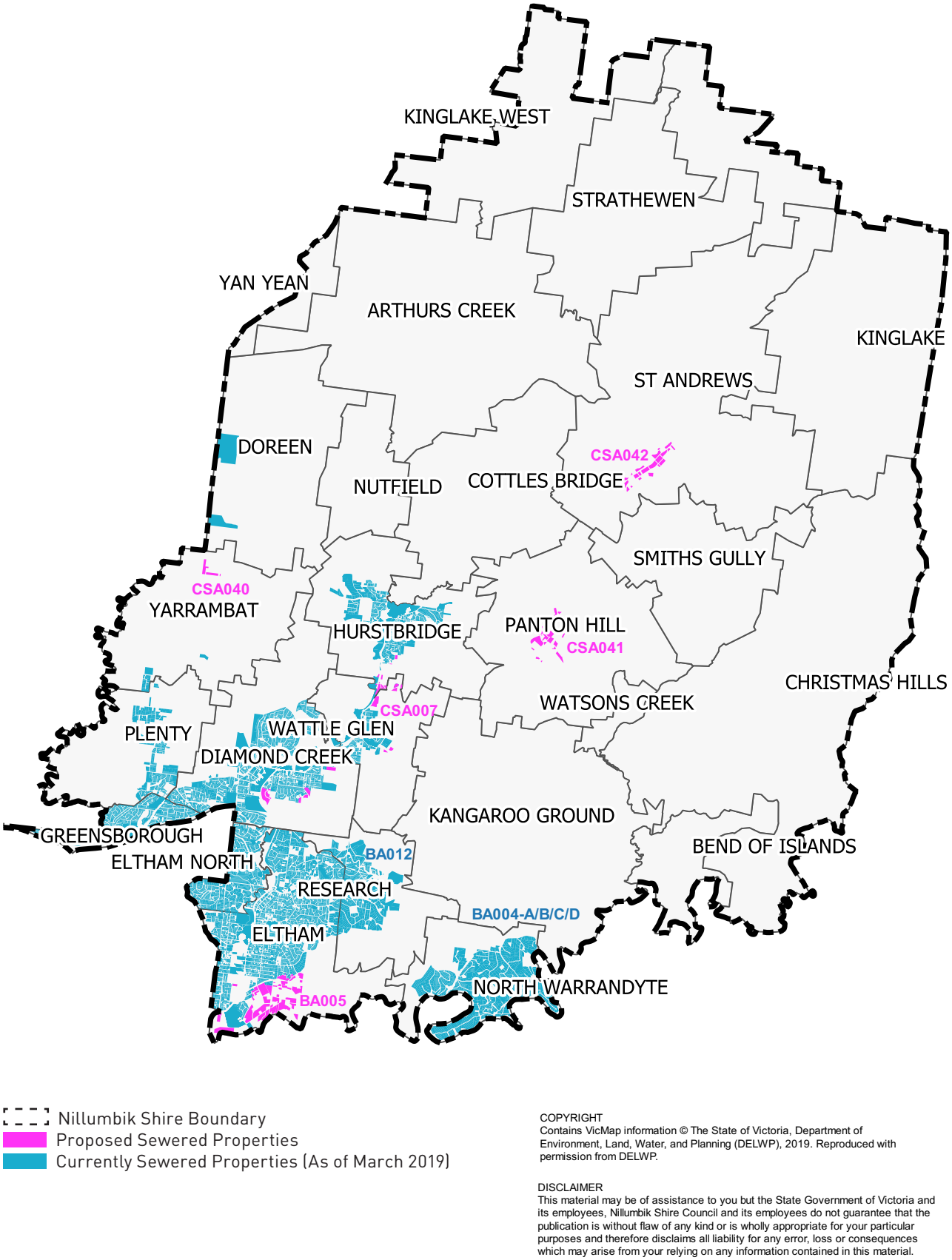


Figure 9: Sewered/Unsewered and CSP areas (see **Appendix 3** for detailed maps of individual CSP Areas)

Cumulative Risk Assessment

3.1 Domestic Wastewater Threats

A primary objective of the DWMP is to identify and implement strategies aimed at minimising the impact of existing or potential threats to human health and the environment.

All wastewater generation and/or discharge is seen to be a threat with potential harm to human health or damage to the environment. Wastewater threats that need to be considered, their cause and key impacts are described in Table 3.

These threats have been identified by incorporating information from:

- literature reviews;
- a review of complaints;
- discussions with Council staff;
- field inspections;
- YVW regarding the extent of sewerage provision across the Nillumbik catchments;
- local knowledge and experience; and
- Nillumbik's Stormwater Management Plan 2002.

Threat	Cause	Key Impacts
Failed systems with off-site discharge	• Damaged effluent disposal drains/trenches • Increased loading from extensions to dwellings • Design criteria not complied with • Faulty installation • New works & activities impacting on disposal area • Age of the system • Septic tank full • Poor maintenance	• Nutrients • Pathogens • Odour • Visual amenity • Oxygen depleting material • Local land degradation • Pollution of water courses • Pooling of effluent causing mosquito breeding
Treated off-site effluent discharge	• Permitted system	• Pollution of water courses • Local visual amenity • Demand on Council drainage infrastructure
Treated on-site effluent discharge	• Permitted system	• Local visual amenity • Pollution of groundwater
Untreated off-site sullage (grey water) discharge	• Poorly maintained system with sand filter not functioning • Sand filter bypassed to stormwater • Septic tank full • Permitted system	• Nutrients • Pathogens • Odour • Visual amenity • Oxygen depleting material • Local land degradation • Pollution of water courses • Demand on Council drainage infrastructure
Ineffective regulation	• Failure to comply with permit conditions • Ineffective database • Non-connection to sewer • Unclear regulatory responsibilities	• Liability • Increased incidence of preventable pollution and environmental degradation • Increased risk to public health
Re-use of waste water	• Allowed re-use • Low water supply • Poor management by individual residents	• Pathogens • Odours

Table 3: Wastewater threats

3.2 Receiving Environment Values

Receiving environments are defined as any catchments that receive offsite effluent discharge from any WTS and other pollution sources. For the purposes of this Plan, pollution from WTS sources has been focussed upon. A value is placed on each receiving environment as a tool to determine the impact that wastewater does or will have on each catchment environment.

Nillumbik's *Stormwater Management Plan 2002* provides a set of receiving environment values calculated for each Nillumbik catchment area. The receiving environment values reflect both the public health benefits and the beneficial uses of the receiving environment experienced by the community. They can include various types of amenity (recreational, visual and landscape), cultural heritage, ecological or environmental health and economic benefits in terms of land development, property values and tourism.

The four main water catchments within Nillumbik are the Diamond Creek, Plenty River, Watson's Creek and the Yarra River Main Stream catchments. Receiving environment values have been broken up into distinct sub-catchment areas of each main catchment.

The identification and assessment of values for the receiving environments within each of the sub-catchments was based on a review of existing information; discussions with Council staff and field inspections.

Once identified, each sub-catchment was assigned ratings of Low, Moderately High, High or Very High, reflecting the significance of each value at a particular sub-catchment area.

The High and Very High values for the receiving environments within each sub-catchment are described below.

Diamond Creek (Eltham, Diamond Creek and Wattle Glen)

This sub-catchment contains *Very High* recreational amenity values, reflected by the variety of formal and informal open spaces and walking and bicycle paths along Diamond Creek. The sub-catchment recorded *High* values for all other categories.

Yarra River Main Stream (North Warrandyte)

This sub-catchment contains *Very High* environmental values. The Sites of Faunal and Habitat Significance, North East Regional Organisation of Council's Report 1997 (NEROC) identifies parts of the area as a critical conservation area. Values identified as being High within the sub-catchment include recreational amenity, visual/landscape amenity, cultural heritage, property and tourism.

Plenty River (Plenty and Yarrambat)

This sub-catchment recorded *Very High* value ratings for environmental and visual/landscape amenity. The NEROC Report described the area as having *High* to *Very High* faunal values along the waterways and the area also contains critical conservation areas. The waterways of the sub-catchment have significant stands of mature native vegetation which are quite extensive, and contribute to a highly attractive environment. The sub-catchment contains *High* values for stormwater management, cultural heritage and property and tourism.

Diamond Creek (Hurstbridge, St Andrews and half of Panton Hill)

This sub-catchment recorded *High* value ratings for visual/landscape amenity, cultural heritage and property. The habitat and faunal values of the waterways of the sub-catchment are moderate in the southern areas and become higher further upstream.

Arthurs Creek sub-catchment

This sub-catchment contains *High* cultural heritage values, however, much of the waterways have been heavily disturbed by agricultural activities.

Watson's Creek (Sugarloaf Reservoir, Christmas Hills and half of Panton Hill)

This sub-catchment contains *Very High* environmental values. Visual/landscape amenity and cultural heritage both recorded *High* values.

Yarra River Main Stream (Bend of Islands)

This sub-catchment contains *High* environmental and cultural heritage values.

3.3 Assessing the threat to the receiving environments

During the development of Nillumbik's *Stormwater Management Plan 2002,* the magnitude of each threat identified in each sub-catchment was assessed and summarised.

This overall threat value represents the relative risk to the sub-catchment, not an absolute risk.

Each of the sub-catchments identified in the Stormwater strategy were provided the following threat profiles:

Diamond Creek (Eltham, Diamond Creek and Wattle Glen)

Very High threat from residential runoff of grey water discharging directly into drains in unsewered areas. A *very high* threat to stormwater quality, particularly due to poor maintenance of WTS and site capacity limitations leading to offsite leakage including blackwater.

Yarra River Main Stream (North Warrandyte)

Very High threat from residential runoff of grey water discharging directly into drains in unsewered areas. A *high* threat to stormwater quality, particularly due to poor maintenance of WTS and site capacity limitations leading to offsite leakage including blackwater.

Plenty River (Plenty and Yarrambat)

A *high* threat to stormwater quality, particularly due to poor maintenance of WTS and site capacity limitations leading to offsite leakage including black water.

Diamond Creek (Hurstbridge, St Andrews and half of Panton Hill)

Very High threat from residential runoff of grey water discharging directly into drains in unsewered areas. A *very high* threat to stormwater quality, particularly due to poor maintenance of WTS and site capacity limitations leading to offsite leakage including black water.

Arthurs Creek sub catchment

Low threat from residential wastewater runoff.

Watson's Creek (Sugarloaf Reservoir, Christmas Hills and half of Panton Hill)

Low threat from residential wastewater runoff.

Yarra River Main Stream (Bend of Islands)

Low threat from residential wastewater runoff.

3.4 Assessing the risk to the receiving environments

A risk assessment was then performed taking into account the value of the receiving environment, the wastewater threats and a sensitivity factor to reflect the likely impact on a value by a given threat.

The sensitivity factor is determined for each individual threat/value combination in each catchment. The following formula was used to calculate a risk score (magnitude):

Risk = Threat × Environmental Value × Sensitivity

The three factors (threat, value and sensitivity) were individually scored 1 (low) to 4 (very high) and multiplied to determine a single numerical value representing the magnitude of risk.

In relation to domestic wastewater threats, the Diamond Creek (Eltham, Diamond Creek and Wattle Glen) and Yarra River (Nth Warrandyte) sub-catchment areas received the highest risk scores. Both areas were assigned a **Priority 1 Management Issue** ranking for risk. Due to the continued development of townships such as Panton Hill and St Andrews within the Diamond Creek catchment, since 2002, the majority of this catchment (from St Andrews to the Yarra River) will be considered a Priority 1 Management Issue for the purposes of this Plan.

The Plenty River (Plenty and Yarrambat) and the Diamond Creek (Hurstbridge, St Andrews and half of Panton Hill) sub-catchment received the next highest ranking; both being assigned a **Priority 2 Management Issue** ranking for risk.

(Refer to Nillumbik's *Stormwater Management Plan 2002* for more detail).

Management Strategies

Council's management strategies for domestic wastewater are informed by five main factors:

- Council's statutory duty;
- Key stakeholder strategic priorities (YVW, MW, EPA & DELWP);
- Council's capacity to undertake wastewater management programs;
- Community capacity and engagement feedback; and
- The risks posed by ineffective and non-compliant WTS .

Currently, Council's domestic wastewater management and regulation is limited to permitting activities, providing community information relating to WTS and complaint investigation. The management of Council's statutory duty in relation to WTS would require that it undertakes additional activities such as:

- monitoring of system performance and general environmental monitoring (particularly in identified high risk areas); and
- compliance audits of WTS permit conditions.

The capacity of council to undertake these activities and services requires a range of additional resources including:

- the collection of appropriate data through the application process, a compliance and monitoring program, enhancement of Council's domestic wastewater information management system, validation and analysis of this information; and
- review and development of operating policies and procedures.

4.1 Recommendations

The **DWMP Action Plan** identifies 14 recommendations across **5 key areas,** all of which are derived from the analysis undertaken in the *DWMP Background Paper.*

The Action Plan's 5 key areas are:

1. Information and Data Collation;
2. Education and Awareness;
3. Sewer connection and CSP prioritisation;
4. Regulation and Enforcement; and
5. Collaboration and Review.

A summary description of the 5 key areas and their related recommendations follows.

4.1.1 Information and Data Collation

Information and data collation is a critical primary phase of the Action Plan that must be completed before effective risk-based interventions can be undertaken. The quality and extent of the information Council holds for individual wastewater treatment systems (WTS) directly influences the quality and extent to which subsequent actions can be conducted.

Information and data collation recommendations:

- Collation and auditing of all current and historic WTS information into a single information management system to identify information gaps, provide status reports, improve risk assessment data and accuracy of information on WTS currently operating within the Shire.
- Enhancing GPS Mapping Application technology to assist with information gathering and recording.

4.1.2 Education and Awareness

Conducting targeted education and awareness programs will contribute toward the strategic objectives of the Action Plan and provide a solid foundation for increasing community and industry awareness levels around wastewater responsibilities and requirements; and subsequent compliance and monitoring activities.

Education and awareness recommendation:

- Implementation of wastewater education and information strategies for WTS owners in Nillumbik to achieve increased awareness of their responsibilities and improved WTS maintenance management practices.

4.1.3 Sewer Connection and CSP Prioritisation

Connection of properties to reticulated sewer effectively eliminates the existing and potential environmental and public health risks that could originate from that property due to its wastewater. It is the most effective solution available from an environmental and public health perspective; particularly for Nillumbik.

To this end, educating owners of properties in declared (sewer) areas about the requirement to connect and facilitating the connection occurring is a key action Council can undertake to significantly improve the environmental and public health outcomes for the Shire.

YVW effectively re-prioritises their complete listing of the CSP townships (and therefore the included properties within them) every five years. The last CSP re-prioritisation occurred in 2016; the next re-prioritisation is due to occur in 2021. It is important to note that much of the data collation, risk and land capability assessment activity that determines the final re-prioritisation of the CSP list occurs in the years leading up to each re-prioritisation year. This highlights the imperative for Council to be proactively engaging with YVW in the CSP advocacy actions well prior to 2021.

Sewer connection and CSP prioritisation recommendations:

- Continued advocacy and promotion of sewer connection via participation in YVW's Community Sewerage Program (CSP) and increased collaboration and partnership with YVW.
- Continued partnerships with other councils and peak associations to advocate to the State Government to accelerate, resource and maximise the CSP.

4.1.4 Regulation and Enforcement

Council has several statutory responsibilities relating to wastewater control under a number of different Victorian Acts, including the:

- *Environment Protection Act 1970 (& 2017); the*
- *Building Act 1993; and the*
- *Planning & Environment Act 1987*

These responsibilities include activities such as:

- Ensuring that approved planning permits contain the necessary wastewater conditions for unsewered and sewered developments.
- Ensuring that WTS Permits contain all the necessary wastewater conditions for the land-based constraints of the installation site and the type of system being installed.
- Approval of new WTS installations and alterations of existing systems.
- Monitoring the maintenance reporting requirements for different systems.
- Building Act "Consent to Use" requirements.
- Addressing wastewater non-compliances and complaints.

Council's WTS permitting activities are a critical element in the overall wastewater regulation and enforcement picture. Compliance and enforcement measures can be restricted and problematic during an installation or afterwards (due to a system failure); if important conditions have been omitted from a WTS permit.

There will always be a requirement for Council to undertake regulation or enforcement activities in relation to different wastewater issues and non-compliances posing an immediate risk/threat to the environment or public health. This is an integral part of Council's statutory responsibility. However, Council's enforcement policy is generally based on the premise that enforcement is the last tool employed when education and mutual co-operation on a compliance issue has not been successful. The exception to this, is when a wastewater non-compliance poses an unacceptable immediate threat to human health and safety and it is necessary to employ an enforcement measure from the onset to address it.

At the core of Council's wastewater regulation and enforcement activities is the requirement for an effectively resourced monitoring and compliance program that identifies and follows up wastewater non-compliances and issues.

Regulation and Enforcement recommendations:

- Investigation into the provision of an automated reporting application to manage Council's statutory duty to monitor and regulate compliance with the WTS maintenance reporting requirements and assist residents with their maintenance obligations.
- Developing a targeted monitoring and compliance program, including auditing and sampling activities to identify and assess the high risk WTS areas within the Shire.
- Investigation into the provision of specific Local Laws relating to current WTS legislative requirements.
- Enhanced cross collaboration across Council to ensure land development pressures are addressed appropriately, recognising the real constraints associated with land-based factors and sewer provision.

- A regulatory approach that applies the principle of "natural justice" when bringing old (legacy) WTS up to current standards. This approach will apply:
  - risk-based assessment to identify the high-risk legacy WTS within the Shire
  - logical, fair and explained upgrade triggers consistent with legislative requirements
  - a phased, transitional approach to upgrade requirements, recognising the significant costs involved for Nillumbik residents.

4.1.5 Collaboration and Review

To maximize the impact of the different actions and projects identified in the DWMP Action Plan, there must be integration and co-ordination of Council's internal resources. Internal collaboration is a key component to achieving the successful implementation of the DWMP.

Likewise, external collaboration and consultation is also a critical factor, specifically required under *SEPP (Waters),* in the development of the DWMP and its subsequent implementation. Strengthening relationships with key external partners and stakeholder agencies such as YVW, the EPA, MAV and EHPA is a fundamental element in improving the level of collaboration, consultation, information and resource sharing between agencies.

Council has developed a comprehensive Community Engagement Program that is applied to the majority of Council projects. Community engagement and collaboration is recognised by Council as a foundational component to any project that involves or affects the community. It is an approach that Council supports and advocates.

Collaboration and Review recommendations:

- Review of all wastewater operational policies and procedures to ensure that they are current and address all the relevant legislation; including legislative change and reform.
- A comprehensive and formal DWMP review and auditing cycle that complies with the *SEPP (Waters)* requirements, and annual internal review and assessment of the DWMP Action Plan progress.
- Strengthening Council's internal stakeholder relationships, capacity, resources and processes to provide an integrated approach to wastewater management and regulation.
- Advocacy for improvements to the legislative framework pertaining to on-site domestic wastewater and reticulated sewerage provision and participation in reform opportunities.

The above 14 recommendations have been developed into a series of separate strategies and related actions falling under the above **5 key areas** in the **DWMP Action Plan.** These are detailed below under section 4.2.

4.2 Action Plan

Nillumbik Shire Council actively promotes responsible environmental management practices. By preparing and adopting the Domestic Wastewater Management Plan (DWMP), Nillumbik demonstrates its commitment to improve the management of domestic wastewater within the Shire.

The successful implementation of the DWMP Action Plan can largely be contained within the existing Environmental Health budget and allocation of resources, along with some cross organisation development of solutions; such as improved use of technology to achieve greater compliance. External funding will also be sought, including grants, from Melbourne Water and the State and Federal governments.

The Action Plan aims to achieve greater accountability for the Plan recommendations; identifying responsibilities and timeframes for the actions contained within the Action Plan. Implementation of the Action Plan will be conducted in a logical sequence; as some actions are contingent upon other precursor or groundwork actions having been completed first. The implementation timeframes have been set across a 5-year timescale to allow the required length of time for the scope and objectives of the Action Plan to be successfully achieved.

The following is Council's Domestic Wastewater Management Action Plan for the 2019 to 2023 period.

Domestic Wastewater Management Plan: Action Plan

No	Strategy	Actions
Information and Data Collation		
I1	Review Application to Install/Alter a WTS form to ensure it is comprehensive and relevant to current standards.	1. Review Application to Install/Alter a WTS form to ensure all necessary information is captured and the form is clear and easy to complete. Application form should cater for and conform with all relevant aspects of: • EPA Publication 891.4 Code of Practice for Onsite Wastewater Management • Australian Standard 1547:2012 • Land Capability Assessment Framework • Certificate of Conformance • Legislative changes and reform (as they occur)
I2	All WTS information is readily accessible in a single database and enables identification of areas of critical concern.	1. Identify/confirm the total number of unsewered properties within Nillumbik. 2. Validate existing Council held WTS information for the unsewered properties already collated or undertaken as a specific action under the 2015-18 DWMP to determine the total number of properties where the WTS status and location remains unclear (i.e. no WTS records were located across Pathway, Infovision, Sharepoint or the property file). 3. List, risk rate and target the properties with no WTS records (identified under Action 2 above) for prioritised information gathering projects based on their assigned risk rating. Site visits & assessments necessary for a significant proportion of these. 4. Undertake data cleansing of information already entered into Pathway to ensure accurate information is provided on each system on an on-going and periodic basis (as required). 5. Investigate GIS linkage to WTS licensing database.
I3	Risk Prioritisation	1. Develop risk assessment criteria (utilising recognised system and land-based factors) to be applied to all existing WTS within the Shire to more easily identify areas of high environmental or health risk due to failing WTS (high/medium/low rating). 2. Develop a layer on Council's GIS system that displays the (above) high/medium/low risk WTS identified through the risk rating process.
I4	Options for locating and mapping existing systems are investigated	1. Investigate the implementation of GPS location mapping of new and existing WTS, (GPS mapping to be applied to all WTS monitoring & compliance, auditing and information gathering activities) to improve the accuracy and quality of Council's WTS information and close WTS information gaps. 2. Procure hardware. 3. Implement the GPS mapping process.

Responsibility	Budget	Implementation Timeframe					Key Points
+ Stakeholders		2019/20	2020/21	2021/22	2022/23	2023/24	
Environmental Health	EH Budget	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Concise, clear and accurate Application Forms provide a better quality of collected information and support processing efficiencies.
Environmental Health Information Technology Records Rates	EH Budget	Complete Action 1 Complete Action 2 Start Action 3 Start Action 4	Complete Action 3 Action 4 Ongoing	Action 4 Ongoing	Action 4 Ongoing	Action 4 Ongoing	All WTS information should be contained within "one source of truth". This allows broad analysis of information gaps, provision of status reports, access to key risk assessment data and greater accuracy in the total number of WTS currently operating within the Shire.
Environmental Health Information Technology	EH Budget IT Assistance	Complete Action 1 Start Action 2	Action 2 Ongoing	Action 2 Ongoing	Action 2 Ongoing	Action 2 Ongoing	Risk prioritisation informs resource allocation and priority projects.
Environmental Health **Information Technology**	Costs/Budget (including software and conducting mapping) to be investigated	Complete Action 1 Complete Action 2 Start Action 3	Action 3 Ongoing	Action 3 Ongoing	Action 3 Ongoing	Action 3 Ongoing	GPS Mapping and 'tagging' ability improves data quality for wastewater inspection, reporting and planning processes.

