

Domestic Wastewater Management Plan

2019-2023



Acknowledgement of traditional owners
Nillumbik Shire Council acknowledges the Wurundjeri people who are the Traditional Custodians of Land known today as Nillumbik. We pay respect to the Elders both past and present and extend that respect to other Indigenous Australians.

Contents

| | | | |
|---|-----------|--|-----------|
| Executive Summary | 2 | Appendices | 38 |
| 1. Introduction | 4 | Appendix 1: Catchment descriptions | 39 |
| 1.1 Overview of wastewater treatment systems in Nillumbik | 6 | Appendix 2: Community Engagement Program | 40 |
| 1.2 Overview of reticulated sewerage in Nillumbik | 8 | Appendix 3: Community Sewerage Program areas | 43 |
| 1.3 Policy and Legislative framework | 8 | BA012 Eltham (North) / Research | 43 |
| 1.4 Roles and Responsibilities | 9 | BA012 Eltham (North) / Research | 44 |
| 2. Nillumbik Profile | 12 | BA004A/B/C/D North Warrandyte | 45 |
| 2.1 Receiving Waterways and Catchments | 13 | BA005 Eltham South | 46 |
| 2.2 Unsewered townships | 15 | CSA007 Hurstbridge / Wattle Glen / Diamond Creek | 47 |
| 2.3 Yarra Valley Water Community Sewerage Program | 16 | CSA042 St Andrews | 48 |
| 3. Cumulative Risk Assessment | 18 | CSA041 Panton Hill | 49 |
| 3.1 Domestic Wastewater Threats | 19 | CSA040 Yarrambat | 50 |
| 3.2 Receiving Environment Values | 20 | References | 51 |
| 3.3 Assessing the threat to the receiving environments | 21 | Glossary | 52 |
| 3.4 Assessing the risk to the receiving environments | 21 | | |
| 4. Management Strategies | 22 | | |
| 4.1 Recommendations | 23 | | |
| 4.1.1 Information and Data Collation | 23 | | |
| 4.1.2 Education and Awareness | 23 | | |
| 4.1.3 Sewer Connection and CSP Prioritisation | 24 | | |
| 4.1.4 Regulation and Enforcement | 24 | | |
| 4.1.5 Collaboration and Review | 25 | | |
| 4.2 Action Plan | 25 | | |
| Domestic Wastewater Management Plan: Action Plan | 26 | | |
| 4.3 Emergency Response | 36 | | |
| 5. Funding and Budget Allocation | 37 | | |

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 superseded 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

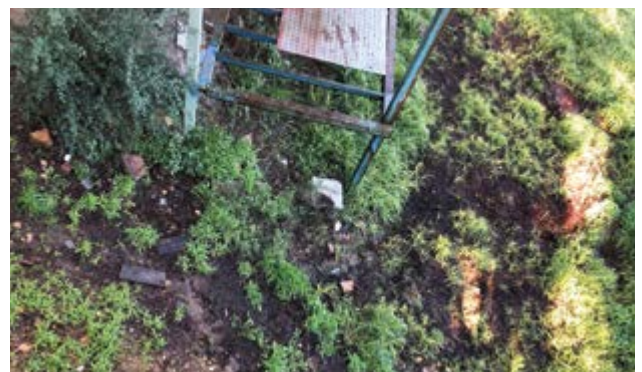


Figure 3: Wastewater overflow at a property in North Warrandyte

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.

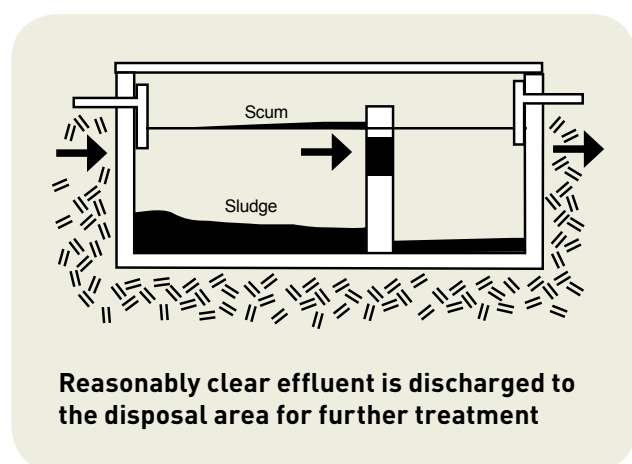


Figure 4: Cross-section of a properly functioning septic tank

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.

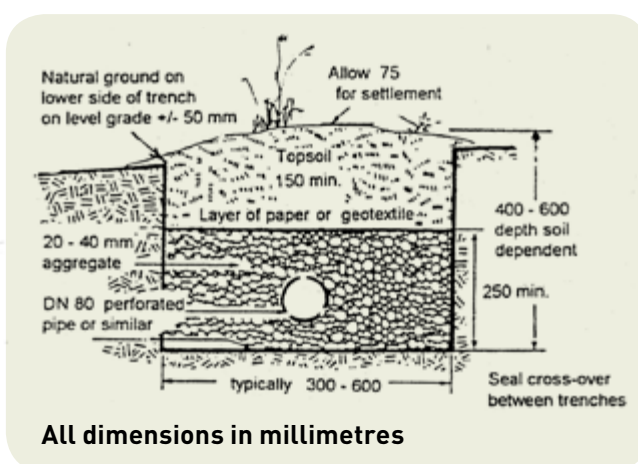


Figure 5: Cross-section of a typical absorption trench

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 6 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.