No	Strategy	Actions
Education and Awareness		
E1	Develop and implement a process that will ensure that new property owners are informed about what type of WTS is on/or available to their property	1. Section 32 notices to include basic information on property's WTS, broken into 3 main categories: • Property on WTS indefinitely • Property in CSP • Property in a declared area 2. Develop a process with Rates to be able to add/remove the above details on section 32 notices.
E2	Disseminate information on landowner/occupier responsibilities and maintenance requirements for residents with WTS.	1. Review all wastewater related information sheets (including the Wastewater Fact Sheet Series) to ensure they are: • Relevant, current and accurate; • Designed/written for their intended audience; • Instructive in educating wastewater system owners how to meet their compliance requirements; and • Persuasive in encouraging wastewater system owners to adopt best practice maintenance and management procedures 2. Develop a process with Rates to identify transfer of property ownership and send relevant information related to the property's WTS. 3. Distribute pdf copies of the Wastewater Fact Sheet Series and *Domestic Wastewater Treatment Guide* (already developed) to all local real estate agents for them to provide to new property owners purchasing properties with septic systems (once settlement is complete). 4. Provide relevant Wastewater Fact Sheets to property owners when issuing a Certificate to Use a WTS.
E3	Consistent provision of clear and current WTS guidance material for Planning and WTS applications at customers first point of contact with Council	1. Provide Council's *Domestic Wastewater Treatment Guide* to property owners when applying for a planning permit. 2. Provide Council's *Domestic Wastewater Treatment Guide* to property owners when applying for a WTS permit. 3. Develop and embed the process required for the above provisions to occur.
E4	Water quality in high risk areas of the Shire is monitored and reported	1. Investigate potential to partner with Melbourne Water in waterway/catchment monitoring and possible funding provisions 2. Develop sampling parameters that will identify the presence and level of septic pollutants in waterways. 3. Undertake 'snap shot' samples for *E.coli* in high risk areas. *Initial priority will be given to the* ***Priority 1*** *Diamond Creek catchment and Yarra River (North Warrandyte) sub catchment, based on the risk assessment conclusions explained in Section 3.4.* 4. Investigate options to link in with the Melbourne Waterwatch community monitoring program and effectively use results 5. Liaise with other relevant stakeholders (including government departments, catchment management authorities, Melbourne Water, YVW) on any existing water sampling undertaken by them within the Shire and utilise this data to inform pollution mitigation actions of the Plan.

Responsibility	Budget	Implementation Timeframe					Key Points
+ Stakeholders		2019/20	2020/21	2021/22	2022/23	2023/24	
Environmental Health **Rates**	EH Budget	Confirm all actions complete & process embed'd	All actions Ongoing	All actions Ongoing	All actions Ongoing	All actions Ongoing	Upstream/pro-active education intervention
Environmental Health **Rates**	EH Budget CS Publication Budget	Confirm Action 1 complete Start Actions 2 & 4 Complete Action 3	Actions 2 & 4 ongoing	Conduct Action 1 Actions 2 & 4 ongoing	Actions 2 & 4 ongoing	Conduct Action 1 Actions 2 & 4 ongoing	Upstream/pro-active education intervention Emphasis of environment and public health protection benefits should resonate with residents.
Environmental Health **Planning**	EH Budget	Confirm all actions complete & process embed'd	All actions ongoing	All actions ongoing	All actions ongoing	All actions ongoing	Upstream/pro-active education intervention
Environmental Health Environment YVW Melbourne Water Melbourne Waterwatch Water EcoScience	Increase to water sampling budget of $2000 per annum Potential grant funding from Melbourne Water WW Officer	Start Actions 1, 4 & 5 Start Actions 2 & 3	Actions 1, 4 & 5 ongoing (to extent possible) Actions 2 & 3 ongoing	Actions 1, 4 & 5 ongoing (to extent possible) Actions 2 & 3 ongoing	Actions 1, 4 & 5 ongoing (to extent possible) Actions 2 & 3 ongoing	Actions 1, 4 & 5 ongoing (to extent possible) Actions 2 & 3 ongoing	Provides scientific information and data (evidence) on the public health and environmental impact of poorly managed WTS within the Shire.

No	Strategy	Actions
Sewer connection and Community Sewerage Program prioritisation		
S1	Advocacy into YVW's Community Sewerage Plan prioritisation process (2021).	1. Conduct investigation and research activities into pollution levels in the high risk areas of the individual townships identified as needing inclusion into the CSP (to support submissions to YVW). *Initial priority will be given to the **Priority 1** Diamond Creek catchment and Yarra River (North Warrandyte) sub catchment, based on the risk assessment conclusions explained in Section 3.4.* 2. Develop targeted and robust submissions requesting additional inclusion by YVW of Council identified high risk properties and areas (and collateral properties) into the CSP as early in the YVW prioritization process as possible (well prior to the YVW planning and design phase). 3. Seek partnerships with other Councils and peak associations to advocate to the State Government to increase funding to accelerate the CSP.
S2	Maintain a database of properties sewered by Yarra Valley Water.	1. Obtain property connection data from YVW quarterly and upload connection data onto Council's GIS system. 2. Develop a process to update Council's GIS system annually with CSP included properties yet to receive their connections (to clearly show which properties are included in the CSP). 3. Develop a process to remove WTS information (from section 32 notices) from property database when connection to sewer occurs.
S3	Encourage property owners to connect to the sewer (in declared areas).	1. Follow up all properties that have sewer available but YVW has no record of connection, particularly in declared CSP areas. *Initial priority will be given to the **Priority 1** Diamond Creek catchment and Yarra River (North Warrandyte) sub catchment, based on the risk assessment conclusions explained in Section 3.4.* 2. Ensure retention of any secondary WTS at a 'declared' property is based on evidence of compliance with EPA requirements (via Council's "Application to Retain" process). 3. Ensure 'declared' properties that cannot show evidence of compliance are made to connect to the sewer.
Regulation & Enforcement		
R1	Comprehensive review of all wastewater policy and procedures.	1. Review all wastewater policies and procedures to identify gaps and/or inconsistencies. 2. Collate a list of the above requiring development. 3. Develop new and amended policies/procedures. 4. Document, adopt, disseminate and implement.
R2	All unsewered site developments are capable of adequately treating and containing all effluent on site prior to Planning approval.	1. Maintain up to date and relevant wastewater specifications and standard conditions for planning permits. 2. EHOs to undertake specialist training in wastewater management. 3. Develop and implement policy and procedures for assessment of planning applications to ensure new unsewered developments retain all wastewater onsite. 4. Formalise LCA trigger criteria for planning applications (document and disseminate). 5. Formalise LCA minimum document standard for planning applications (document and disseminate).

Responsibility	Budget	Implementation Timeframe					Key Points
+ Stakeholders		2019/20	2020/21	2021/22	2022/23	2023/24	
Environmental Health Infrastructure Environment Planning YVW MAV EHPA EPA	EH Budget	Start Actions 1, 2 & 3	All actions Ongoing	All actions Ongoing	All actions Ongoing	All actions Ongoing	Relates to E4
Environmental Health Information Technology Rates YVW	EH Budget	Confirm Action 1 complete & process embed'd Complete Actions 2 & 3	All actions Ongoing	All actions Ongoing	All actions Ongoing	All actions Ongoing	Relates to E1
Environmental Health YVW	EH Budget	Start Action 1 Actions 2 & 3 Ongoing	All actions Ongoing	All actions Ongoing	All actions Ongoing	All actions Ongoing	Relates to R6
Environmental Health	EH Budget	Conduct Actions 1, 2, 3 & 4				Conduct Actions 1, 2, 3 & 4	Relates to R2,3,5,6,7&8
Environmental Health **Planning** MAV EPA	EH Budget Planning Budget	Confirm Actions 1 & 2 are current Complete Actions 3, 4 & 5	Actions 1 & 2 ongoing EH Annual Review of actions 3, 4 & 5	Actions 1 & 2 ongoing EH Annual Review of actions 3, 4 & 5	Actions 1 & 2 ongoing EH Annual Review of actions 3, 4 & 5	Actions 1 & 2 ongoing EH Annual Review of actions 3, 4 & 5	Relates to R1

No	Strategy	Actions
Regulation & Enforcement continued		
R3	Consistent application of Council's statutory duty in approving permit applications to install/ alter WTS.	1. Review processes for assessing and approving WTS permit applications (including installation inspections) to ensure systems being installed meet EPA standards and Council's WTS permit conditions. 2. Review WTS permits (conditions) to ensure all the necessary and correct conditions are being added to new permits.
R4	Investigate options for utilising an automated maintenance application to assist in monitoring the maintenance compliance of WTS.	1. Investigation into the provision of an automated maintenance reporting application to effectively manage Council's statutory duty to monitor and regulate compliance with the maintenance requirements of WTS within the Shire (that would centralise and process the high volume of maintenance reports Council receives annually). 2. Develop a Business Case to procure and utilise the automated application. 3. Investigate compliance programs relating to WTS and review implementation across other municipalities (including the use of automated maintenance reporting applications).
R5	Development of Monitoring and Compliance Program.	1. Develop an on-going monitoring and compliance program that addresses the following issues: • requiring septic owners to ensure that their septic is desludged every 3-8 years (as per permit conditions) and provide a copy of the report to Council. • requiring secondary treatment system owners to ensure that their system receives quarterly maintenance by an accredited service agent and a copy of the report is submitted to Council (as per permit conditions). • requiring maintenance of existing WTS in accordance with permit conditions. • methods of following up on outstanding reports • enforcement options for WTS that are not compliant with EPA standards/ Council permit conditions. 2. Develop a targeted audit program that assesses identified high risk WTS cohorts within the Shire against their permit conditions and current EPA standards.
R6	Complaint investigation	1. Investigate all reported incidents of failing WTS and complaints. 2. Pursue legal advice to clarify Council's legislative duty for complex wastewater related issues.
R7	Investigate the potential for the introduction of additional local laws to assist in WTS compliance.	1. Obtain legal advice regarding the introduction of local laws to assist with the regulation of WTS management and ensure such a local law is within Council's power to make and is not inconsistent with any Act. 2. Review local laws developed by other Councils and examine associated implementation and compliance issues. 3. Investigate the options for creating a local law that specifies the criteria for which properties would be required to upgrade their WTS (eg. failing 'Split' systems). 4. Investigate the options for creating a local law to require owners to connect to sewer when it is available. 5. Investigate the options for creating a local law to require owners to maintain their WTS as required.
R8	Emergency Management provisions (relating to wastewater).	1. Develop policy and process on assessment and management of WTS in emergency response situations, relating to EMV requirements/criteria and EPA guidelines.

Responsibility	Budget	Implementation Timeframe					Key Points
+ Stakeholders		2019/20	2020/21	2021/22	2022/23	2023/24	
Environmental Health	EH Budget	Complete Actions 1 & 2	EH Annual Review (all actions)	EH Annual Review (all actions)	EH Annual Review (all actions)	EH Annual Review (all actions)	Relates to R1
Environmental Health Information Technology	Additional funding required	Start Actions 1, 2 & 3	Complete actions 1, 2 & 3				Relates to R5
Environmental Health EPA M&K Lawyers	EH Budget WW Officer	Start Actions 1 & 2	All actions ongoing	All actions ongoing	All actions ongoing	All actions ongoing	Relates to R1&R4
Environmental Health	EH Budget	All actions ongoing	All actions ongoing	All actions ongoing	All actions ongoing	All actions ongoing	Relates to R1
Environmental Health **Community Safety** EPA YVW M&K Lawyers MAV	Community Safety Budget ($15,000 additional to engage lawyers)	Start Actions 1, 2, 3 & 4	Complete actions 1, 2, 3, & 4				Relates to R1 & R6
Environmental Health **Emergency Management** Consultation with EMV, EPA&MAV	EH Budget	Complete Action 1		EH/EM Review		EH/EM Review	Relates to R1

No	Strategy	Actions
Collaboration and Review		
C1	Annual Internal Review	1. Annual internal review and assessment of the progress achieved with the DWMP Action Plan. 2. Annual internal review and assessment to identify and allow for major changes in the wastewater industry and regulatory environment that may affect Council's wastewater policies.
C2	3-Yearly Audit & Report on DWMP Action Plan progress.	Conduct an audit to assess and report on the progress of the DWMP Action Plan implementation every three years and publish the report on Council's website (Internal Reference Group (IRG)).
C3	5-Yearly Review of the DWMP.	1. Review and update the DWMP every five years (IRG involvement).
C4	Develop and strengthen *internal* stakeholder relationships and collaboration.	1. Initiate and establish an IRG comprised of the relevant stakeholder units across Council. 2. Identify shared water/wastewater objectives and strategies. 3. Define and establish necessary/agreed on-going information and resource sharing arrangements. 4. Promote and facilitate on-going co-ordination of internal resources into wastewater management strategies and projects. 5. IRG to be involved in 3-yearly DWMP Action Plan Progress Audit process. 6. IRG to be involved in 5-yearly DWMP Review process
C5	Develop and strengthen *external* stakeholder relationships and collaboration.	1. Develop and strengthen professional networks with other Councils managing WTS. 2. Develop and strengthen consultation and collaboration with WTS installers and maintenance providers.
C6	Community Engagement	1. Conduct Community Engagement process every 5 years in sync with the DWMP 5-yearly review process.
C7	Advocate for and contribute to reform of the wastewater legislative framework.	1. Advocate for improvements to legislative framework 2. Provide input into proposed legislation and standards pertaining to domestic waste water or reticulated sewerage.

Responsibility	Budget	Implementation Timeframe					Key Points
+ Stakeholders		2019/20	2020/21	2021/22	2022/23	2023/24	
Environmental Health	N/A	Conduct all actions	Conduct all actions	Conduct all actions	Conduct all actions	Conduct all actions	Regular review facilitates progress tracking, achievement of milestones and maintains relevance.
Environmental Health IRG	Budget allocation in 2021			Conduct			Specific requirement of SEPP (Waters).
Environmental Health IRG	Budget allocation in 2023					Conduct	Specific requirement of SEPP (Waters).
Environmental Health Planning Infrastructure Environment Community Safety	EH Budget	Start Actions 1, 2, 3, 4, 5 & 6	Actions 1, 2, 3 & 4 ongoing	Actions 1, 2, 3 & 4 ongoing Conduct Actions 5 & 6	Actions 1, 2, 3 & 4 ongoing	Actions 1, 2, 3 & 4 ongoing Conduct Actions 5 & 6	Greater integration and co-ordination of internal resources and strategy will maximize the impact of wastewater projects and initiatives.
Environmental Health	EH Budget	All actions ongoing	All actions ongoing	All actions ongoing	All actions ongoing	All actions ongoing	
Environmental Health IRG	Budget allocation in 2023					Conduct	Relates to C3
Environmental Health **MAV** **EHPA** **EPA** **DELWP**	EH Budget	Continue Actions 1 & 2	All actions ongoing	All actions ongoing	All actions ongoing	All actions ongoing	Relates to S1

4.3 Emergency Response

As emergency events such as bushfires and floods can be both unpredictable and devastating, it is important that Council is ready to respond to these types of emergencies that often also involve damage to WTS and wastewater infrastructure.

The State Emergency Relief and Recovery Plan - Part 4: Emergency Management Manual Victoria (EMMV) contains general provisions for the restoration of water supplies and wastewater services for domestic use under section 7.6.3 (Water and Wastewater).

The EMMV identifies councils as the lead agency for the coordination of **relief and recovery activities** at the local level.

Section 7.6.3 states that when a community requires provision of emergency water and wastewater management to support health and wellbeing:

- DELWP coordinates this functional area. When the size and complexity of emergency recovery exceeds the local resources (i.e. Community and Council's), coordination of emergency drinking water supplies and sewerage services becomes its responsibility.
- DHHS is responsible for providing advice about the safety of drinking water (refer to section 4.6.4).

Section 7.6.3.2 *Restoration of sewerage, sanitation systems and wastewater management* goes on to identify the breakdown of responsibility for the emergency response action depending on whether the wastewater infrastructure for the affected area is reticulated (sewer) or not (i.e. WTS).

- DELWP leads the restoration of wastewater systems for domestic use for areas when reticulated services are not available. It also oversees activities undertaken by water corporations.
- Water Authorities lead the restoration of sewerage systems for domestic use when reticulated sewer is available.

Emergency recovery actions	Tasks	Responsibility
Investigate and assess all affected WTS	• Inspect all affected properties before residents are able to return to their properties to ensure WTS is working efficiently.	Environmental Health
Conduct risk assessments of all affected WTS within the Shire and develop an inspection and maintenance program to ensure all systems considered suitable are still working adequately	• Inspect all affected properties with Building Services to ensure all properties are safe for residents to either return for clean up purposes or to move back in. • Review current emergency checklist for all affected properties and update if deemed necessary. • Use GPS to locate affected properties and WTS locations.	Environmental Health Building Services

Table 5: Identifies the wastewater emergency response and recovery actions that Council currently undertakes immediately after an emergency event.

Funding and Budget Allocation

The Domestic Wastewater Management Plan will require the allocation of budget and resources throughout the full 5 year implementation.

The majority of actions will be absorbed into the existing Environmental Health budget, the current *Domestic Wastewater Officer* role being key to achieving some priority actions including the collection and collation of data associated with all existing WTS throughout the Shire. It is anticipated that the actions identified as "ongoing" will be incorporated into the Environmental Health team's recurrent budget. Where there are specific projects, funding in the form of grants may be applied for from the State Government and other peak associations. Additional funding may also be sought in the respective budgets for each year of the plan.

Appendices

Appendix 1: Catchment descriptions

The following catchment descriptions are derived from the *Nillumbik Stormwater Management Plan 2002* which broke most of the major catchment areas up into sub-catchments.

These sub-catchments are indicated below by the brackets following the major catchment name. Since this analysis was initially undertaken, catchment boundaries have also been changed slightly, however the descriptors remain the same. (Refer to Figure 8: Main Water Catchments within Nillumbik).

Diamond Creek (Eltham, Diamond Creek and Wattle Glen)

This catchment drains into the Diamond Creek before flowing into the Yarra River at Eltham South. The catchment contains the major urban areas of the Shire including Eltham, Diamond Creek and Wattle Glen. The urban areas of the catchment vary from standard sized residential allotments with sealed roads, kerb and channel and reticulated stormwater and sewage systems, to lower density residential allotments in the surrounding areas with larger lot sizes, septic sewage treatment, unmade roads and overland stormwater drainage.

The non-urban sections of the catchment are predominantly used for a mix of agricultural purposes, from grazing to vineyards. The catchment also includes a significant mix of recreational areas, including formal and informal open space, much of it along the Diamond Creek and its tributaries.

Yarra River Main Stream (North Warrandyte)

This small catchment drains into the Yarra River via a series of small creeks and streams. The catchment contains the urban area of North Warrandyte which is predominantly lower density residential areas. These residential areas are located on quite steep slopes with unmade roads and septic sewerage systems are common throughout the area. The non-urban areas of the catchment are predominantly used for mixed agricultural purposes from grazing to vineyards. The catchment has significant flora and fauna values.

Plenty River (Plenty and Yarrambat)

This small catchment in the western section of the Shire drains into the Plenty River through a small number of creeks and streams. The catchment includes the "urban" areas of Plenty and Yarrambat which are predominantly low-density residential, with unmade roads and septic sewerage systems common. The area has large areas of significant remnant vegetation, particularly in the Conservation Reserves managed by Parks Victoria.

Diamond Creek (Hurstbridge, St Andrews and half of Panton Hill)

This catchment drains into the Diamond Creek through a series of tributary creeks. The catchment is predominantly non-urban, with the majority of the land used for agricultural purposes. There are extensive forested areas in the upper regions of the catchment. The catchment also includes the Hurstbridge and St Andrews townships, both of which are located on the Diamond Creek, and half of the Panton Hill township which is located on the ridge separating this catchment from the Christmas Hills catchment. Both Panton Hill and St Andrews are small townships with a limited commercial area and some associated residential land use. Hurstbridge is larger with significantly more commercial land use and some medium density residential use, including isolated development. Unsealed roads and steep slopes are common throughout the catchment.

Diamond Creek (Arthurs Creek)

The Arthurs Creek Catchment is a non-urban catchment located in the northern section of the Shire. The catchment drains into Arthurs Creek via a series of tributaries before flowing into the Diamond Creek at Hurstbridge. Much of the catchment has been cleared for agricultural purposes, and as a result, its flora and fauna values are comparatively lower than those catchments in the southern and eastern sections of the Shire.

Watson's Creek (Sugarloaf Reservoir, Christmas Hills and half of Panton Hill)

This large catchment drains into Watsons Creek via a complex network of tributaries before flowing into the Yarra River. The catchment also includes the Sugarloaf Reservoir. The catchment does not include any significant residential areas but does include half of the Panton Hill township which is located on the ridge that separates this catchment from the Hurstbridge/St Andrews catchment. The area includes a number of bushland areas managed by Parks Victoria and supports a substantial amount of significant remnant vegetation as well as areas used for agricultural pursuits.

Yarra River Main Stream (Bend of Islands)

This small catchment is located in the south east corner of the Shire and drains into the Yarra River via a small number of creeks and streams. There are some rural reserve areas within the catchment, and much of the area is used for conservation purposes and limited agricultural pursuits. The catchment contains substantial areas of significant vegetation providing an important habitat for native fauna.

Appendix 2: Community Engagement Program

Nillumbik Shire Council has a comprehensive Community Engagement Program structure in place that is applied to the majority of Council projects.

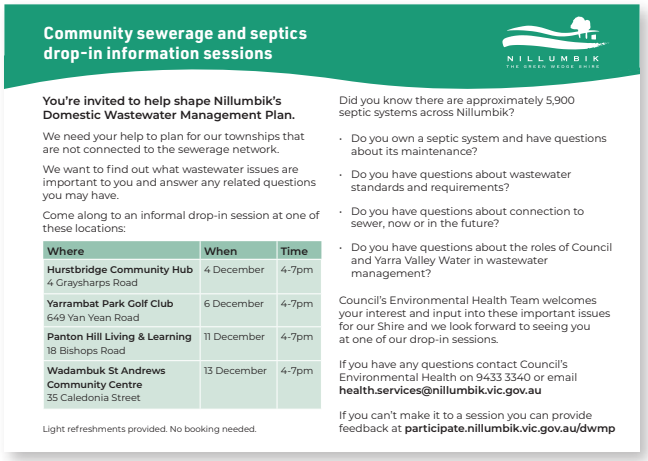
Specific community engagement was undertaken as a part of the development of this DWMP to help inform relevant components of this Plan. The engagement conducted provided valuable insight into the community's understanding and perspective on the domestic wastewater management issues relevant to this Plan.

This engagement is described below.

Community sewerage and septics drop-in information sessions

The first phase of the engagement consisted of four informal Community Sewerage and Septics 'Drop-in' Information Sessions held across the Shire in early December 2018. These 'Drop-in' Information Sessions were held at the:

- Hurstbridge Community Hub
- Yarrambat Park Golf Club
- Panton Hill Living & Learning
- Wadambuk – St Andrews Community Centre



Community sewerage and septics drop-in information sessions

NILLUMBIK
THE GREEN WEDGE SHIRE

You're invited to help shape Nillumbik's Domestic Wastewater Management Plan.

We need your help to plan for our townships that are not connected to the sewerage network.

We want to find out what wastewater issues are important to you and answer any related questions you may have.

Come along to an informal drop-in session at one of these locations:

Where	When	Time
Hurstbridge Community Hub 4 Graysharps Road	4 December	4-7pm
Yarrambat Park Golf Club 649 Yan Yean Road	6 December	4-7pm
Panton Hill Living & Learning 18 Bishops Road	11 December	4-7pm
Wadambuk St Andrews Community Centre 35 Caledonia Street	13 December	4-7pm

Light refreshments provided. No booking needed.

Did you know there are approximately 5,900 septic systems across Nillumbik?

- Do you own a septic system and have questions about its maintenance?
- Do you have questions about wastewater standards and requirements?
- Do you have questions about connection to sewer, now or in the future?
- Do you have questions about the roles of Council and Yarra Valley Water in wastewater management?

Council's Environmental Health Team welcomes your interest and input into these important issues for our Shire and we look forward to seeing you at one of our drop-in sessions.

If you have any questions contact Council's Environmental Health on 9433 3340 or email **health.services@nillumbik.vic.gov.au**

If you can't make it to a session you can provide feedback at **participate.nillumbik.vic.gov.au/dwmp**

Figure 10: The Drop-in sessions invite sent out to Nillumbik residents

The purpose of these sessions was primarily to capture real feedback from our residents on the wastewater issues important to them; and to gauge their views and interest associated with domestic wastewater management and community sewerage.

A secondary purpose was to provide them with current information on:

- Managing their own wastewater treatment systems
- Yarra Valley Water's Community Sewerage Program for Nillumbik
- Council's Domestic Wastewater Management Plan (and it's Review)

The approach was to provide a conducive environment for the exchange of information and ideas, where residents felt comfortable to ask any questions and express their opinions on domestic wastewater management issues. This was encouraged through open and friendly conversation on the different wastewater questions and issues raised by them and an informal session structure.

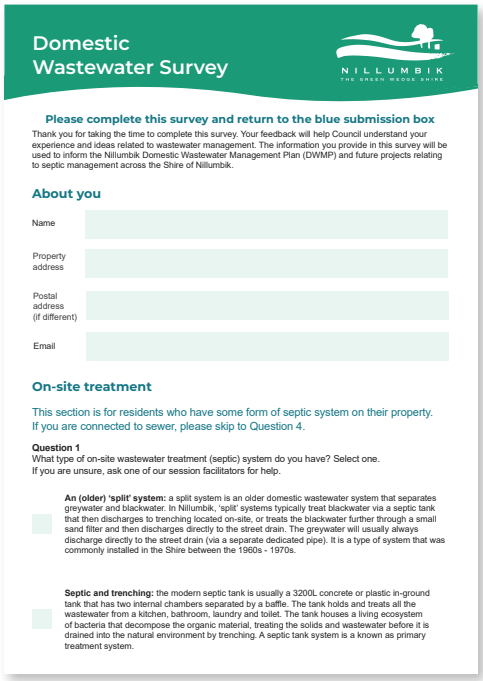
Specific educational and information materials were developed and prepared by Council for these sessions to allow Council facilitators to reference during conversations with residents and for residents to read at the session or take away with them. These materials consisted of:

- A series of ten wastewater fact sheets
- A Nillumbik Domestic Wastewater Management Plan Information Sheet
- A Nillumbik Community Sewerage Program (CSP) Information Sheet
- Diagrams and photo images of different wastewater treatment systems
- Maps showing the CSP township areas and the included properties

Residents' questions often related to management of their own WTS and different wastewater issues they were aware of within the Shire. Additionally, many residents had questions around the CSP and DWMP; prompted either by their own interest or the related information materials on display at the sessions.

Domestic Wastewater Survey

The primary tool used to capture the resident's feedback and provide specific data to inform this Plan was the "Domestic Wastewater Survey". Every resident who attended a session was encouraged to complete this Survey at the session, which resulted in most attendees submitting a completed Survey.



Domestic Wastewater Survey

NILLUMBIK

Please complete this survey and return to the blue submission box

Thank you for taking the time to complete this survey. Your feedback will help Council understand your experience and ideas related to wastewater management. The information you provide in this survey will be used to inform the Nillumbik Domestic Wastewater Management Plan (DWMP) and future projects relating to septic management across the Shire of Nillumbik.

About you

Name

Property address

Postal address (if different)

Email

On-site treatment

This section is for residents who have some form of septic system on their property. If you are connected to sewer, please skip to Question 4.

Question 1
What type of on-site wastewater treatment (septic) system do you have? Select one.
If you are unsure, ask one of our session facilitators for help.

An (older) 'split' system: a split system is an older domestic wastewater system that separates greywater and blackwater. In Nillumbik, 'split' systems typically treat blackwater via a septic tank that then discharges to trenching located on-site, or treats the blackwater further through a small sand filter and then discharges directly to the street drain. The greywater will usually always discharge directly to the street drain (via a separate dedicated pipe). It is a type of system that was commonly installed in the Shire between the 1960s - 1970s.

Septic and trenching: the modern septic tank is usually a 3200L concrete or plastic in-ground tank that has two internal chambers separated by a baffle. The tank holds and treats all the wastewater from a kitchen, bathroom, laundry and toilet. The tank houses a living ecosystem of bacteria that decompose the organic material, treating the solids and wastewater before it is drained into the natural environment by trenching. A septic tank system is a known as primary treatment system.

Figure 11: The Domestic Wastewater Survey completed by residents

An on-line version of this Survey was also made available to residents on the Participate Nillumbik website immediately after these sessions.

The Survey consisted of 11 questions grouped into 3 sections covering:

- On-site treatment
- Wastewater in Nillumbik
- Community Sewerage Program

The questions within each of the 3 sections were specifically targeted at catering to the 4 main resident cohort groups that would attend the sessions, these being:

- Residents who currently have an on-site wastewater treatment system
- Residents who are connected to sewer
- Residents included in YVW's CSP; due to receive a (future) sewerage service
- Residents with on-site wastewater treatment 'forever' (unlikely to receive a sewerage service within their lifetime).

Some of the results of the completed Surveys are shown below and provide some indicative data of interest for this cohort group:

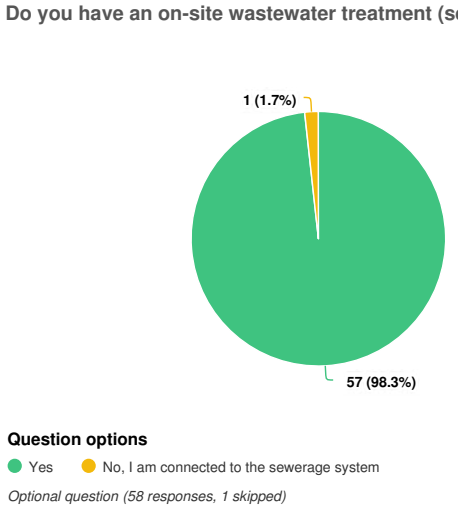


Figure 12: Demonstrates that the majority of the survey residents were WTS owners.

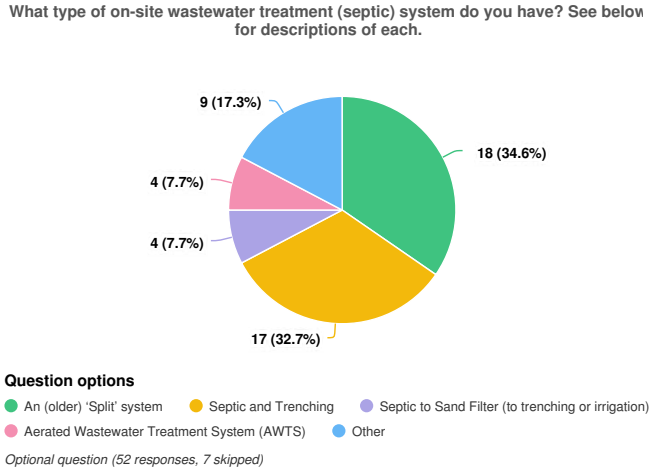


Figure 13: Shows the breakdown of system types across the survey residents

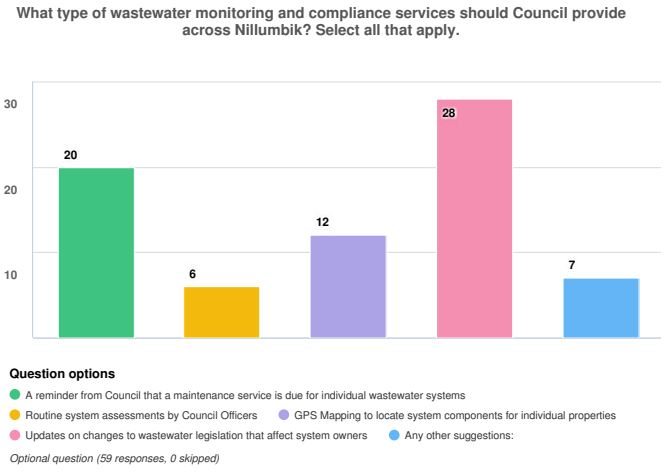


Figure 14: Shows the type of wastewater monitoring and compliance services survey residents would like from Council.

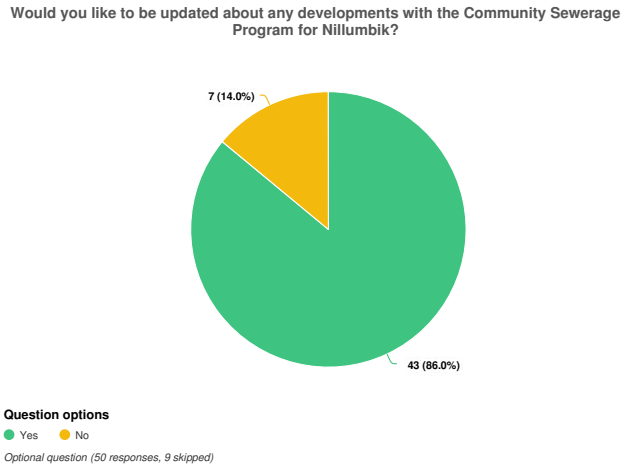


Figure 15: Shows that 86% of survey residents want to be kept updated on CSP development.

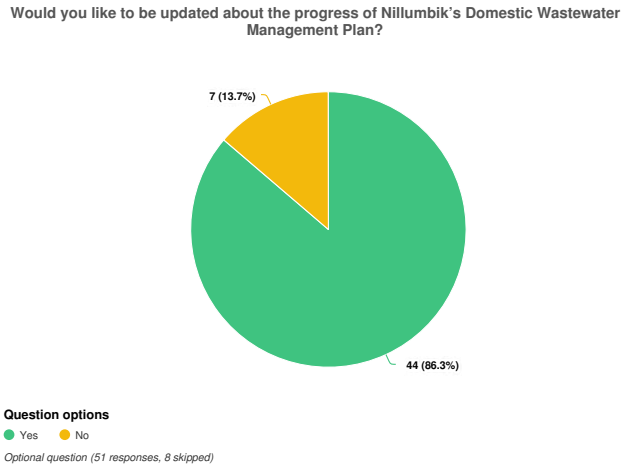


Figure 16: Shows that 86.3% of survey residents want to be kept updated on Nillumbik's DWMP development

These results demonstrate that:

- Nearly all of the residents attending were WTS owners (98.3%)
- The most common types of WTS were older "split" systems and septic tank to trenching systems (34.6% and 32.7%, respectively).
- The types of wastewater services residents were most interested in, consisted of updates on changes to wastewater legislation (affecting them) and WTS maintenance reminders, respectively. GPS mapping of their WTS was also of interest.
- Most attending residents would like to be kept updated on both the CSP and DWMP progress.

Wastewater Workshop

The second phase of the engagement consisted of a Wastewater Workshop conducted 26 February 2019 targeted at Nillumbik's WTS Installers (Plumbers) and Maintenance Providers.

The session consisted of an initial presentation providing brief updates on:

- Council's Domestic Wastewater Management Plan review
- YVW's Community Sewerage Program
- State Government reforms of wastewater legislation

The session then opened up into the main informal questions and discussion component, where attendees could ask questions and raise issues related to the presentation topics or any other topic of importance to them.

Important and informative conversations took place during this time and these were captured and retained (Butcher's Paper) to help inform this Plan and Council's on-going wastewater monitoring and compliance responsibilities. Some of the ideas and issues raised during this time included:

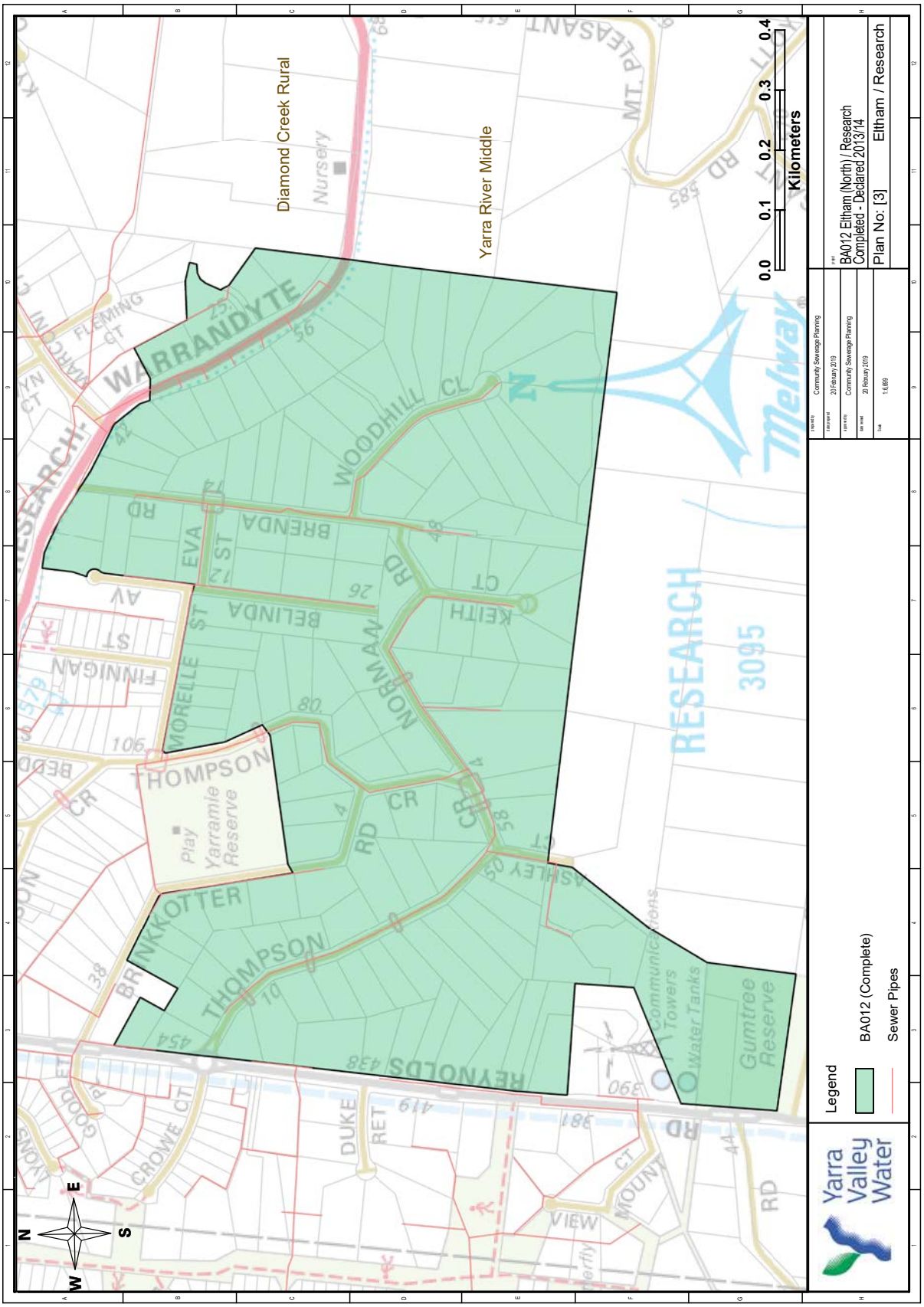
- The lack of WTS maintenance by residents is a significant issue across the Shire (pump maintenance and "de-sludging").
- The possibility of a maintenance reminder from Council for WTS owners
- The overall cost of up-grading existing older systems (to current EPA standards) is significant.
- Connection of a property to a new YVW sewer connection point can often be significantly more expensive that the YVW estimates (consolidating and re-configuring old and non-compliant pipework).
- Automation is required for Council to monitor and regulate WTS maintenance reporting requirements (many other Councils are utilising this technology).

There was specific discussion about how Council's application to install/alter a septic tank form could be improved, along with the associated approval process. Some of the suggestions from the attendees included:

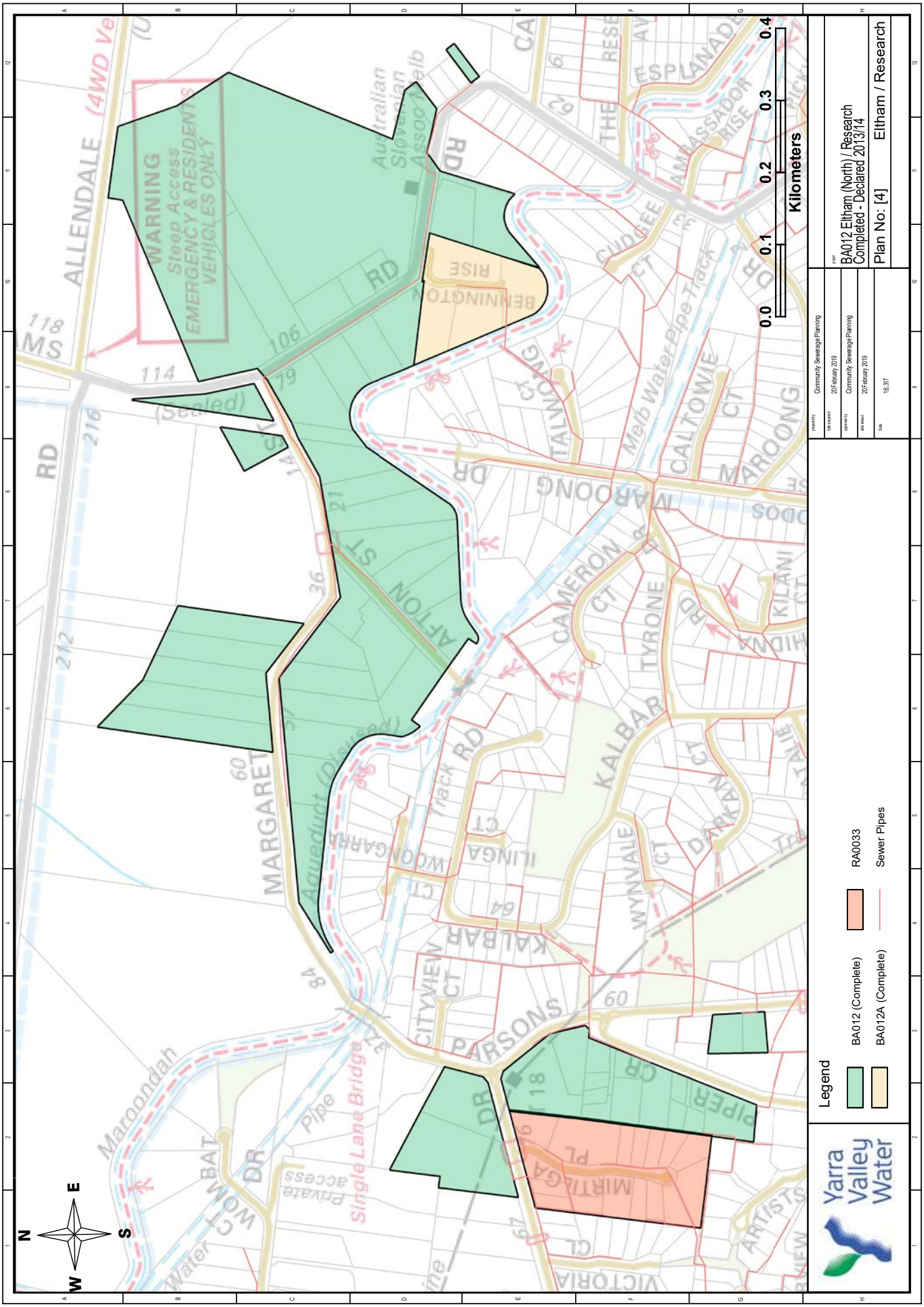
- The possibility of a fast-track application process for emergency plumbing situations (i.e. failure or damage to an existing system).
- An easier way to calculate what size the proposed system should be (to help complete these details on the application form).
- On-line application progress tracking (for applicants)
- Defining (further) the drawing standards required for proposed WTS Plans

Appendix 3: Community Sewerage Program areas

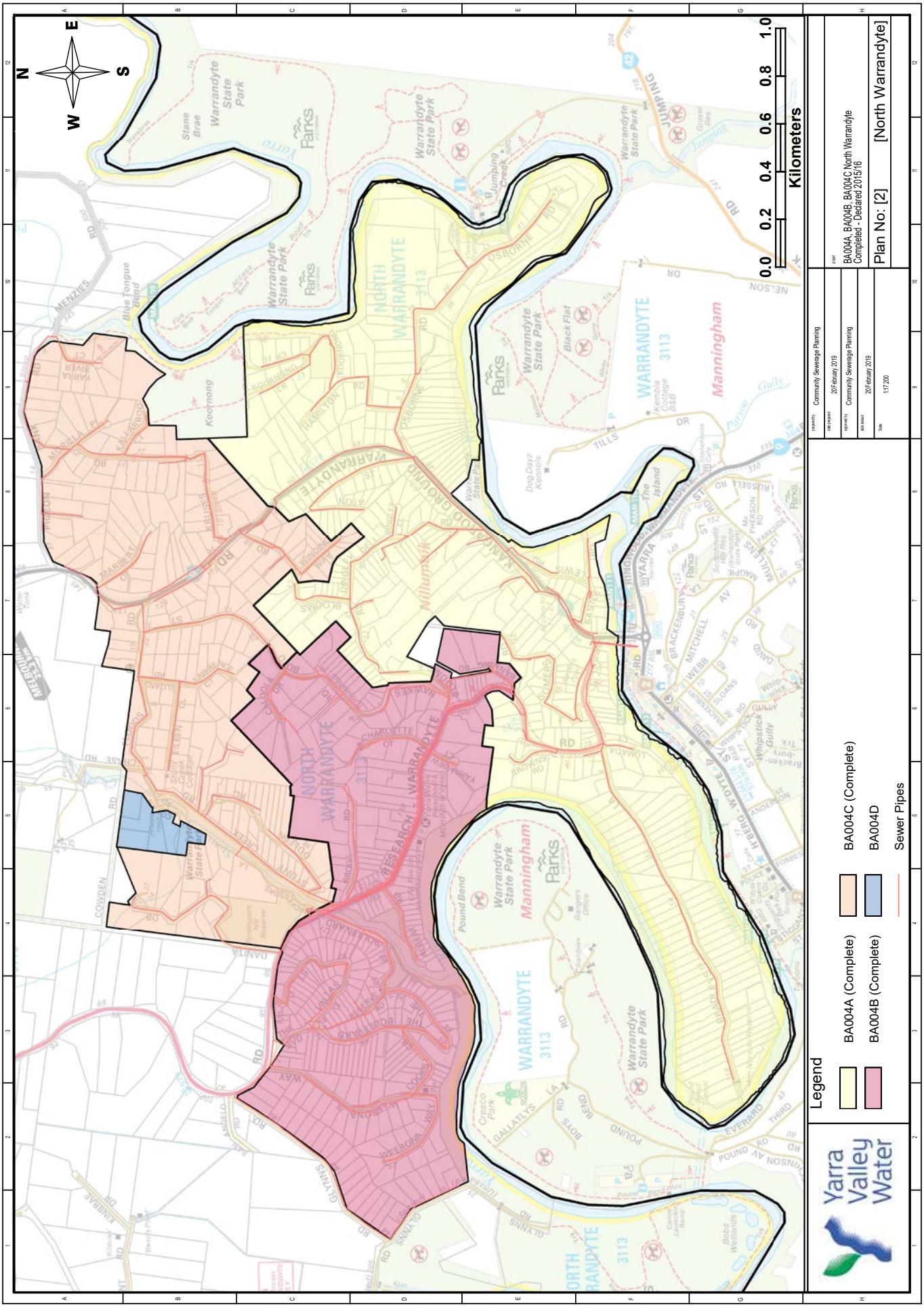
BA012 Eltham (North) / Research



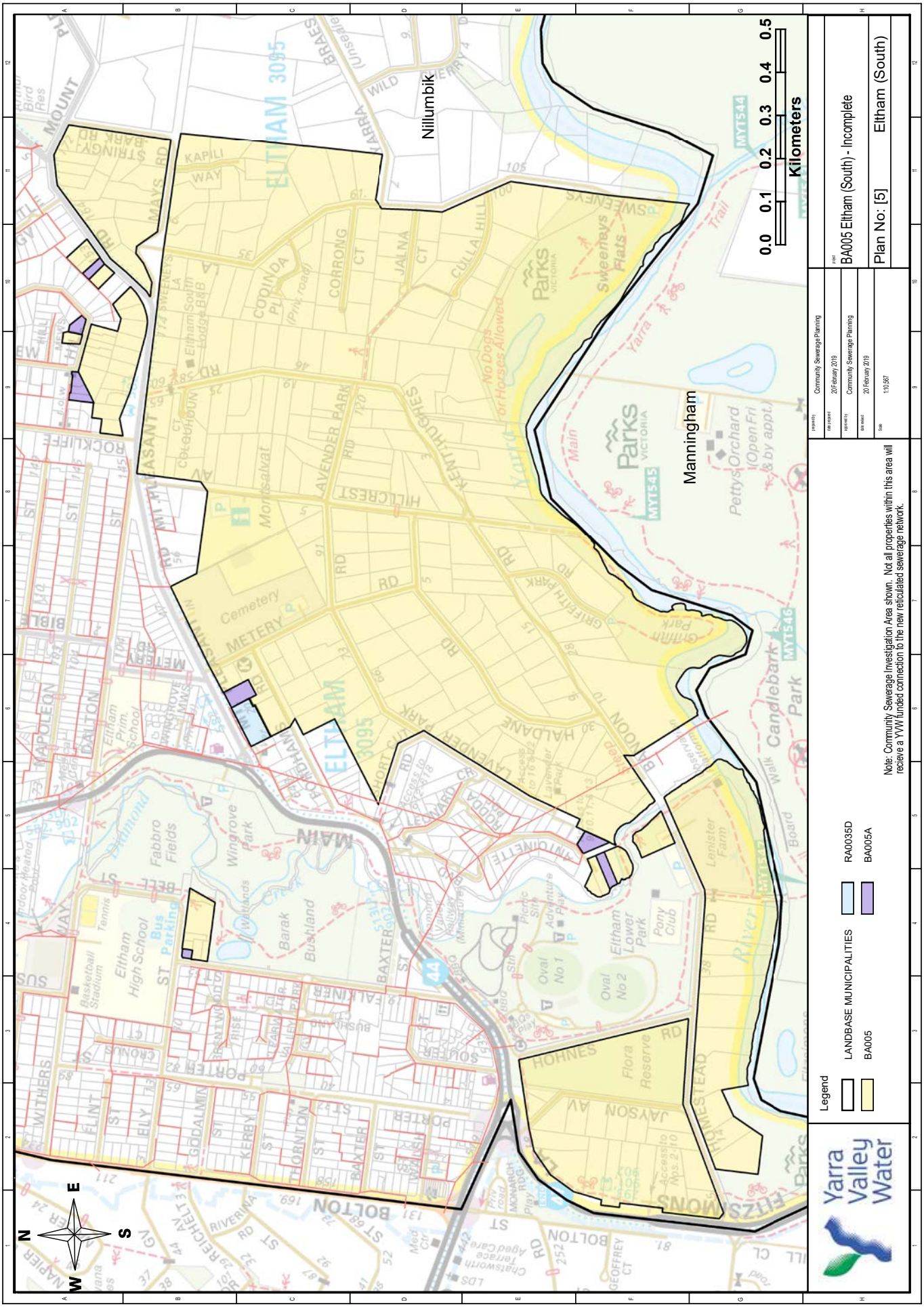
BA012 Eltham (North) / Research



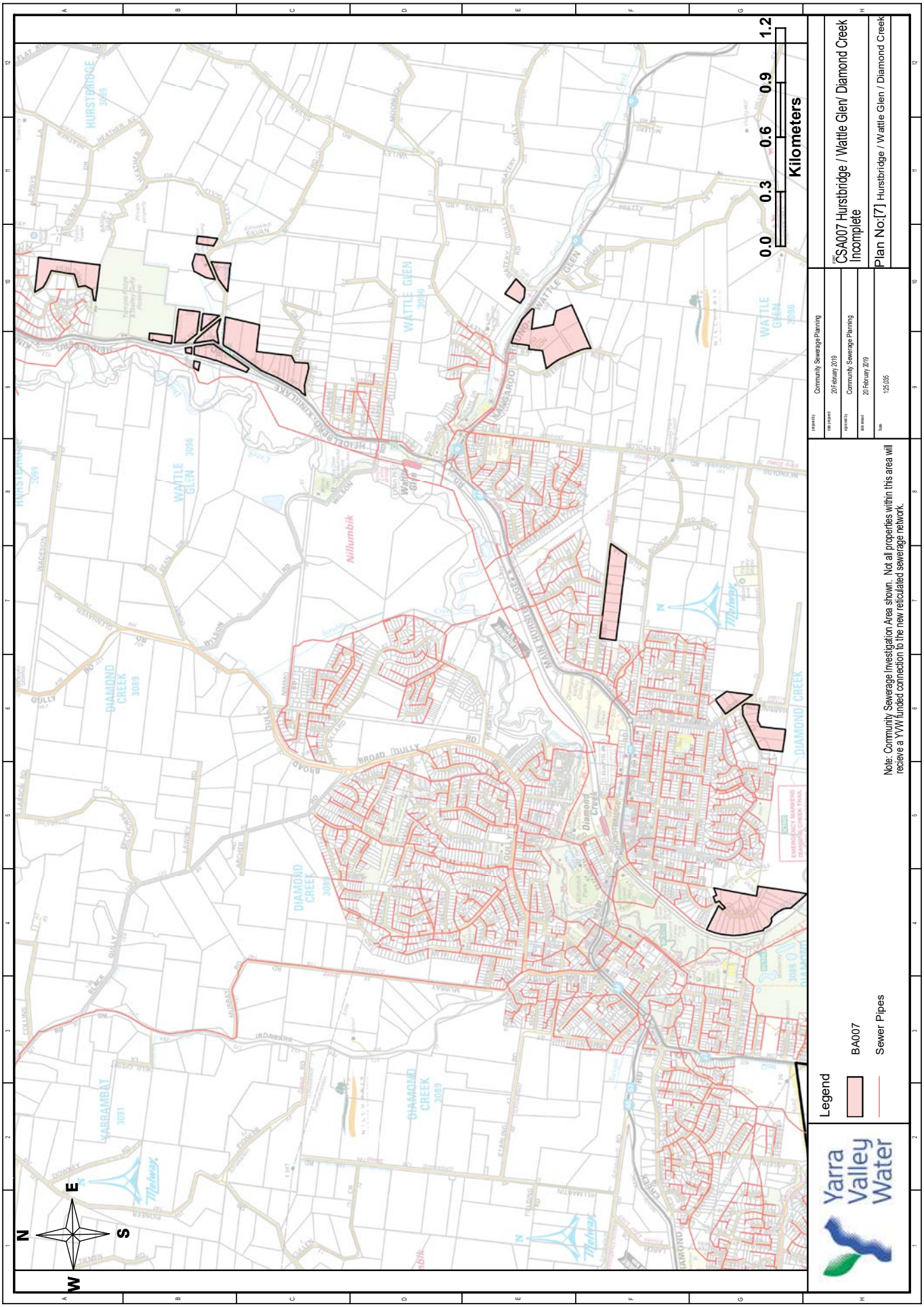
BA004A/B/C/D North Warrandyte



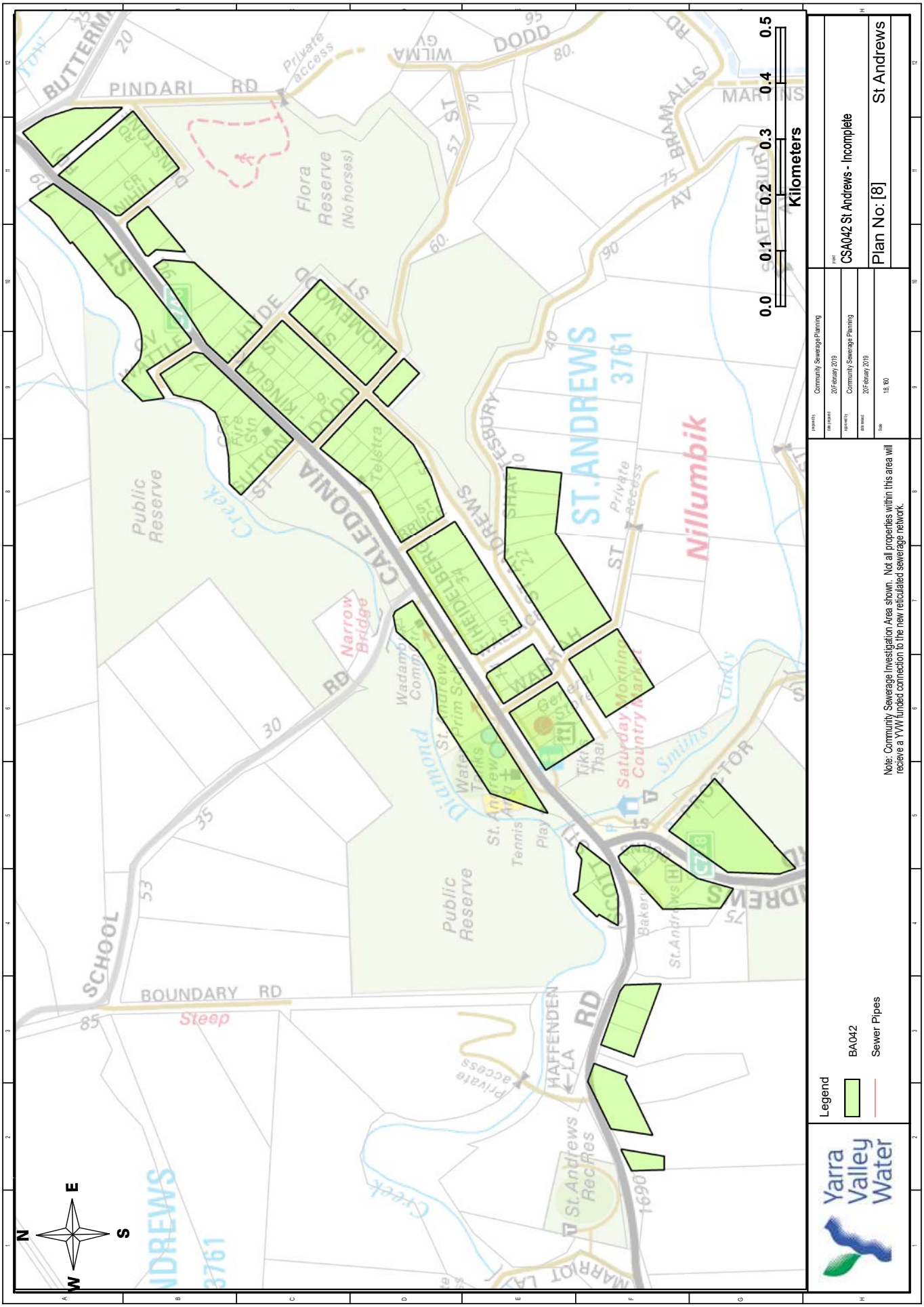
BA005 Eltham South



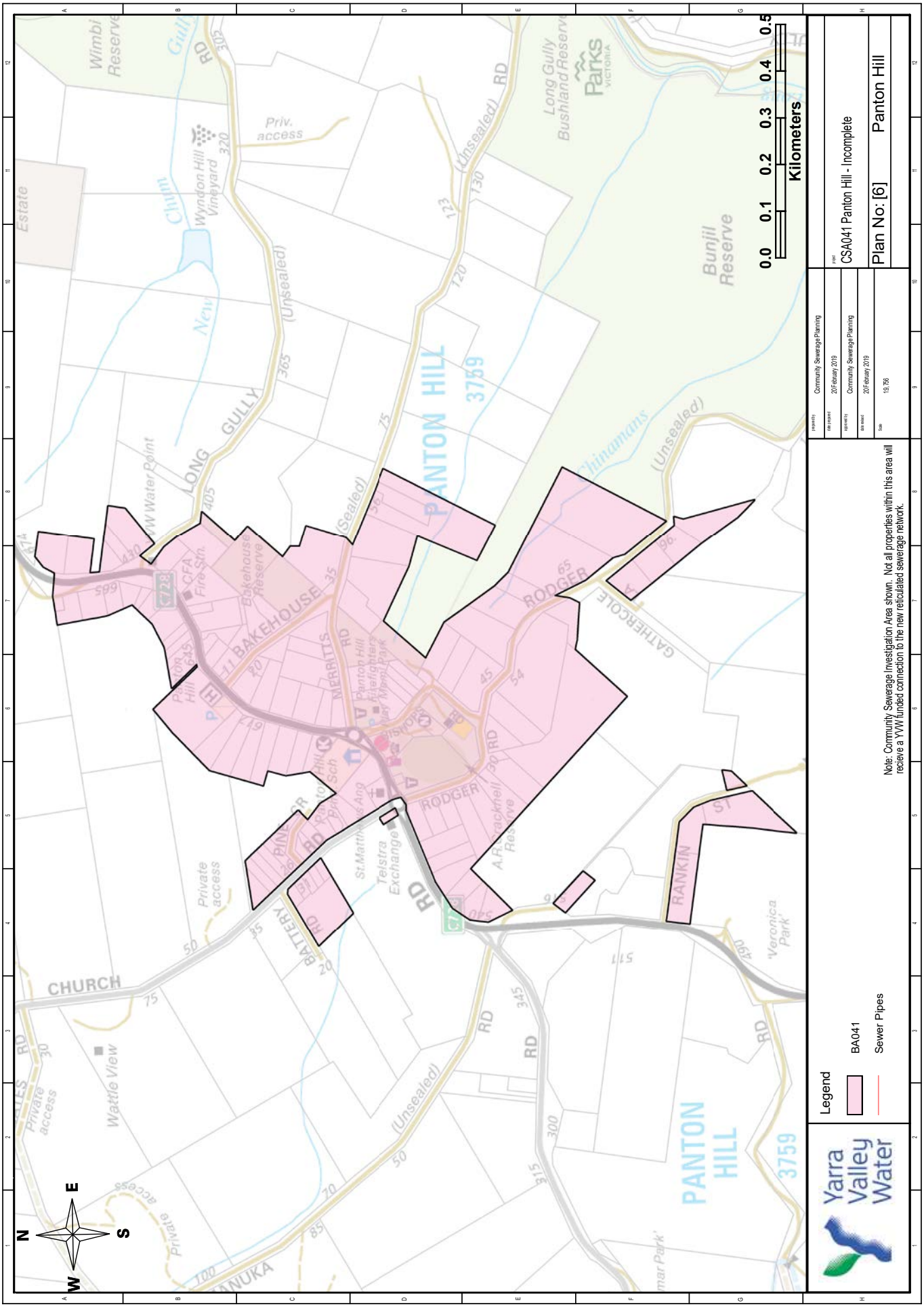
CSA007 Hurstbridge / Wattle Glen / Diamond Creek



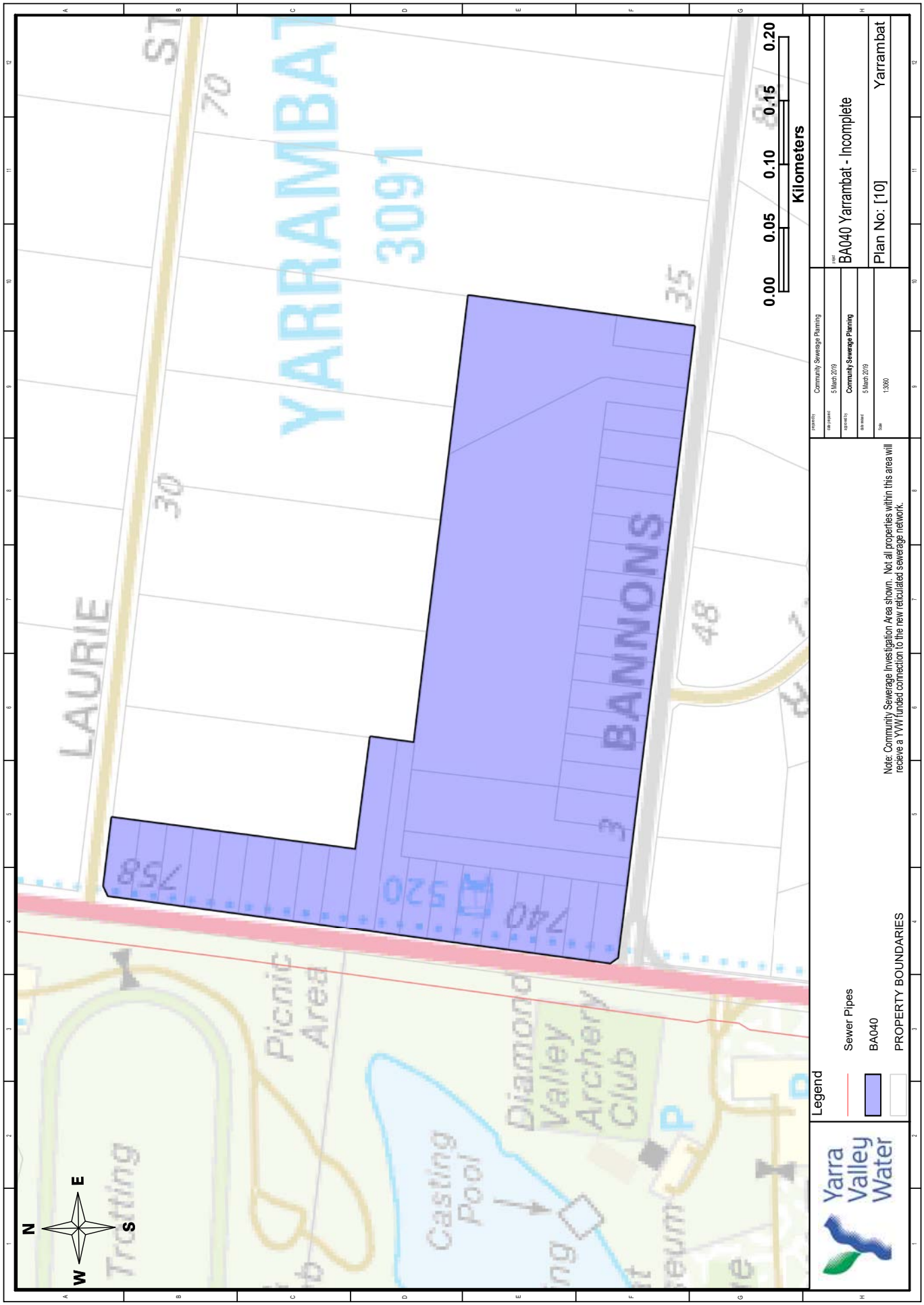
CSA042 St Andrews



CSA041 Panton Hill



CSA040 Yarrambat



References

- VAGO Report: *Managing the Environmental Impacts of Domestic Wastewater,* September 2018.
- EPA Publication 629, *Development Approvals in Sewered & Unsewered Areas 1998*
- EPA Publication 812, *Re-use Options for Household Wastewater*
- *EPA Code of Practice - Onsite Wastewater Management (891.4),* July 2016
- *MAV Victorian Land Capability Assessment Framework, January 2014*
- *MAV Domestic Wastewater Management,* a planning guide for Local Government
- *MAV Model Municipal Domestic Wastewater Management Plan,* October 2001
- *MAV Municipal Domestic Wastewater Management Planning, Issues & Options Paper,* February 2002.
- *Council Plan 2017-2021: Living in the Landscape*
- *Nillumbik Integrated Water Management Strategy,* 2013
- *Nillumbik Shire Council 1997, Sites of Faunal and Habitat Significance,* North East Regional Organisation of Council's Report (NEROC).
- *Nillumbik Stormwater Management Plan – Volumes 1 & 2,* 2002
- *SEPP (Waters),* Reviewed June 2018
- *AS/NZS 1546.1:2008 On-site domestic wastewater treatment units: Part 1: Septic tanks.*
- *AS/NZS 1546.2:2008 On-site domestic wastewater treatment units: Part 2: Waterless composting toilets.*
- *AS/NZS 1546.3:2017 On-site domestic wastewater treatment units: Part 3: Aerated wastewater treatment systems.*
- *AS/NZS 1546.4:2016 On-site domestic wastewater treatment units: Part 4: Domestic greywater treatment systems.*
- *AS/NZS 1547:2012 On-site domestic wastewater management.*
- *AS/NZS 3500 National Plumbing and Drainage - Domestic Installations.*
- Wikipedia
- Water NSW, *Aerated Wastewater Treatment Systems*

Glossary

AWTS: Aerated Wastewater Treatment System. AWTS are a type of secondary treatment system

CSP: Community Sewerage Program

COC: Certificate of Conformance (provided by Standards Australia)

Desludging: The removal of sludge and sediment from the tanks of a wastewater treatment system.

DELWP: Department of Environment, Land, Water and Planning

Domestic Wastewater: Wastewater arising from a domestic dwelling. Domestic wastewater can comprise of blackwater (toilet waste) or greywater (sullage waste from bathrooms, laundry and kitchen appliances), or a combination of both.

DWMP: Domestic Wastewater Management Plan

Effluent: Combined wastewater coming from (leaving) a domestic residence and/or coming from (leaving) a wastewater treatment system. It is a direction-based term used for wastewater exiting a household or treatment system.

EPA: Environment Protection Authority

GIS: Geographic Information System

Greywater: Domestic wastewater that does not contain toilet waste. Also known as sullage.

Influent: Combined wastewater entering a wastewater treatment system or land disposal system. It is a direction-based term used for the wastewater entering a wastewater treatment or land disposal system.

Joint Accreditation System of Australia and New Zealand (JAS-ANZ): Is an accreditation authority and framework, with the purpose to enhance national, trans-tasman and international trade via accreditation to achieve international recognition for the excellence of Australian and New Zealand goods and services. JAS-ANZ provides a certification mark for use on goods and services that meet their accreditation requirements.

Land Capability Assessment (LCA): A method used to assess the capability of land to manage on-site wastewater disposal, which recommends whether effluent can be adequately treated and retained on-site.

MAV: Municipal Association of Victoria

MW: Melbourne Water

Percolation: The filtration of liquid through soil

Permeability: The rate at which water moves through a soil profile. Fast permeability rates will not allow for adequate remediation, slow rates may give rise to soil waterlogging.

Primary Treatment System: A wastewater treatment system that treats the effluent to a primary standard.

Secondary Treatment System: A wastewater treatment system that treats the effluent to a secondary standard.

SEPP: State Environment Protection Policy (Waters)

Septic tank system: A primary wastewater treatment system for the bacterial, biological, chemical and physical treatment of sewage including all tanks, beds, drains, pipes, fittings, appliances and land used in connection with the system. Septic tank systems treat the influent sewage primarily through anaerobic processes.

Sewage: Any wastewater containing human excreta or domestic wastewater.

Sewerage: The infrastructure system (drains etc.) used to carry, treat and dispose of sewage.

Sullage: See greywater. Household greywater that does not contain toilet waste, but may still contain many of the harmful pathogens, nutrients and other chemicals contained in blackwater waste, presenting a similar hazard.

YVW: Yarra Valley Water

WISS: Water Industry System Solutions

WTS: Wastewater Treatment System. This is the generic term used to refer to all available types of on-site wastewater treatment and disposal systems (across both primary and secondary treatment systems).

Nillumbik Shire Council

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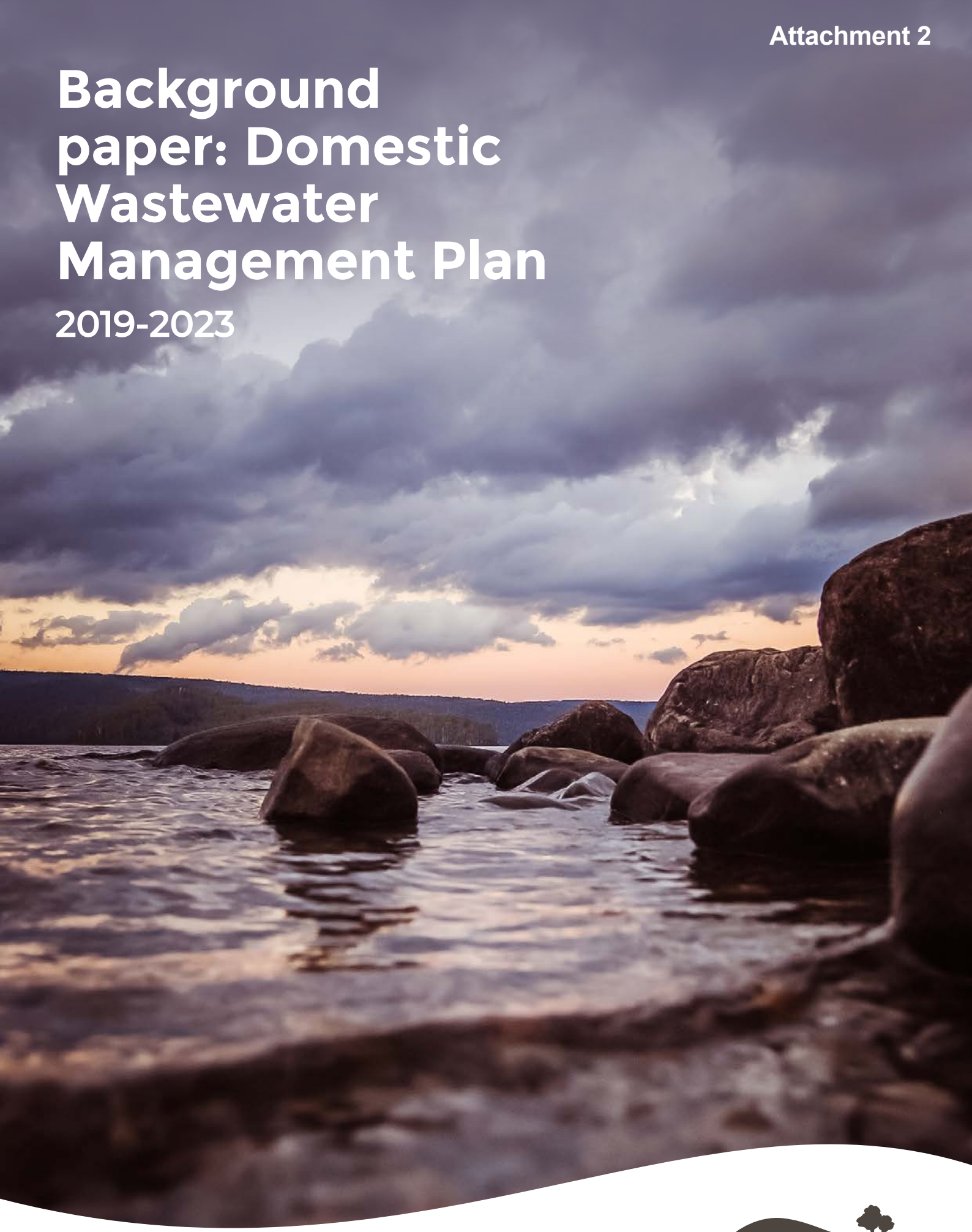
Attachment 2

Background paper: Domestic Wastewater Management Plan

2019-2023



Nillumbik
The Green Wedge Shire

Contents

Analysis and Review Of 2015-2018 DWMP

Analysis and review of the 2015-2018 DWMP reveals an ambitious document that attempted to table and cover off all conceivable wastewater issues within the Shire of Nillumbik and some larger systemic issues, external to Nillumbik. The resulting Action Plan presented more as a 'wish-list' than a structured and targeted strategic document. The ability to complete the actions outlined in the Action plan, was too ambitious and unrealistic to achieve within the 3 year timeframe.

The structure of the document was sound, however the strategies and actions appear to have been developed and included in isolation from the rest of the organisation and key external stakeholders including the community. There was limited internal and external consultation and no community engagement.

Some of the strategies and actions listed within the Action Plan appeared unfocussed or unclear, which led to some duplication across both. This creates additional confusion around the specific intent of these strategies and actions. Frequent use of more general terms and language allows ambiguity to enter into their interpretation. Focussed and unambiguous language was seen as a key need of the document; and in particular, the Action Plan.

Changes in State legislation, policies, standards and guidance have meant that the approach of many of the strategies and actions now require change in order to adapt to the new authorising environment.

Throughout the 3 year timeframe of the Action plan, many actions were commenced however not completed. The funding provided by Council's New Initiative process, enabled all existing historical records to be digitised and entered into Council's application management program; Pathway. This has provided considerable assistance in identification of the remaining information gaps.

However, many actions within the 2015-2018 Action Plan remain outstanding. The late adoption of the Plan meant that commencement of many actions was delayed by 3-6 months, including the appointment of a Domestic Wastewater Officer to facilitate the implementation of the actions. Throughout the 2015-2018 period, a dedicated Domestic Wastewater Officer was engaged for only 18 months, prior to the review and development of the new Plan.

Detailed analysis of the 2015-2018 DWMP Action Plan is shown in Table 1. This Table includes critical analysis of the value of each action, it's current relevance and the progress achieved to date.

Table 1: 2015-2018 Domestic Wastewater Management Plan: Action Plan Assessment & Progress (as of October 2018)

2015-2018 DWMP Actions & Strategies			
No	Strategy	Actions	Responsibility
Information and Data Collation			
I1	Current septic system information collection requirements are relevant.	1. Review and modify all application forms relating to septic tank systems to ensure they are in compliance with: • Land Capability Assessment Framework • EPA Certificate of Approval conditions • EPA Publication 891.3 Code of Practice for Onsite Wastewater Management • Australian Standard 1547:2012	Environmental Health
I2	Septic information is readily accessible in a single database and enables identification of areas of critical concern.	1. Validate files containing septic tank system information including paper and electronic formats. 2. Add records to pathway database to ensure all septic tank system details are recorded in single repository, including details of old permit conditions where available. 3. Undertake data cleansing of information already entered into Pathway to ensure accurate information is provided on each system.	Environmental Health Information Technology Records

Action Status Code Key:

YTB = Yet to Begin
BBI = Begun but Incomplete
AC = Almost Complete
C = Complete
BAU = Business as Usual

Progress Assessment & Action Analysis				
Action Status Code	Description of Progress to Date	Critical Analysis of Action Validity & Issue Identification	Action still Relevant? (Y/N)	Remaining Tasks
BAU	• Fees adjusted annually. • E-pathway partly available to customers for existing septic plan requests (not available for lodging new septic applications yet). • Minor periodic edits to septic application form. • Major review/edit undertaken in 2017 by the WW Officer.	• Current Application Form is well structured, up-to-date and captures all the necessary information. • No review or modification currently required.	Y	• None
AC	• 7 Boxes of paper septic application records dating back to 2004 scanned into Sharepoint. • Historic paper septic application records prior to 2004 scanned and recorded as follows: – A-L → Infovision – M-Z → Pathway paperclip • All Historic septic application records collected and located so far have been added to Pathway as a Historic application record • Still approximately 1000 existing older septics across the Shire unaccounted for/ unknown. Council has no paper records for these and (obviously) these systems have not been entered into Pathway • All new septic applications entered into Pathway and then scanned/saved into Sharepoint by Health Admin.	• Located Historic records have been added to Pathway but any associated Plans/ paperwork is separately located across Infovision, Sharepoint and Pathway (paperclips). Therefore, all information relating to a septic is still not centrally accessible from a single database (is stored across 3 locations). • Current Applications/Permits have their application info and issued permits in Pathway but scanned Plans and Application form in Sharepoint. • Septic mapping information was intended to be incorporated onto Exponare but to date has not occurred. • If this were to occur it would be a 4th (separate) septic data point (from Pathway, Infovision and Sharepoint data).	Y Y Y	• Further centralisation of data/records required • Further integration of data systems required

2015-2018 DWMP Actions & Strategies			
No	Strategy	Actions	Responsibility
Information and Data Collation continued			
I3	Options for locating and mapping existing systems are investigated.	1. Investigate feasibility of a service fee for the location and mapping of septic systems and providing a plan for property owners (process already exists for requesting copies of plans from Council). 2. Develop a risk assessment process to more easily identify areas of high environmental or health risk. 3. Develop a layer on the GIS system for high/medium/low risk areas for the installation of septic tank systems. 4. Analyse inspection/maintenance reports to identify properties with failing septic tank systems.	Environmental Health
I4	Audit program	1. Develop an issues paper that discusses the feasibility of assessing the performance of septic systems in the Shire. This would include details on current number, type and age/time profiles and installation trends. 2. Investigate various options available to undertake the audit and the associated costs. Options include: • survey residents to ascertain knowledge of existing septic system details (include plumbers report template). • refer to Council property files. • require property owners to provide maintenance report no more than 6 months old and septic tank cleaning/ desludging reports. • utilise valuers' systems to determine the age of certain estates and then approximate what type of systems would be installed. • selecting a high risk area at a time and undertaking targeted inspections.	Environmental Health Nillumbik Valuers

Progress Assessment & Action Analysis				
Action Status Code	Description of Progress to Date	Critical Analysis of Action Validity & Issue Identification	Action still Relevant? (Y/N)	Remaining Tasks
BBI	• Small GPS mapping trial of septic cohort conducted (by WW Officer 2017 using the "Crest" software). The mapped septics were loaded onto Exponare (as a layer). • Inspection/maintenance reports analysed infrequently/sporadically (usually only when an additional resource can be dedicated).	• The feasibility of Action 1 has been investigated to some extent during 2017 on a small/simplistic scale (small GPS septic mapping trial). However, the IT currently available to EH is not enabled to GPS Map septics. • The complete mapping process has not been tested/re-visited recently. Advice needed from IT • The 4 Actions for I3 appear disconnected/unfocussed. Some are duplicated across other sections.	N Y Y Y	• Identify the GPS mapping capability of the new hardware (assistance from IT required). • Develop and define the risk assessment criteria and process that will assign high/med/low risk values to existing septic systems. • Review and confirm what septic and sewer info needs to appear in Exponare. • Re-confirm/Review whether Exponare is the best/only GIS that can be utilised.
YTB	• No actions completed to date.	• An issues paper is not required to discuss the feasibility of conducting septic monitoring & compliance activities, as the need for it is unquestioned and proven to provide results. • Action 2 still valid. Deciding on the best process is the main question. • The I4 title of "Audit Program" appears to be confused. The context of (all of) the action items is a Monitoring & Compliance Program (of which Auditing is a component).	N Y	• Develop and define the Compliance Program structure (for 2019-2023 period). • Develop and define the Audit component of the Compliance Program (for 2019-2023 period).

2015-2018 DWMP Actions & Strategies			
No	Strategy	Actions	Responsibility
Education and Awareness			
E1	Potential and new property buyers are provided educational material regarding the existing septic system and/or maintenance requirements.	1. Section 32 notices to include information on septic systems. 2. Develop a process with Rates to be able to add/remove details on section 32 notices. 3. Develop a process with Rates to identify transfer of property ownership to send information kits to new property owners.	Environmental Health Rates
E2	Septic Information Series for new residents includes information on landowner responsibilities and management requirements for septic systems.	1. Review Septic Information Series. 2. Identify gaps in information provided and develop material to fill gaps. 3. Distribute Information Series kits to new property owners purchasing properties with septics once settlement is complete. 4. Provide the information series to property owners when issuing a Certificate to Use a Septic Tank System.	Environmental Health
E3	Reference material for septic applications is clear, concise and contains regulatory requirements.	1. Review Council's Guide to Domestic Wastewater Treatment and Disposal Systems to ensure the document remains current. 2. Provide the document in electronic format and distribute to plumbers who install septic systems in the Shire. 3. Provide the document to property owners when applying for a planning permit.	Environmental Health Statutory Planning
E4	Householders in unsewered areas are encouraged to reduce their water consumption.	1. Develop and distribute material on water saving options based on local context. 2. Develop material additional to information kits based on achieving environmental best practice for existing septic tank systems. 3. Investigate mechanisms for the effective delivery of education material to residents.	Environmental Planning Environmental Health
E5	Promote the responsible reuse and discharge of greywater.	1. Review and distribute Nillumbik's Guide for Reusing Domestic Greywater. 2. Promote reuse of greywater in areas discharging greywater into stormwater or open drains as a priority (temporary and permanent diversions). 3. Develop procedure for the re-use/diversion of greywater for all residential properties.	Environmental Health EPA

Progress Assessment & Action Analysis				
Action Status Code	Description of Progress to Date	Critical Analysis of Action Validity & Issue Identification	Action still Relevant? (Y/N)	Remaining Tasks
BBI	• Action 1 completed. • Actions 2&3 remaining.	• The septic information will be on the Land Information Certificate (not the section 32). • Written MOU detailing the agreed process details most likely needed formalize the new arrangement (for reference/accountability).	Y Y Y	• Actions 2 & 3
AC	• Actions 1&2 completed. • Actions 3&4 remaining (as the Series is with. Communications waiting for the Council re-brand to occur prior to printing).	• Information Series has been completed but requires corporate re-branding.	N N Y Y	• Actions 3 & 4
C	• Actions 1, 2 & 3 completed. • Nillumbik Domestic Wastewater Treatment Guide available from the Council website or in hardcopy form.	• No issues as all Actions have been completed (Actions 2 & 3 continue to be implemented as on-going actions).	N Y Y	• None
YTB	• No actions completed to date.	• E4 could be seen as a non-core or lower priority Strategy for the 2019 DWMP (2019-2023). • Actions 2 & 3 are duplicated and achieved in other existing Strategies.	N N N	• E4 to be deleted from 2019 DWMP.
BBI	• Action 1 partially completed (review has been completed, but printing & distribution yet to occur). • Actions 2 & 3 not completed.	• E5 could be seen as a non-core or lower priority Strategy for the 2019 DWMP (2019-2023). • The objectives of Actions 2 & 3 are achieved through other core actions.	N N N	• E5 to be deleted from 2019 DWMP

2015-2018 DWMP Actions & Strategies			
No	Strategy	Actions	Responsibility
Education and Awareness continued			
E6	Education materials available for the operation of septic systems.	1. Develop educational material and investigate most appropriate way to distribute the information. 2. Target specific types of education in different areas based on data obtained from the audit of septic systems in the Shire.	Environmental Health
E7	Water quality in high risk areas in the Shire is monitored.	1. Investigate options to link in with the Melbourne Waterwatch community monitoring program and effectively use results. 2. Develop sampling parameters which identify the presence of pollutants from septic systems. 3. Undertake 'snap shot' samples for E.coli in high risk areas. 4. Liaise with other relevant stakeholders (including government departments, catchment management authorities, YVW) on existing water sampling undertaken within the Shire and determine suitable avenues for using this data to reduce impacts of effluent on water quality.	Environmental Health Environmental Planning Melbourne Waterwatch Water EcoScience

Progress Assessment & Action Analysis				
Action Status Code	Description of Progress to Date	Critical Analysis of Action Validity & Issue Identification	Action still Relevant? (Y/N)	Remaining Tasks
BBI	• No actions completed to date	• E6 is a duplication of several other Education Strategies (E2, E3 & E5). • E6 should be re-worded in the specific context of periodic community/industry information sessions/ workshops on relevant topics (i.e. Plumber's Workshops, Septic Owner requirements).	N Y	• E6 to be re-defined/ worded to the periodic information session/workshop context in 2019 DWMP.
YTB	• No actions completed to date	• Water sampling activities should be more targeted than a 'snap shot' approach would suggest. Sampling activities should tie in with the auditing, monitoring and compliance activities to provide specific data for a clear purpose (i.e. to ID high risk areas & inform sewer prioritisation). • Development of the sampling parameters should be based upon industry best practice. • Clear Project based objectives and processes need to be developed and properly communicated to EHO's conducting the sampling. • Training or up-skilling may be needed based on complexity	Y Y Y Y	• Develop and define a targeted Water/ effluent Sampling Program (as a component of the Compliance Program). Ensure that the sampling outcomes contribute to the overall Compliance Program objectives. • Training and dissemination of sampling parameters/ processes required across EHOs. • Develop and embed Sampling Information network/contacts and resources.

2015-2018 DWMP Actions & Strategies			
No	Strategy	Actions	Responsibility
Sewer Connection and Backlog Prioritisation			
S1	Advocacy	1. Seek partnerships with other Councils and peak associations to advocate to the State Government to accelerate funding to clear the sewerage backlog program 2. Advocate for improvements to legislative framework 3. Provide input into proposed legislation pertaining to domestic waste water or reticulated sewerage 4. Develop proposals calling for increases in funding and reductions in the timeframes for the provision of sewer to areas on the sewerage backlog program	Environmental Health Statutory Planning Strategic Planning

Progress Assessment & Action Analysis				
Action Status Code	Description of Progress to Date	Critical Analysis of Action Validity & Issue Identification	Action still Relevant? (Y/N)	Remaining Tasks
BBI **BAU**	• EH Participated in the Healthy Waterways Strategy Workshop, 6 June 2018. • EH attended the EHPA Wastewater Forum, 22 June 2018. • EH Participated in the MAV/ EPA EP Act 2017 Reforms Workshop, February 2019 and subsequent working group meetings. • Liaison/communication with other LGs to ensure Nillumbik's views and issues represented in LG & industry (MAV, EHPA) submissions/ commentary into the SEPP (Waters) Draft Review, May/ June 2018. • Action 1 not completed. • Actions 2 & 3 largely completed. • Action 4 partially completed (through Plenty CSP Inclusion Proposal – 21 High-risk property Report submission to YVW).	• Closer engagement between YVW and Nillumbik is necessary to start maximizing the Community Sewerage Program outcomes. This is the most direct way to influence improved outcomes. • More involvement/ collaboration from YVW is also needed in: – DWMP input – CSP Prioritisation • Advocacy actions need to focus almost exclusively on YVW and build a productive/ positive working relationship that shares mutual CSP outcomes.	Y (but minimal) Y (but minimal) Y (but minimal) Y	• Focus advocacy work/effort on YVW. • Define and document YVW Advocacy strategy. Resolve detail down to specific advocacy measures/ actions with assigned frequency and target timeframes (i.e. structured and pro-active advocacy program). • Suggested framework: – Regular Meetings on current CSP Prioritisation issues (get our additions on the table & specific info on broader YVW implementation strategy/intentions) – Monthly Sewer data exchange – Structured/specific DWMP input from YVW at the necessary stages during it's development • Judicious use of resources and input into the broader state-level advocacy related to Actions 1, 2 & 3. Only where there is impact value.

2015-2018 DWMP Actions & Strategies			
No	Strategy	Actions	Responsibility
Sewer Connection and Backlog Prioritisation continued			
S2	Provide input into YVW's Backlog Sewerage Plan prioritization process (2016).	1. Review requirements for documentation of "areas of consideration" for sewer backlog planning to ensure unsewered areas can be prioritized appropriately. 2. Review and prioritize in accordance with YVW's Risk Prioritisation Schedule. 3. Provide information to Yarra Valley Water (YVW) of those areas in the Shire that have the greatest threat from under-performing septic systems. 4. Identify properties that should be added to existing sewer backlog areas.	Environmental Health People and Place Yarra Valley Water
S3	Maintain database of properties sewered by Yarra Valley Water.	1. Obtain property information data from YVW quarterly. 2. Upload information onto Council's GIS system. 3. Develop a process to update Exponare sewer mapping systems with annual sewer availability data and plans. 4. Develop a process to remove septic information (for section 32 notices) from property database when connection to sewer occurs.	Information Technology Yarra Valley Water
S4	Encourage property owners to connect to the sewer.	1. Follow up all properties that have sewer available but YVW has no record of connection, particularly in backlog areas. 2. Ensure retention of septic tank systems in reticulated/ declared area is based on evidence of compliance with current EPA requirements. 3. Ensure properties that cannot show evidence of compliance are made to connect to the sewer.	Environmental Health Yarra Valley Water

Progress Assessment & Action Analysis				
Action Status Code	Description of Progress to Date	Critical Analysis of Action Validity & Issue Identification	Action still Relevant? (Y/N)	Remaining Tasks
BBI **BAU**	• Information regarding properties for priority connection in Eltham South provided to YVW. • Plenty CSP Inclusion Proposal submitted 3/10/2018 to YVW. • Periodic e-mail & phone communication with YVW regarding CSP implementation and associated issues. • Contributions made to aspects of Actions 1, 2, 3 & 4. However work in this area is on-going in nature.	• YVW CSP Prioritisation method has changed to operating from an area basis to a property basis. • YVW CSP Prioritisation criteria has also recently changed. • Multiple weighting criterion are applied across 15 different sub-measures to individual properties to give them a total prioritisation weighting. • Factor in exploring alternative options to reticulation.	Y Y Y Y	• Utilise Plenty CSP Inclusion Project as the template Report structure for all future CSP property inclusion advocacy. • Define and develop the specific components of the advocacy process (as per S1 – Remaining Tasks).
BBI	• Actions 1 & 2 complete (but on-going). • Action 3 has been implemented on a monthly basis (by IT). It is on-going. However, it is dependent on YVW continuing to supply the data to Council on a regular basis. • Action 4 has not been completed.	• Review of the extent and 'usability' of the updated information uploaded to Exponare is required (i.e. is it doing what we want it to?).	Y Y Y Y	• Action 4 remaining
BBI	• Limited progress across Actions 1, 2 & 3. • Applications to Retain in Nth Warrandyte have been completed. • Enforcing connection in collaboration with YVW on properties in Research has been completed.	• Actions 1, 2 & 3 are labour intensive and require a dedicated resource to pro-actively implement as a structured and targeted Project. • Property owners need to submit the AtR for the Project to be completed. • AtR Fee should be lowered to reduce disincentive (to apply). • Requires an established, clear and documented enforcement process (post process reviews) that accommodates YVW requirements. • Requires an established/ accessible liaison point with YVW.	Y Y Y	• Dedicated resource required to undertake this as a larger Project • Training and dissemination possibly required across EHOs as well.

2015-2018 DWMP Actions & Strategies			
No	Strategy	Actions	Responsibility
Regulation & Enforcement			
R1	All site developments are capable of adequately treating and containing all effluent on site prior to approval.	1. Maintain up to date and relevant septic specifications and standard conditions for planning permits. 2. Staff to undertake specialist training on waste water management. 3. Develop and implement policy and procedures for assessment of planning applications to ensure new developments retain all wastewater onsite. 4. Advocate for minimum competency standards or accreditation program for LCA consultants. 5. Develop internal procedure for minimum standards guide for accepting LCA's.	Environmental Health
R2	Consistent application of Council's statutory duty in approving applications to install septic tank systems.	1. Review processes for conducting inspections of septic tank systems to ensure systems being installed meet EPA and Council permit conditions. 2. Review septic tank permits to ensure all relevant conditions are added to new permits.	Environmental Health
R3	Investigate options for the enforcement of Certificate of Approval conditions and maintenance conditions for septic tank systems.	1. Investigate compliance programs relating to septic tank systems and review implementation across other municipalities. 2. Develop a Business Case to implement a compliance program that includes the resourcing required for a process to require: • home owners to desludge their septic at least every 3-8 years and provide confirmation to Council • maintenance of existing septic tank systems in accordance with permit conditions • options for collecting and recording of maintenance reports • methods of following up on outstanding reports. • options for enforcement where septic tank systems are not in compliance with EPA or Council permit conditions	Environmental Health

Progress Assessment & Action Analysis				
Action Status Code	Description of Progress to Date	Critical Analysis of Action Validity & Issue Identification	Action still Relevant? (Y/N)	Remaining Tasks
BBI **BAU**	• Majority of implementation across Actions 1 & 2. • EH attended the EHPA Wastewater Forum, 22 June 2018. • EH attended the CET AWTS Servicing & Maintenance Course 8-9 August 2018. • Most EHOs have completed the CET Land Capability Assessment for On-site Wastewater Management Training Course.	• Policy/procedure for Action 3 has not been documented (remains informal). • Pursuing Action 4 provides little immediate benefit or guaranteed return to NSC. Other Agencies or Industry Associations are better placed to drive the advocacy and change for this action. • Action 5 is a lower priority action (EH currently has a good understanding of what constitutes an acceptable LCA). • EH team member should be on the Environment SIG (to provide input into these issues and represent/advocate Nillumbik's position).	Y Y Y N N	• Planning Referral Assessment process needs to be developed and documented (as part of overall Process Review).
BBI **BAU**	• On-going un-documented (has not been process mapped) improvement to septic inspection process. • Comprehensive Reviews have not been conducted for Actions 1 & 2.	• Comprehensive review required for Actions 1 & 2.	Y Y	• Comprehensive review required for Actions 1 & 2.
YTB	• No actions completed to date.	• Implementation of the Compliance Program under Action 2 is labour intensive and require a dedicated resource to implement as a structured Project. • Requires an established, clear and documented enforcement process (post R2 reviews) that accommodates the different scenarios that will be encountered.	Y Y	• Small Research Project into Applications that utilise electronic submission (by maintenance providers) and processing of septic maintenance reports. • Select the most appropriate Application & present Business Case.

2015-2018 DWMP Actions & Strategies			
No	Strategy	Actions	Responsibility
Regulation & Enforcement continued			
R4	Complaint investigation	1. Investigate all incidents of failing systems and complaints. 2. Pursue legal advice to clarify Council's legislative duty for complex wastewater related issues.	Environmental Health
R5	Options for monitoring and compliance program investigated.	1. Obtain legal advice regarding the introduction of a local law to assist with the regulation of septic system management and ensure such a local law is within Council's power to make and is not inconsistent with any Act. 2. Review local laws developed by other Councils and examine associated implementation and compliance issues. 3. Investigate the options for creating a local law to require owners to connect to sewer where available .	Environmental Health
R6	Managing Septic systems involved/ impacted by Emergency events (Fire & Flood).	1. Develop policy on management of septic systems in emergency situations, relating to EPA guidelines and Australian Standards.	Environmental Health Consultation with EPA

Progress Assessment & Action Analysis				
Action Status Code	Description of Progress to Date	Critical Analysis of Action Validity & Issue Identification	Action still Relevant? (Y/N)	Remaining Tasks
BAU	• Action 1 completed on-going (in the context of all septic complaints and other information received by Council). • Action 2: Legal advice sought periodically on complex wastewater issues.	• Septic complaint process mapping needs to tie in (and be consistent) with the relevant parts of the compliance program processes.	Y(on-going) Y(on-going)	• Ensure that the septic complaint process mapping ties in (and is consistent) with the relevant parts of the compliance program processes.
YTB	• No actions completed to date.	• Given that the existing legislation does not provide for a straightforward process across the different scenarios where connection to sewer should occur, Actions 1, 2 &3 still have merit. A local law would provide Council with a less complicated and more direct means of requiring connection (under Council control).	Y Y Y	• Investigate options for a Local Law via methods indicated in Actions 1,2, & 3.
BBI	• Process/policy in place? • Documented?	• Review of the current provisions/policy is most likely needed. Latest guidance/material from EMV & CFA should be researched along with EPA Guidelines and Australian Standards.	Y	• Inclusion of this scenario in policy/ process review.

Policy and Legislative Framework (2019)

Environment Protection Act (1970 & 2017)

At the time of writing this Plan, a major reform of the existing *Environment Protection Act 1970* (EP Act 1970) was partially underway. The Victorian Government was in the process of reviewing the old EP Act 1970 to produce a modern and revised Act. The first stage of taking place in October 2017 with the passing of the *Environment Protection Act 2017* which implemented reforms to the Environment Protection Authority's (EPA) corporate governance structure.

Introduction of the Environment Protection Amendment Bill 2018 in Parliament, which amended the *Environment Protection Act 2017* (EP Act 2017), provided the substantive provisions which 'flesh out' the framework set up by the EP Act 2017. This Bill was passed by Parliament and received Royal Assent in August 2018, becoming the *Environment Protection Amendment Act 2018* (EP Amendment Act 2018).

The new EP Amendment Act 2018 will implement the key reforms of the Victorian Government's response to the 2016 Public Inquiry into the EPA and represents the most significant changes to Victoria's environmental regulatory regime since the introduction of the EP Act 1970, more than 47 years ago.

The cornerstone of the EP Amendment Act 2018 is a new general environmental duty (GED) which will require businesses and individuals conducting activities that pose a risk to human health and the environment to understand those risks and take reasonably practicable steps to eliminate or minimise them. In an Australian first, the GED is criminally enforceable. Failure to comply with this duty could result in civil, or even criminal, penalties of up to $1.6 million, with higher penalties for aggravated breaches. Whether this GED will apply in some form to off-site discharges and contamination from WTS remains to be seen, as its application to WTS installed across a 60 year timescale under different standards is legally problematic.

The provisions of the EP Act 1970 and EP Act 2017 will remain in effect until 1 July 2020. After this date the new provisions of the EP Amendment Act 2018 will take exclusive effect under the EP Act 2017 and the old EP Act 1970 will be repealed.

The existing framework of the EP Act 1970 provides for the control of water, air and land pollution, waste and noise. Part IXB of the Act outlines Council's responsibilities for the approval and management of WTS. Relevant sections include:

- Section 53L which states that a person must not construct, install or alter a septic tank system without obtaining a permit from Council.
- Section 53MB clarifies that a person must not use a septic tank system until it has been inspected by Council and a certificate approving its use has been issued.
- Section 53N requiring an occupier of premises on which a septic tank is located to maintain it in accordance with the requirements specified in the permit issued by the municipal council for that septic tank system.
- Section 53K also provides for Councils to declare that in any specified part of the municipality all WTS tank systems proposed to be installed for the purpose of treating waterborne wastes, where discharge of effluent from premises is proposed, must be of a type that treats all sewage.

The EPA approves only the *type* of onsite systems that may be installed in Victoria but does not assess or evaluate the different manufactured WTS for minimum performance standards. The responsibility for system assessment and the evaluation of minimum performance requirements sits exclusively with Joint Accreditation System of Australia and New Zealand (JAS-ANZ) and is carried out by the accredited certification body; Global Certification Pty Ltd (GC) under the GC Domestic Wastewater Treatment Units (Septic Tanks) certification scheme. JAS-ANZ utilize the existing published Australian/ New Zealand Standards for on-site domestic wastewater as the basis for the performance criteria they apply to their certification scheme (for WTS).

Councils are responsible for the assessment and approval of WTS installations that discharge up to 5000 litres of effluent per day. The EPA is responsible for the approval of system installations that discharge over 5000 litres of effluent per day via their Works Approval process.

The EP Act 1970 has provision for Councils to issue infringement notices for breaches of the Act in relation to the installation, alteration or use of a WTS without a permit.

The exact nature of the impact of any changes resulting from the EP Act reforms to the domestic wastewater provisions of the EP Act 1970 are unknown at the time of writing this Plan, as they had not been fully developed or made public.

However, indications from the EPA so far suggest that the new framework will most likely consist of:

- The new (modern) *Environment Protection Act 2017;*
- Sub-ordinate Environment Protection Regulations; and possibly
- Supporting Environment Reference Standards

It is also likely that SEPP (Waters) will be abolished, soon after gazettal, and its provisions transferred to new regulatory instruments and standards supporting the new EP Act framework; due to come into effect by 1 July 2020.

State Environment Protection Policy (Waters)

The EP Act 1970 has provided for the formulation of State Environment Protection Policies (SEPPs) by government. SEPPs are statements of government environmental policy which provide direction for state government agencies, local government, the private sector and individuals in decision making around environmental protection issues.

SEPPs include identification of the beneficial uses of the environment that are to be protected, selection of indicators of environmental quality, a statement of environmental quality objectives, and may describe the program by which the stated environmental quality objectives are to be met.

Between June 2015 and December 2017, the Victorian Government conducted a review of the two relevant SEPPs to on-site wastewater – SEPP (Waters of Victoria) and SEPP (Groundwaters of Victoria). As part of the review, the Department of Environment, Land, Water and Planning (DELWP) and the Environment Protection Authority (EPA) developed the new draft SEPP (Waters). The draft SEPP (Waters) was intended to be a streamlined policy merging the two existing water SEPPs.

In February 2018, the Victorian Government opened the review process up for public submissions and ran a series of public forums. This part of the process closed on 19 June 2018 and the new SEPP (Waters) was finalised and released shortly afterward.

Under clause 31 of the new SEPP (Waters) a property is required to connect to sewer where it is available, unless the wastewater is being reused and retained within the allotment boundaries. Consequently any premises with an offsite discharge or a primary treatment and disposal system must connect to sewer. However, a secondary treatment system can continue to be used if it can be shown that it is beneficially recycling effluent within the boundaries of the allotment.

SEPP (Waters) has more extensive requirements under clause 29, requiring Councils to develop and implement a DWMP. These requirements are more comprehensive than the previous DWMP stipulations under SEPP (Waters of Victoria). Clause 29 of SEPP (Waters) states that where "domestic wastewater management systems" exist within a municipality, Councils must:

- Develop and implement a DWMP
- Prioritise risks and set out strategies for responding to risks (within the DWMP)
- Consult with water corporations, the community and other stakeholders (when developing and implementing a DWMP)
- When developing, revising or implementing a DWMP:

  a) identify, assess and manage cumulative risks of onsite domestic wastewater systems discharging waste beyond allotment boundaries; and

  b) engage with the Authority and water corporations to identify existing high risk unsewered allotments for inclusion in the DWMP; and

  c) identify, cost, prioritise and evaluate options to-
  i. provide solutions to prevent discharge of wastewater beyond allotment boundaries; and
  ii. provide for the compliance assessment and enforcement of on-site domestic wastewater systems in accordance with the plan; and

  d) where applicable have regard to the Guidelines for Planning Permit Applications in Open, Potable Water Supply Catchments and any relevant guidelines authorised by the Authority.
- Review and update the DWMP at intervals of no more than five years
- Conduct an audit to assess progress and report on progress of the DWMP implementation every three years and publish the report on its website.

DELWP and EPA Victoria have been working together to develop subordinate legislation for the new EP Act. As this work proceeds, it is likely that the SEPP (Waters) will be abolished, and its provisions will be reallocated to appropriate regulatory instruments and Environment Reference Standards which will support the new preventative framework for environment and human health protection; coming into effect in 2020.

EPA Code of Practice - Onsite Wastewater Management (891.4) July 2016

The intention of the Code of Practice - Onsite Wastewater Management is to provide guidance on the selection, design, construction, operation and maintenance of on-site wastewater treatment systems. It contains information on the roles and responsibilities of relevant agents, treatment and disposal options, the permit process, WTS design and construction, effluent disposal systems design and construction, operation and maintenance, land assessment and soil permeability tests. Most other (historic) EPA publications related to onsite waste water management are now incorporated in the EPA Code of Practice – Onsite Wastewater Management (891.4). Council uses the Code and best practice as a guide when assessing and approving WTS installations.

There is also a likelihood that the Code of Practice will be reviewed and updated under the previously mentioned SEPP and EP Act reforms.

Water Act 1989

The Water Act 1989 requires Council to refer any applications for WTS within a declared drinking water catchment to the Water Authority. There are also powers under the Water Act that allow the relevant Water Authority to require an upgrade at any time to (primary treatment) septic tanks within a sewerage district and enforce connection to sewer where clear evidence of a failure of the existing onsite system exists and is required to avoid an adverse impact on public health or the environment.

Public Health and Wellbeing Act 2008

Section 24 of the *Public Health and Wellbeing Act (PHWA) 2008*, states that it is the function of every Council to seek to protect, to improve and to promote public health and wellbeing in the municipal district. Part 6 of the PHWA deals with nuisances. The Act requires Council's to remedy, as far as is reasonably possible, all nuisances in the municipal district. The nuisance provisions in the Public Health and Wellbeing Act 2008 are broad in their application and provide Council with a number of ways to manage different nuisances in the Shire, although evidence collected to substantiate a nuisance requires proof that the activity is, or is liable to be, dangerous to health or offensive. This includes (but is not limited to) discharge of wastewater across boundaries and impacts of odour from failing systems.

Council is required to investigate all complaints regarding WTS that may be causing a nuisance.

Where a nuisance is proved to exist, Council may issue an Improvement Notice requiring action to be taken to remedy the nuisance, a Prohibition Notice restricting certain activities from occurring, or a combination of both notices.

Local Government Act 1989

Part 5 of the *Local Government Act 1989* gives Council wide enabling powers to make local laws and set special charges. Councils can use these powers to develop local laws for wastewater management as long as they are consistent with existing state policy and legislation.

Building Act 1993

The relationship between the Building Act 1993 (Victoria) and WTS resides within the Building Regulations 2018. Under Regulation 132, a report and consent of the relevant Council must be obtained for building permit applications that require the installation or alteration of a WTS. This Regulation further states that the report and consent of the relevant Council need not be obtained for the application; only if a permit for the construction, installation or alteration of the WTS that is relevant to the building permit application has been issued under section 53M(5) of the *Environment Protection Act 1970.*

Australian/New Zealand Standards and JAS-ANZ Certification

Standards Australia is the peak non-government standards development body in Australia, recognised through a Memorandum of Understanding with the Australian Government.

Standards Australia develops internationally aligned Australian standards (AS) and participates in standards-related activities that deliver benefit to the nation. Standards Australia and Standards New Zealand work together to develop joint standards (AS/NZS).

There are a number of joint Australian and New Zealand Standards which are relevant to the construction and design of wastewater treatment and disposal systems. These include:

- AS/NZS 1546.1:2008 On-site domestic wastewater treatment units: Part 1: Septic tanks.
- AS/NZS 1546.2:2008 On-site domestic wastewater treatment units: Part 2: Waterless composting toilets.
- AS/NZS 1546.3:2017 On-site domestic wastewater treatment units: Part 3: Aerated wastewater treatment systems.
- AS/NZS 1546.4:2016 On-site domestic wastewater treatment units: Part 4: Domestic greywater treatment systems.

- AS/NZS 1547:2012 On-site domestic wastewater management.
- AS/NZS 3500 National Plumbing and Drainage - Domestic Installations.

Although Standards Australia develops and publishes different standards they are not responsible for enforcing, regulating or certifying compliance with those standards. The responsibility for the system assessment and evaluation of minimum performance requirements for WTS sits exclusively with the accreditation authority JAS-ANZ and is carried out by the accredited certification body; Global Certification Pty Ltd (GC) under the GC Domestic Wastewater Treatment Units (Septic Tanks) certification scheme. WTS that pass the certification scheme are provided with a Certificate of Conformance. JAS-ANZ utilize the (above) published Australian/New Zealand Standards for on-site domestic wastewater as the basis for the majority of the performance criteria applied to their certification scheme (for WTS).

Victorian Land Capability Assessment Framework (January 2014)

The Victorian Land Capability Assessment Framework, released in January 2014, was developed with input from MAV, DEPI and EPA. This framework is primarily used by land capability assessors and local government officers to assess the capability of sites to retain wastewater onsite. The framework effectively supersedes EPA Publication 746 - Land Capability Assessment for On-site Domestic Wastewater Management.

The land capability assessment should be used to ensure that unsewered residential development proceeds only on land that has an acceptable capability for sustainable on-site wastewater management.

Land capability assessors need to provide Council with documentation detailing:

- the land features of the site and surrounds
- the type of wastewater treatment system proposed
- the land capability assessment for the development including any potential impact on surrounding land
- a management program to ensure ongoing environmental sustainability and protection of human health
- location of wastewater envelopes (if required)

Nillumbik Planning Scheme

The Nillumbik Planning Scheme includes a Local Planning Policy Framework which applies to all non-urban areas in the Shire. This policy states that:

- Effluent disposal envelopes should be nominated on proposed lots to provide sufficient areas for the on-site containment of any effluent/sullage generated.
- Applications which propose effluent disposal fields for lots which are unlikely to contain effluent/ sullage on-site or may potentially cause problems of effluent/sullage entering watercourses, will not be supported or otherwise require modifications.
- Consideration is given to the location of effluent disposal fields in relation to stormwater drainage areas.
- All subdivisions and developments in low density residential zones (in the absence of reticulated sewerage) must include a Land Capability Assessment that shows that lots are capable of treating and retaining all wastewater on-site in accordance with the State Environment Protection Policy (Waters of Victoria) under the *Environment Protection Act 1970.*

Melbourne Water's Healthy Waterway Strategy 2018

Melbourne Water reviewed their Healthy Waterway Strategy in early 2018 which resulted in the draft Strategy being released for comment in June 2018. The new strategy reflects a fundamental shift in focus to an intentional collaborative and co-design approach that is aspirational in its goals. These goals have been divided into 10 plus and 50 year outcome timescale.

Melbourne Water has recognized that for specific targets across the 5 Major Catchments in the MW Region to be achieved within the 50 year timescale that the on-going funding of the strategy:

- cannot be achieved by Melbourne Water alone;
- will need integrated infrastructure, planning and policy responses across the different institutions;
- aims to be a long-term strategy, not an investment plan;
- requires a dedicated income stream via levying the MW Waterways and Drainage Charge to support healthy waterway outcomes; and
- must encourage and support local investment into waterway and stormwater improvement projects

The HWS focusses its strategic direction around the following broad objectives:

- New stormwater priority areas, intended to yield 80+ GL/y harvested stormwater and ~23 GL/y infiltrated into the landscape;
- New water for the environment – 23 GL annually needed by 2028;
- Significant re-vegetation (1800 km) and 32 fish barriers;
- Wetlands – define targets and performance objectives;
- Bay health is supported through nutrient reduction;
- Supporting traditional owners to protect and promote indigenous water values;
- Community engagement to build local knowledge and capacity;
- Social values – recreational water quality targets and litter reduction; and
- Pollution management – build knowledge about emerging contaminants

There are significant potential opportunities available for Council to partner with Melbourne Water in local healthy waterway projects and initiatives in which stormwater retention and wastewater management play key roles in improving the health of waterways within our catchment area and subsequently further downstream.

VCAT Decisions & Precedents

The Victorian Civil and Administrative Tribunal (VCAT) was established under the *Victorian Civil and Administrative Tribunal Act 1998* and began operations in July 1998. The Administrative Division of VCAT provides a mechanism for the review of government administrative decisions.

Decisions of the Tribunal related to wastewater management issues associated with planning applications impact the ongoing application and interpretation of the legislative framework regarding wastewater management in the Shire of Nillumbik, and throughout Victoria.

Council Plan 2017-2021

The Council Plan sets out five goals and focuses on strategic directions for the Council. These five goals include:

Engaged, connected communities: A place where communities and ideas thrive, underpinned by trust, confidence and continuous learning.

Active and creative people: Active lifestyles and artistic expression are fostered through participation and innovation.

Safe and healthy environments: Healthy and safe communities enjoy living in our iconic Green Wedge environment.

A prosperous economy: A strong local economy that supports business growth, jobs and community wealth.

Responsible leadership: Collaborative and consultative leadership that builds trust and makes the best use of available resources to the benefit of all in the pursuit of excellence.

The objectives of the DWMP incorporates all five Council goals, aligning most closely with *"**Safe and healthy environments"*** (Strategic Objective 3).

The DWMP objectives contribute directly to the following strategies:

1.4 Ensure that the provision of community infrastructure responds to community needs.

3.1 Prepare and develop an improved and holistic approach to strategic planning

3.3 Develop policies, strategies, projects and partnerships to enhance the health and wellbeing of the community.

3.6 Work with the local community to review and implement environmental policies to protect biodiversity and conserve natural resources.
Priority Action 3.6.3
Advocate to Yarra Valley Water for extension of the sewer network

5.2 Advocate effectively for Nillumbik's interests at a state and national level.

5.3 Ensure responsible and efficient management of Council's financial resources

5.6 Plan for the community's future needs for services and infrastructure

5.7 Develop a skilled and efficient Council workforce

5.9 Develop regional partnerships with other government and community agencies to benefit Nillumbik

5.10 Ensure that Council meets its legal responsibilities and manages its risks

Shire of Nillumbik Health and Wellbeing Plan 2017-2021

The vision of the Nillumbik Health and Wellbeing Plan is that Nillumbik is to be Australia's most liveable shire. Many of the social, environmental and economic features that enhance liveability in Nillumbik and make it a desirable place to live, work and play are also the determinants of good public health and wellbeing. The implementation of the strategic objectives of the DWMP contributes to the overall health and wellbeing of the Shire.

Nillumbik Storm Water Management Plan 2002

The Nillumbik Stormwater Management Plan aims to achieve best practice in the environmental management of (mainly urban) stormwater quality within the Shire. The main strategies contained within the document outline catchment management activities that aim primarily to prevent pollution "at the source". Where prevention at the source is not feasible it outlines activities that will mitigate the resultant impacts.

The purpose of the Nillumbik Stormwater Management Plan is to:

- Identify responsibilities, practices, procedures and obligations for urban stormwater management in the Shire of Nillumbik;
- Identify the main values of receiving water environments and the main threats which contribute to poor water quality;
- Establish objectives which aim to protect and enhance water quality; and
- Develop strategies aimed at protecting and improving the quality of urban stormwater and receiving water environments.

Nillumbik Integrated Water Management Strategy 2013

The Integrated Water Management Strategy was adopted by Council in September 2013 and supersedes the Sustainable Water Management Plan. This approach promotes the integration of multi-functional infrastructure that progressively reduces reliance on mains water supply whilst improving the quality of stormwater and flow patterns discharged to receiving waterways.

Integrated Water Management (IWM) recognised projects which deliver multiple benefits such as water security, stormwater harvesting and retention, protection of receiving waters, ecosystem services, social/political engagement, microclimate benefits, improved liveability and community wellbeing.

The following Integrated Water Management Targets for 2025 are included in the Strategy:

- Mean annual load reduction in:
  - Total suspended solids (TSS) of 11,770kg
  - Total phosphorus (TP) of 15kg
  - Total nitrogen (TN) of 62kg

Improvements in wastewater treatment across the Shire play a major role in the delivery of these targets.

Current and Future Drivers

The cumulative effects of failing septic systems across the Shire

There are a large number of 50-60 year old septic systems across the Shire that are either failing or beginning to fail, which all require upgrading or connection to mains. The cumulative effect of this exerts an increased pressure on Council and YVW to effectively/properly address the issue. Broader-scale auditing, compliance monitoring and targeted testing of systems and Nillumbik waterways will reveal the true extent of failure across these older septic systems in Nillumbik. It will also allow these systems to be rated according to risk, and inform Council on the locations of the highest risk systems to target first.

Community expectations (increased)

Generally, the level of expectation across the community regarding wastewater management standards has increased. The Nillumbik community has always placed a high value on the protection and preservation of the Green Wedge environment. However, other increased expectations relating to:

- Quality of on-site wastewater treatment systems
- Maintenance and servicing standards
- Ability of YVW to 'blanket sewer' all Townships and enforce connection
- Council's level of authority and role regarding sewer provision

The combination of these expectations contributes to a reduced tolerance for old and failing septic systems. These expectations are not always based upon reality or the existing constraints or impediments (many of them legislative) facing the different authorities and stakeholders.

Regardless, community expectation translated into consumer demand is a significant driver of improvements in on-site wastewater management and sewerage provision. This consumer demand provides a significant portion of the market for on-site wastewater solutions and helps drive improvements in the products offered by the wastewater system manufacturers. It also maintains pressure on State and Local Government, system manufacturers and Water Authorities to facilitate and provide a range of sustainable on-site and off-site wastewater solutions.

JAS-ANZ AWTS Certificate of Conformance 2020 cut-off

Under the JAS-ANZ Certificate of Conformance approval framework, AWTS manufacturers must meet the performance criteria specified in the published AS/NZS Standards and have completed and passed a comprehensive 42 week testing program by 2020 to receive an on-going Certificate of Conformance (COC) beyond 2020. Only systems with a valid COC can be installed in Victoria.

Treatment system brands and models must be certified by an accredited conformity assessment body (CAB) as conforming to the relevant AS. This accreditation is provided through JAS-ANZ. As part of a permit application to a council, the applicant will need to include a copy of the COC from the CAB.

Changes in the makeup of AWTS Manufacturers in Australia.

The face of the Australian AWTS Manufacturing market in Australia is currently changing. What began as primarily an Australian based cottage industry is now seeing the increasing introduction of established International manufacturers with much greater financial resources and research and development capability behind them. The higher standard required by the JAS-ANZ COC framework and the Australian Standards is providing an environment where these larger established international manufacturers have a distinct advantage over the smaller Australian manufacturers in having the resources to comply with the Standards by 2020. Many of these international manufacturers (Japanese and European) meet or exceed the Australian Standard already. The predicted trend is that the international manufacturers will begin to dominate the on-site wastewater treatment market, particularly post 2020. It is expected that these new makes and models of wastewater treatment systems will increasingly flood the current market and require LG, EPA, wastewater installers and specialists to become familiar with these new systems and the associated components/technology.

It is accepted that the JAS-ANZ Accreditation requirements for different WTS is improving the standard and quality of manufactured WTS in Australia. For this reason alone, it is a regulatory mechanism that should remain in place at all cost, particularly post any legislative reform.

The cost of compliance with the current onsite wastewater standards

It is currently unknown whether market influences, such as the above, will result in more cost-effective or expensive onsite wastewater solutions for Victorian property owners. As the new international manufacturers move into the Australian market, one of two possible outcomes is likely. Either, the increased resources and efficiencies of these manufacturers will result in a cheaper product, or if they begin to monopolize the market; the product price point could be set at a premium. This is something the ACCC may need to pay particular attention to.

Currently, onsite systems can cost anywhere between $9,000 to $25,000 for a property owner, depending on the type and make of system chosen. Many property owners only consider installation costs when choosing an onsite system, not the ongoing life cycle costs, including maintenance. It is common for property owners to install the cheapest approved onsite systems; however, these systems invariably have higher ongoing costs due to inferior components and more regular maintenance requirements. The more expensive aerated wastewater treatment systems typically have lower ongoing operational costs.

YVW has recently undertaken several projects and evaluations to understand and compare the life cycle assessment costs of connection to sewer against onsite system treatment. The Figure below shows their analysis of the average cost to the customer at each stage of this life cycle.

		Sewer	
Stage	Onsite system	YVW	SEW
Installation	$9 000 to $25 000[(a)]	$1 650[(b)]	$2 500
Connection	$4 000	$5 000 to $15 000	$3 000 to $7 000
Operation	$300 to $500 annually	$457 annually	$370 to $420 annually
Decommissioning	$2 000	Not applicable	Included in connection

(a) Covers a range of wastewater systems, such as septic tanks and trenches, sewage treatment plants, and sand filters and trenches.
(b) Waived if property is connected in first 12 months of access becoming available.
Source: VAGO based on YVW data.

Table 2: Average cost of sewage treatment to the customer

For the property owner these wastewater costs often occur at the same time as larger expenditure on home extension or complete new build costs. This often represents one of the largest and most significant investments they will make in their life. Additionally, the ongoing life cycle costs of installing and maintaining an onsite system compared with providing and connecting to sewer services are not well documented or publicised. Making this information available would better inform property owners' decisions about wastewater servicing options.

New SEPP (Waters)

The suite of DWMP requirements in the new SEPP (Waters) are more specific than the previous SEPP (Waters of Victoria) and will require Councils to undertake a more comprehensive process in developing, adopting and implementing their DWMP. There may also be a new penalty for Councils not developing and maintaining a DWMP written into the new EP Act 2018 (yet to be released); effectively making it a statutory duty that can no longer be delayed or ignored by Councils.

DELWP and EPA Victoria have been working together to develop subordinate legislation for the new EP Act 2018. As this work proceeds, it is likely that the SEPP Waters will be abolished, and its provisions will be reallocated to appropriate regulatory instruments and Environment Reference Standards that will support the new preventative framework for environment and human health protection that comes into effect in 2020.

Environment Protection Amendment Act 2018

A centerpiece of the legislation is a new general environmental duty (GED) which will require businesses and individuals conducting activities that pose a risk to human health and the environment to understand those risks and take reasonably practicable steps to eliminate or minimise them. In an Australian first, the general environmental duty is criminally enforceable. Whether this general environmental duty will apply in some form to off-site discharges and contamination from onsite domestic wastewater systems remains to be seen.

The exact nature of the impact of any changes to the domestic wastewater provisions of the Act are currently unknown as they are yet to play out. But it is likely that the recent reduction of the EPA's role as the peak authority in on-site domestic wastewater standards and direction (for systems under 5000L/day capacity) will be formalised in the content of the new EP Act 2018 and further placed upon Councils to fill that void. As previously mentioned, it is also likely that SEPP Waters will be abolished, and its provisions transferred to new regulatory instruments and standards supporting the new EP Act 2018 framework; coming into effect by 2020.

*(**The VAGO October 2018 Report on Managing the Environmental Impacts of Domestic Wastewater spells this out further).*

YVW CSP moving from area to property basis in CSP rollout

To date YVW has committed to inclusion of the following townships in the CSP extension of sewerage infrastructure:

CSP Area	Township/Area	Number of lots	Project dates
BA012	Eltham (North) / Research	180	complete
BA004A/B/C/D	North Warrandyte	975	complete
BA005	Eltham (South)	~300	2018/19
CSA007	Hurstbridge / Wattle Glen / Diamond Creek	~75	2031/32
CSA042	St Andrews	~117	2031/32
CSA041	Panton Hill	~119	2031/32
CSA040	Yarrambat	36	2030/31

Table 3: Current CSP Project timeframes for Nillumbik Townships

To date, Eltham North, Research and North Warrandyte have been delivered, with Eltham South currently in the design phase. Eltham South was due for delivery in 2018/2019 with installation works due to begin September 2018. However, due to community feedback, further investigations have resulted in a completion date in late 2020. Eltham North, Research and North Warrandyte were delivered under the old Backlog Scheme, whereas Eltham South will be delivered under the new YVW Community Sewerage Program (CSP). The key difference with the structure and assessment criteria of the CSP is that now a determination of whether a property is included in the CSP is on a property by property basis; not on a high risk area basis as it was under the Backlog Scheme.

Subsequent reviews of the program undertaken by YVW identified barriers to the cost-effectiveness of the Backlog Program. The reviews also found that some communities were not receptive to the provision of sewer because:

- owners wanted proof that their current system was impacting public health
- or the environment, which could generally not be provided
- certain areas had previously had negative experiences with water authorities
- some communities saw sewerage as an invitation to developers
- some owners wanted a choice in the type of service provided.

*(**The above opinions were shared by a large proportion of the North Warrandyte community and expressed throughout YVW's provision of sewer to North Warrandyte).*

YVW's CSP is aimed at minimising the environmental and health risks caused by approximately 10,900 properties across a range of municipalities and townships with poorly maintained onsite systems yet to be serviced.

Under the CSP approach, YVW identified it could deliver services to the 24 townships involved by 2033; whereas blanket sewering of all remaining unsewered properties under the Backlog Scheme was not likely to be delivered until 2045, extending the risk of environment and health impacts from existing failing onsite systems.

The Victorian Auditor General's 2018 Report into "Managing the Environmental Impacts of Domestic Wastewater" clearly documents the above YVW CSP evolution and provides further insight into YVW's CSP rationale and decision-making process:

"In 2014, YVW identified that, in several high-risk unsewered townships, the cost of delivering sewer services to all CSP properties was prohibitive and the benefits were unclear compared to improving onsite system management or investigating alternative services.

CSP uses a place-based servicing approach to reduce costs for YVW customers. This has meant properties that can contain wastewater safely on site are removed from CSP and those not capable of containing waste on site are provided with a subsidised rate to connect to sewer services. Properties removed from CSP can connect to sewer, but the costs are not subsidised by YVW.....

Based on its 2014 reprioritisation assessment, YVW proposed properties capable of safely treating and containing their wastewater on site be removed from its CSP. As a result, YVW revised the total number of properties on its CSP to 15 742 in Water Plan 4 (2018–23). YVW determined that the properties removed could achieve very high levels of wastewater management through council management without the need for a YVW service.

However, the on/off approach presents equity issues for YVW. Properties unable to contain waste on site are subsidised to connect to sewer. Those that can contain waste on site but still want to connect to sewer are not subsidised. YVW indicated it has received several phone calls from customers questioning why they are no longer on CSP and why their costs are higher if they want to connect. YVW acknowledged that this is a potential issue, but it is attempting to manage this by undertaking a detailed LCA of the property at YVW's cost to review or confirm its initial decision.

YVW developed the measures for its reprioritisation framework in consultation with YRC and the community. It is similar to SEW's framework in that it is based on an LCA and considers environmental, social and economic measures.

However, it differs in the use of social measures—it puts significant weighting on customers' interest in and willingness to connect to sewer, and councils' knowledge of onsite systems and ability to oversee their performance. This results in a more comprehensive assessment approach.

Both water authorities then assign a weighting value to the measures to comprise a total risk score for an area. YVW determines its weightings in consultation with the community and YRC. SEW determines its weightings in consultation with MPSC.

Both SEW and YVW completed a reprioritisation process for both Water Plan 3

(2013–18) and Water Plan 4 (2018–23).

PROPERTY SIZE

Under Victoria's planning provisions, 4 000 square metres is considered the smallest property size capable of safely containing wastewater on site. YVW identified that the average lot size of properties it serviced through its backlog program in 2003 to 2008 was 4 800 square metres and, in 2008 to 2013, it was 3 295 square metres, with the average size property remaining on its backlog program identified at 4 300 square metres. In contrast, SEW removes any property over 4 000 square metres from its backlog program in line with the planning controls, however, it has not completed any independent testing to provide justification for this process."

Containment potential	Properties (on remaining program)	Remove from CSP
Able to safely contain wastewater on site to EPA CoP standards and SEPP (WoV) requirements	32	Yes
May be able to contain wasterwater on site to EPA CoP standards and SEPP (WoV) requirements	2 722	Yes
Partially able to contain wasterwater on site, to some EPA CoP standards and SEPP (WoV) requirements	1 621	Maybe
Not likely to contain wasterwater on site to EPA CoP standards and SEPP (WoV) requirements	5 147	No

Note: Not all properties on YVW's remaining program were assessed.
Source: VAGO from YVW.

Table 4: YVW reassessment of properties within high-risk unsewered areas, 2014

There is a greater level of clarity required on specific issues, including:

- How the new weighting sub-measures are applied on a property by property basis and how the results determine the specific wastewater solution/outcome for the property.
- YVW Annual Reports do not separate the annual sewerage extension cost from the annual reticulated water extension cost (they are combined as one item in the Annual Report). It would be helpful to have these two items separated out in the Annual Report, so that annual CSP expenditure can easily be shown and accessed on an annual basis from YVW's public information.

YVW has advised Nillumbik Shire Council that the current forecast for the remaining CSP (with the property classification process applied) is $326M between 2018/19-2023/33 for funded connection of ~8,900 properties. Expenditure on the program in 2018/19 is forecast to be $23.7M, with similar spend in each of the last 4 years.

The North Warrandyte Project was completed at a cost of $23.3M (common infrastructure only) to make sewer available to 985 properties. Properties serviced by pressure sewer units cost an additional $20,000 per property for the pressure sewer unit.

There are also implications arising from the introduction of the CSP framework that will directly affect Nillumbik. These implications include:

- Greater workload on Nillumbik Council to advocate/prove the need of sewerage connection for high risk properties not currently included in the CSP, on a property by property basis.
- A reduction in the number of properties within an area being provided with sewerage connection by YVW.
- Increased cost for properties removed from the CSP to connect to sewer, if the property owner still wants to connect to sewer, as YVW will not subsidise the connection cost.

- For properties within the CSP identified as large enough to retain wastewater on-site, it remains unclear what proportion of the upgrade and on-going maintenance costs property owners will be required to pay, if they choose the on-site treatment option.
- Responsibility for the system long-term (YVW or the property owner). There is currently debate around who should have the on-going statutory authority over new or upgraded WTS installed as part of YVW's CSP (YVW or Council).
- Community backlash to the pairing back of YVW Backlog commitments and the increased cost of connection for properties removed from the CSP.

How these implications are perceived overall by the Nillumbik community can only be gauged through the community engagement process. As a part of the Community Engagement Program undertaken during the development of the DWMP, informal Drop-in Information Sessions were held in townships across the Shire to allow discussion of these and other issues with the community and facilitate discussion/ feedback that will help gauge community opinions and positions on these and other wastewater issues important to them.

Throughout the July to September period of 2018 a large piece of advocacy was implemented by Council's Environmental Health Unit; seeking inclusion of 22 unsewered properties in Plenty into YVW's CSP. Council's Environmental Health Unit has engaged with these residents on a continual basis over the last 2 years and recently collated their position on the issue through a targeted survey. This culminated in the submission of a comprehensive Wastewater Summary Report to YVW (at their request) on 3rd October 2018 that included individual reports for each property with individual water balances in lieu of a Land Capability Assessment (LCA). The Summary Report and the individual Property Reports demonstrate that containment of wastewater onsite is not possible for 95% of these properties under current EPA standards, largely due to the physical size of the allotments being too small.

The NSC Environmental Health Team has initiated a series of regular meetings with YVW to discuss aspects of the CSP and DWMP. The purpose of these meetings is to increasingly build the level of engagement between the two authorities to enhance DWMP and CSP outcomes for the Nillumbik community; particularly in the lead up to the next CSP re-prioritisation in 2021. Outcomes from the first of these meetings have already been positive, with YVW providing transparency into their current approach to prioritisation across the CSP, more information on CSP expenditure and progress on current Nillumbik CSP projects.

Along with the CSP sub-measure criteria, YVW has indicated that they will also incorporate a new sub-catchment approach to allow the application of *Integrated Water Management* principles into CSP planning and provision.

Influence of the Park Orchards Trial Project on YVW CSP Planning & Design

There are 100 properties in the trial area surrounding the Park Orchards Primary School and main shops. Of these:

- 84 were assigned on-site wastewater treatment by YVW. Solutions consisted mostly of upgrades to existing on-site systems. Most of these completed as of September 2017. Of these 84 properties, 61 chose to participate in the trial project.
- Nine properties classified as unable to contain their wastewater onsite. This included the shopping precinct and some residential properties in the trial area. A sewer pipeline was designed to service these properties and construction was underway by mid-2018.
- Five properties have been classified as partly able to contain their wastewater onsite. A new type of onsite system was developed for these properties that also connects to the sewer pipeline. Installations are scheduled to commence near the conclusion of the sewer pipeline construction.

Residents outside of the trial area have also been updated about the project by YVW on August 2017 and August 2018.

An environmental monitoring program also commenced in the trial and broader Park Orchards area in July 2018. YVW will continue monitoring for approximately 2 years, until July 2019.

A small sewer extension is planned for the Colman Reserve in Ringwood. This sewer will only provide sewerage services to the reserve and will not impact the outcomes of the trial project.

Upcoming YVW actions are to:

- Finish designing of and construct the sewer, pending relevant approvals.
- Continue environmental monitoring for two years (until at least July 2019).
- Evaluate the trial and determine the best sewerage servicing approach for the 1,200 properties in the Park Orchards and Ringwood North Community Sewerage Area. This may take until the end of 2020.

YVW have currently upgraded and/or installed new onsite systems on all 61 participating properties. Some remaining system optimisation tasks are ongoing, and will be finalised over the coming months. YVW are currently maintaining these on-site systems to gather information about ongoing servicing costs.

Five different onsite systems technologies were installed and YVW plans to compare their performance across different measures including cost, environment, and maintenance requirements.

YVW are also testing a new type of system that doesn't currently exist in the Victorian market, but is used in other countries. The new system will be installed on remaining trial properties. These upgrades will occur at the same time as the sewer construction works.

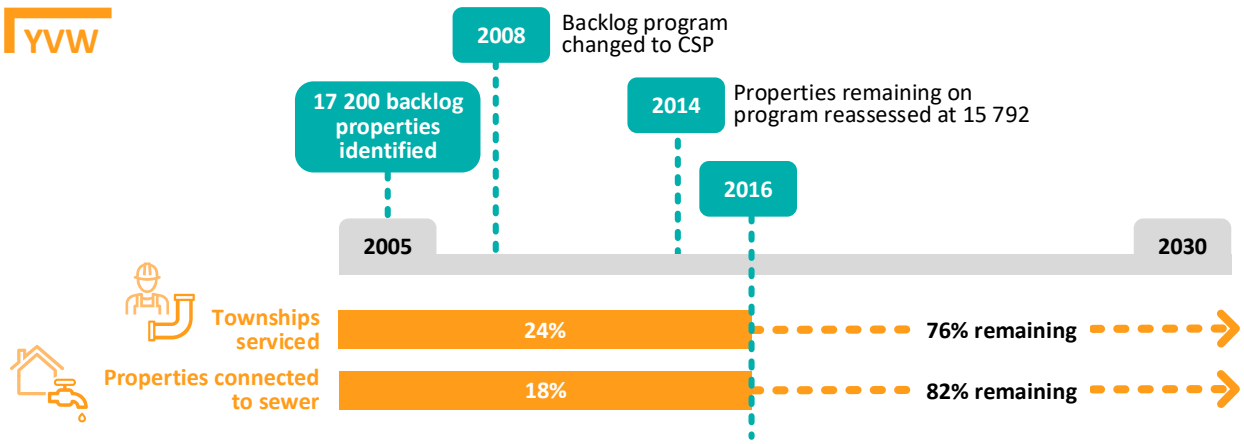
YVW appears to already be putting the Park Orchards Trial Project forward as the model for the new CSP approach to 'sewerage supply', where a much larger percentage of properties within the 'declared area' (under the revised CSP criteria) do not actually receive reticulated sewerage solution. Instead, if a property is deemed to be of large enough size and contains a soil type suitable for retaining wastewater on site, they receive upgraded or new onsite sewage treatment that is initially maintained and managed by YVW. The Park Orchards Trial Project is also heavily referenced in the Victorian Auditor General's October 2018 Report on Managing the Environmental Impacts of Wastewater as a potential model for CSP provision. If deemed successful the intention is to replicate the approach across the rest of the townships included in the CSP across YVW's entire catchment area.

The issues associated with this are:

- The Park Orchards Trial Project has not yet been completed and is already being put forward as the new model of CSP innovation.
- The Park Orchards community cohort is a separate and different cohort from the many other CSP communities across YVW's catchment, which are yet to receive sewerage infrastructure. It is questionable whether this model can be super-imposed onto the majority of other CSP communities/townships remaining, as community preferences, site soil characteristics and property sizes all vary across these townships.
- The primary driver for the majority of the Park Orchards property owners requesting on-site solutions was the fear that provision of reticulated sewerage would open the door to developers sub-dividing and constructing higher-density apartments. They did not want the existing amenity and characteristics of the suburb affected in this way by development. This is not representative of broader community views across the YVW CSP catchment. Many CSP communities want reticulated sewerage infrastructure specifically to be the supply solution.
- The majority of residential properties included in the Park Orchards Project were larger properties on acreage that are able to retain their wastewater on-site. However, a significant proportion of the CSP properties across YVW's catchment are too small to retain their wastewater on-site, as a result of historical sub-divisions which is precisely the reason they have been included in the Program to begin with.

Issues of equity associated with competing LGs for CSP funding and Prioritisation.

A high level of uncertainty remains across most Councils in the YVW CSP catchment around the sewerage reprioritization process. This is largely due to CSP delivery dates for townships continually being delayed with each successive round of reprioritisation and no clear public information on how much of the overall $400 million estimated CSP budget has already been expended. YVW Annual Reports do not itemize/separate out the reticulated sewerage extension cost from the reticulated water extension cost as they are combined as one item in the Annual Report. Given that in 2016, approximately 82% of properties in YVW's CSP were yet to be connected, it is understandable that municipalities within YVWs catchment area receiving minimal connections have concerns when the current CSP expenditure is unknown and the CSP delivery timeframes cannot be relied upon.



Note: Most up-to-date connection figures from YVW were from 2016.
Note: Water authorities' benchmark for connection is 80 per cent within 10 years.
Source: VAGO from SEW and YVW data.

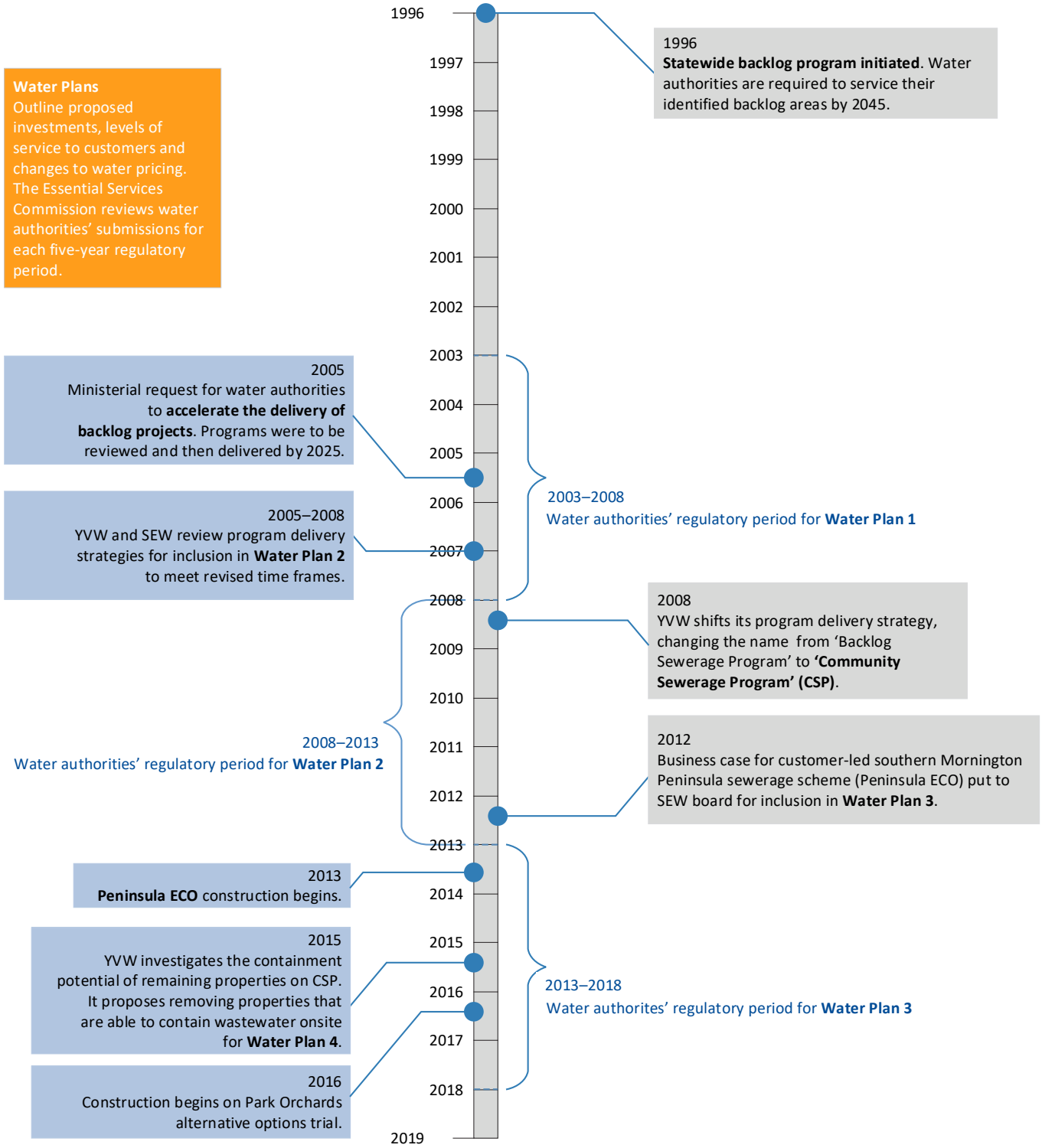
Figure 1: YVW CSP progress to date

With regard to the relative priority rating of Nillumbik's CSP Townships, the last YVW CSP Reprioritisation process resulted in Nillumbik Townships ranking on the lower 'rungs' of priority as shown in the Table below:

CSA Code	Community Sewerage Area	Council	No. of Lots	Rank	Final Score
CSA037	Briar Hill	Banyule	2	1	3.48
CSA049	Park Orchards / Ringwood North (Middle)	Manningham	1105	2	3.23
CSA022	Warburton	Yarra Ranges	436	3	3.20
CSA030b	Olinda (South)	Yarra Ranges	263	4	3.19
CSA030c	Olinda (North)	Yarra Ranges	303	5	3.19
CSA030a	Sassafras (East)	Yarra Ranges	230	6	3.17
CSA026	Emerald (South) / Clematis	Cardinia	404	7	3.16
CSA014	Healesville (Central)	Yarra Ranges	449	8	3.00
CSA019	Silvan	Yarra Ranges	114	9	2.99
CSA016	Mount Evelyn	Yarra Ranges	177	10	2.84
CSA033	Sherbrooke / Kallista (West)	Yarra Ranges	327	11	2.82
CSA013	Chum Creek / Healesville (West)	Yarra Ranges	278	12	2.75
CSA029	Ferny Creek (North) / Sassafras (South)	Yarra Ranges	447	13	2.72
CSA009	Epping	Whittlesea	13	14	2.63
CSA025	Emerald (North)	Cardinia	499	15	2.57
CSA028	Ferny Creek (South)	Yarra Ranges	581	16	2.53
CSA020	Woori Yallock	Yarra Ranges	129	17	2.49
CSA031	Olinda (South) / Monbulk (West)	Yarra Ranges	356	18	2.44
CSA038	Bayswater North (West) / Croydon	Maroondah	12	19	2.42
CSA046	Donnybrook	Whittlesea	13	20	2.41
CSA034a	The Patch (West)	Yarra Ranges	318	21	2.36
CSA034b	Kallista (North)	Yarra Ranges	174	22	2.36
CSA039	Heathmont	Maroondah	4	23	2.35
CSA023	East Warburton	Yarra Ranges	407	24	2.34
CSA047	Selby	Yarra Ranges	166	25	2.33
CSA018	Montrose / Kalorama	Yarra Ranges	193	26	2.33
CSA040	Yarrambat	Nillumbik	39	27	2.32
CSA003	Warranwood / Ringwood / Ringwood North (East)	Maroondah	66	28	2.32
CSA027	Menzies Creek (South)	Yarra Ranges	256	29	2.31
CSA010	Yan Yean (South)	Whittlesea	21	30	2.29
CSA042	St Andrews	Nillumbik	128	31	2.29
CSA024	East Gembrook	Cardinia	212	32	2.25
CSA041	Panton Hill	Nillumbik	148	33	2.20
CSA017	Kilsyth South / Bayswater North (East)	Maroondah	58	34	2.00
CSA007	Diamond Creek / Wattle Glen / Hurstbridge	Nillumbik	91	35	1.95
CSA044	Humevale	Whittlesea	30	36	1.91
CSA048	Mernda	Whittlesea	19	37	1.86
CSA045	Yan Yean (West)	Whittlesea	3	38	1.84
CSA011	Whittlesea	Whittlesea	62	39	1.77

Table 5: Current YVW CSP Township priority rankings

This means that currently these Nillumbik Townships also have the longest CSP delivery timeframes compared to most of the other CSP Townships. The only way to improve the rankings is through comprehensive advocacy into YVW's Prioritisation Process, presenting evidence-based arguments for increasing the priority ratings of individual townships. Council's advocacy into this must be synchronized with the 5-year timescale of the YVW Prioritisation Process and be structured as a strategic and multi-staged advocacy program.



Source: VAGO.

Figure 2: Timeline of the Backlog Program in Victoria

The Findings & Recommendations of the Victorian Auditor General's October 2018 Report on Managing the Environmental Impacts of Domestic Wastewater

A general summary of the Victorian Auditor General's October 2018 Report is listed as extracts below:

"Since the (first) 2006 VAGO audit some progress has been made but it is too little to sufficiently protect the environment and public health, and longstanding issues remain. Agencies are still not adequately managing the individual and cumulative risks and impacts from poorly performing onsite systems despite their attempts.

The ongoing issues are partly the result of poor leadership and limited collaboration between EPA and DELWP who are responsible for overseeing the regulatory framework that councils and water authorities use to manage the risks posed by poorly performing onsite systems. This has resulted in:

- *an overly complex, onerous and duplicative regulatory framework*
- *a continued lack of clarity around roles and responsibilities*
- *regulatory tools that do not adequately drive property owners' compliance with planning permits and legislation*
- *councils not being held to account for their role in domestic wastewater management.*

As a result:

- *we cannot be assured that the responsible agencies are adequately identifying and assessing the risks from onsite systems in unsewered areas across metropolitan municipalities*
- *property owners and councils take limited accountability for the ongoing performance and management of onsite systems*
- *EPA and DELWP do not monitor and report on the performance of the regulatory framework and its tools for identifying, assessing and managing risks*
- *the gaps and issues identified in the regulatory framework by our 2006 audit, internal reviews and councils have yet to be effectively addressed.*

SEW and YVW's backlog programs for connecting high–risk unsewered townships to sewer have generally been successful. Both water authorities have implemented a range of innovative projects and actions to improve the timeliness and cost effectiveness of their services and sewer schemes, aimed at improving environmental and public health benefits. However, overall connection rates and the time taken to reach optimal sewer connections to mitigate risks vary significantly.

SEW and YVW are exploring alternative service options for suitable properties in high–risk areas to improve the cost effectiveness and timeliness of services while achieving environmental and health benefits equivalent to sewer. However, regulatory barriers and gaps in governance and approval processes are hindering the timely implementation of these approaches."

The specific recommendations for the Councils involved in the Audit were as follows:

"We recommend that Mornington Peninsula Shire Council and Yarra Ranges Council:

1. *consult with water authorities, the Environment Protection Authority, the Department of Environment, Land, Water and Planning, and other key stakeholders in undertaking integrated water cycle management planning processes for their municipalities so that the management of domestic wastewater risks is not planned in isolation of the management of stormwater, floods, alternative water supplies and drinking water supplies (see Section 5.8)*
2. *implement a rolling annual program of compliance inspections in high–risk properties and townships to bring onsite systems in line with permit and/or policy requirements and follow–up noncompliance (see Section 3.3)*
3. *develop and implement a data management plan to collect accurate information on the number, location and performance of onsite systems—data collection should be prioritised using a risk–based approach to identify areas for collection based on highest to lowest risk (see Section 2.2)*
4. *develop an education plan to inform property owners of their responsibilities and requirements to maintain and upgrade their onsite systems as required, which must include an evaluation framework to assess its effectiveness (see Section 3.5).*

We recommend that Yarra Ranges Council:

5. *finalise its domestic wastewater management plan by 2019 identifying high–risk unsewered townships for servicing in collaboration with Yarra Valley Water, the community and other key stakeholders (see Section 2.2)."*

VAGO expectation that Councils conduct auditing activities to address wastewater information gaps.

The Victorian Auditor General's October 2018 Report on Managing the Environmental Impacts of Domestic Wastewater was pointed in its emphasis of the universal need for Councils to audit their existing septic information/records to identify the information gaps. Once the gaps in wastewater information have been identified, the auditing process must then extend into the field to locate and verify the previously unknown septic locations and configurations.

This process is labour and time-intensive, requiring dedicated resources in the form of additional project-based EFT and current GIS/GPS enabled technology that can easily integrate with the chosen licensing database.

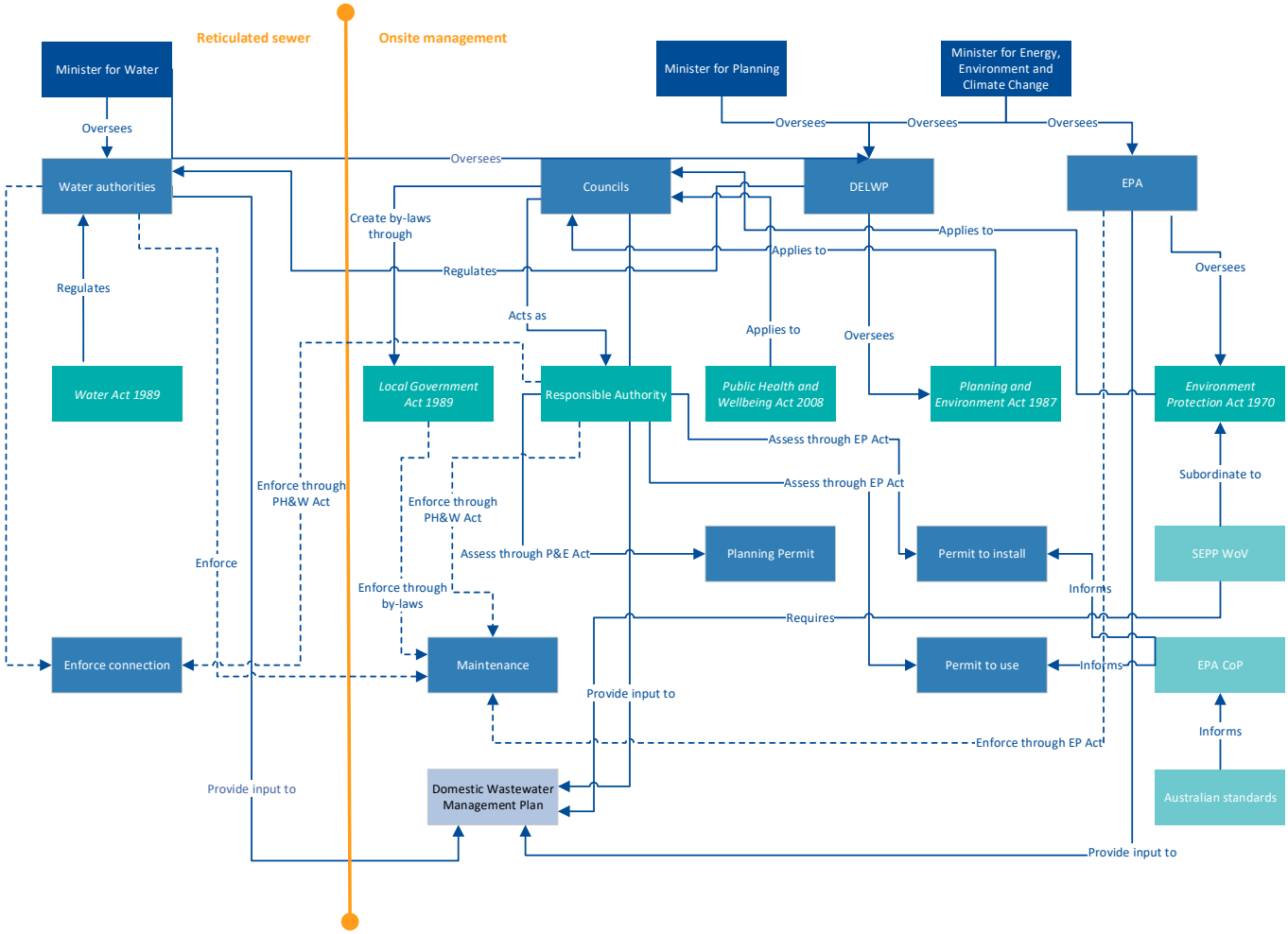
Overly complex, onerous and duplicative regulatory framework creates a continued lack of clarity around roles and responsibilities

The cumbersome nature of the current regulatory framework is described clearly in the below extract from the the Victorian Auditor General's October 2018 Report:

"The overlapping and complex nature of the approval processes for onsite systems requires approvals under three different Acts—the EP Act, P&E Act and the Building Act 1993. For councils, administering this process is resource intensive and complex. The bulk of council effort and resources focus on approving new systems rather than ensuring compliance with permit conditions, addressing legacy system issues, or taking enforcement action where needed.

Councils and water authorities are still unclear about:

- *how to require the upgrade of legacy onsite systems discharging offsite with an approved permit*
- *the mechanism to require the upgrade of old systems that do not have a permit*
- *their enforcement powers for failing onsite systems*
- *forcing property owners to connect to sewer—there is a lack of a shared and agreed approach between the responsible agencies and a reluctance by water authorities to force connection where the power exists*
- *whether there is a need to collect information on legacy systems*
- *water authorities' responsibility to service properties that have a low to medium risk of discharging wastewater offsite or that are capable of containing wastewater on site*
- *ongoing governance responsibilities for alternative wastewater treatment systems installed by water authorities."*



Source: VAGO.

Figure 3: Complexity of current regulatory framework

Melbourne Water's Healthy Waterway Strategy 2018

Melbourne Water reviewed their Healthy Waterway Strategy in the first half of 2018 which resulted in the draft Strategy being released for comment in June 2018. The new strategy reflects a fundamental shift in focus to an intentional collaborative and co-design approach that is aspirational in its goals. These goals have been delineated into 10 plus and 50 year outcome timescale.

With the revised Health Waterway Strategy 2018 there are significant potential opportunities available for Council to partner with Melbourne Water in local healthy waterway projects and initiatives in which stormwater retention and wastewater management play key roles in improving the health of waterways within our catchment area and subsequently further downstream.

Greater level of expertise required

Generally, a greater level of expertise is required now to assess the increasing complexity and range of issues inherent in providing wastewater solutions to existing properties and new developments. Wastewater Plumbers, Land Capability Assessors and Council Officers now need to be wastewater specialists with knowledge/experience across many different system types and the correct application of the different legislation and standards.

Recommendations

Arising from all of the preceding analysis; the following 14 recommendations have been identified, fitting within 5 key areas as follows:

Information and Data Collation

- Collation and auditing of all current and historic WTS information into a single information management system to identify information gaps, provide status reports, improve risk assessment data and accuracy of information on WTS currently operating within the Shire.
- Enhancing GPS Mapping Application technology to assist with information gathering and recording.

Education and Awareness

- Implementation of wastewater education and information strategies for WTS owners in Nillumbik to achieve increased awareness of their responsibilities and improved WTS maintenance management practices.

Sewer Connection and CSP prioritisation

- Continued advocacy and promotion of sewer connection via participation in YVW's Community Sewerage Program (CSP) and increased collaboration and partnership with YVW.
- Continued partnerships with other Councils and peak associations to advocate to the State Government to accelerate, resource and maximise the CSP.

Regulation and Enforcement

- Investigation into the provision of an automated reporting application to manage Council's statutory duty to monitor and regulate compliance with the WTS maintenance reporting requirements and assist residents with their maintenance obligations.
- Developing a targeted monitoring and compliance program, including auditing and sampling activities to identify and assess the high risk WTS areas within the Shire.
- Investigation into the provision of specific Local Laws relating to current WTS legislative requirements.
- Enhanced cross collaboration across Council to ensure land development pressures are addressed appropriately, recognising the real constraints associated with land-based factors and sewer provision.
- A regulatory approach that applies the principle of "natural justice" when bringing old (legacy) WTS up to current standards. This approach will apply:
  - risk-based assessment to identify the high-risk legacy WTS within the Shire
  - logical, fair and explained upgrade triggers consistent with legislative requirements
  - a phased, transitional approach to upgrade requirements, recognising the significant costs involved for Nillumbik residents.

Collaboration and Review

- Review of all wastewater operational policies and procedures to ensure that they are current and address all the relevant legislation; including legislative change and reform.
- A comprehensive and formal DWMP review and auditing cycle that complies with the SEPP (Waters) requirements, and annual internal review and assessment of the DWMP Action Plan progress.
- Strengthening Council's internal stakeholder relationships, capacity, resources and processes to provide an integrated approach to wastewater management and regulation.
- Advocacy for improvements to the legislative framework pertaining to on-site domestic wastewater and reticulated sewerage provision and participation in reform opportunities.

These 14 recommendations form the basis of the strategies and actions detailed in the Nillumbik Domestic Wastewater Management Plan 2019 Action Plan.

Timeframe for the next DWMP 2019

The timeframe needed to effectively implement the actions of the next DWMP and to provide the best position for Council for the next CSP reprioritisation in 2021 will be extended from 3 years to 5 years. The next DWMP will cover the 2019-2023 period.

References

- *Nillumbik Domestic Wastewater Management Plan*, 2015-2018
- VAGO Report: *Managing the Environmental Impacts of Domestic Wastewater*, September 2018.
- *EPA Code of Practice - Onsite Wastewater Management (891.4)*, July 2016
- *MAV Victorian Land Capability Assessment Framework*, January 2014
- *MAV Domestic Wastewater Management*, a planning guide for Local Government
- *MAV Municipal Domestic Wastewater Management Planning, Issues & Options Paper*, February 2002.
- *Council Plan 2017-2021: Living in the Landscape*
- *Nillumbik Domestic Wastewater Treatment Guide*
- *Nillumbik Integrated Water Management Strategy, 2013*
- *Nillumbik Shire Council 1997, Sites of Faunal and Habitat Significance*, North East Regional Organisation of Council's Report (NEROC).
- *Nillumbik Stormwater Management Plan – Volumes 1 & 2*, 2002
- *SEPP (Waters)*, Reviewed June 2018
- *AS/NZS 1546.1:2008 On-site domestic wastewater treatment units: Part 1: Septic tanks.*
- *AS/NZS 1546.2:2008 On-site domestic wastewater treatment units: Part 2: Waterless composting toilets.*
- *AS/NZS 1546.3:2017 On-site domestic wastewater treatment units: Part 3: Aerated wastewater treatment systems.*
- *AS/NZS 1546.4:2016 On-site domestic wastewater treatment units: Part 4: Domestic greywater treatment systems.*
- *AS/NZS 1547:2012 On-site domestic wastewater management.*
- *AS/NZS 3500 National Plumbing and Drainage - Domestic Installations.*
- *Yarra Valley future Water: Asset Map User Guide*, March 2018
- *Your Pressure Sewer System: An owner's guide*, YVW
- *Using My Sustainable Sewerage System: Home owner's manual*, YVW
- Wikipedia

Glossary

AWTS: Aerated Wastewater Treatment System. AWTS are a type of secondary treatment system

CSP: Community Sewerage Program

COC: Certificate of Conformance (provided by Standards Australia)

Desludging: The removal of sludge and sediment from the tankss of a wastewater treatment system.

DELWP: Department of Environment, Land, Water and Planning

Domestic Wastewater: Wastewater arising from a domestic dwelling. Domestic wastewater can comprise of blackwater (toilet waste) or greywater (sullage waste from bathrooms, laundry and kitchen appliances), or a combination of both.

DWMP: Domestic Wastewater Management Plan

Effluent: Combined wastewater coming from (leaving) a domestic residence and/or coming from (leaving) a wastewater treatment system. It is a direction-based term used for wastewater exiting a household or treatment system.

EPA: Environment Protection Authority

GIS: Geographic Information System

Greywater: Domestic wastewater that does not contain toilet waste. Also known as sullage.

Influent: Combined wastewater entering a wastewater treatment system or land disposal system. It is a direction-based term used for the wastewater entering a wastewater treatment or land disposal system.

Joint Accreditation System of Australia and New Zealand (JAS-ANZ): Is an accreditation authority and framework, with the purpose to enhance national, trans-tasman and international trade via accreditation to achieve international recognition for the excellence of Australian and New Zealand goods and services. JAS-ANZ provides a certification mark for use on goods and services that meet their accreditation requirements.

Land Capability Assessment (LCA): A method used to assess the capability of land to manage on-site wastewater disposal, which recommends whether effluent can be adequately treated and retained on-site.

MAV: Municipal Association of Victoria

MW: Melbourne Water

Percolation: The filtration of liquid through soil

Permeability: The rate at which water moves through a soil profile. Fast permeability rates will not allow for adequate remediation, slow rates may give rise to soil waterlogging.

Primary Treatment System: A wastewater treatment system that treats the effluent to a primary standard.

Secondary Treatment System: A wastewater treatment system that treats the effluent to a secondary standard.

SEPP: State Environment Protection Policy (Waters)

Septic tank system: A primary wastewater treatment system for the bacterial, biological, chemical and physical treatment of sewage including all tanks, beds, drains, pipes, fittings, appliances and land used in connection with the system. Septic tank systems treat the influent sewage primarily through anaerobic processes.

Sewage: Any wastewater containing human excreta or domestic wastewater.

Sewerage: The infrastructure system (drains etc.) used to carry, treat and dispose of sewage.

Sullage: See greywater. Household greywater that does not contain toilet waste, but may still contain many of the harmful pathogens, nutrients and other chemicals contained in blackwater waste, presenting a similar hazard.

YVW: Yarra Valley Water

WISS: Water Industry System Solutions

WTS: Wastewater Treatment System. This is the generic term used to refer to all available types of on-site wastewater treatment and disposal systems (across both primary and secondary treatment systems).

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