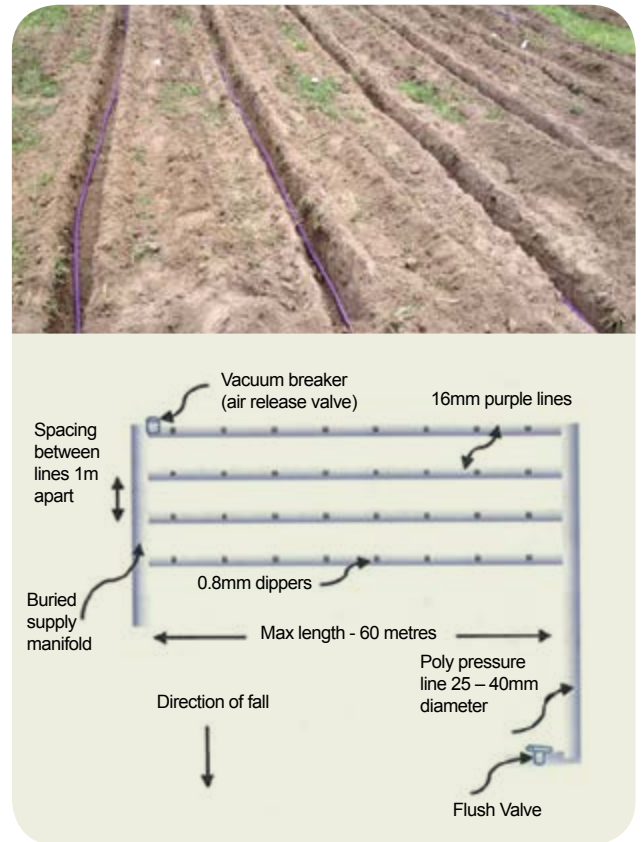


Figure 7: Images showing typical sub-surface irrigation layout

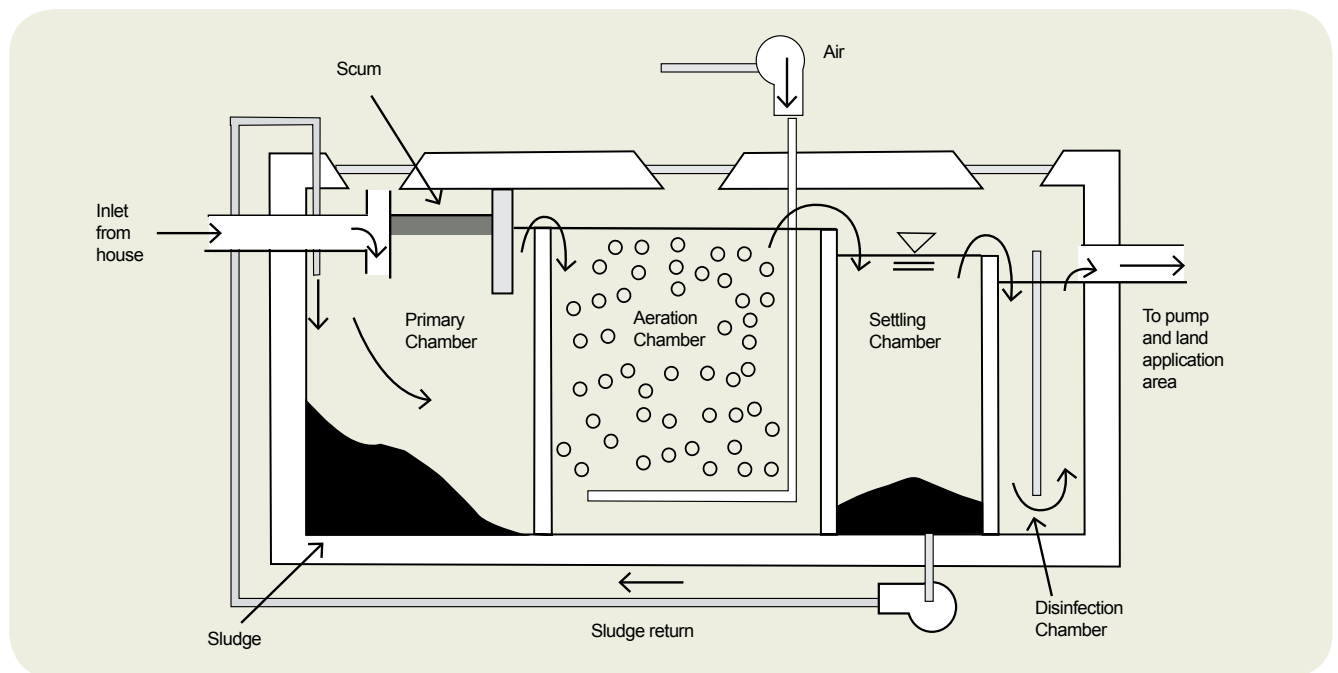


Figure 6: Typical schematic of an aerated wastewater treatment system

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 maintaining 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



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

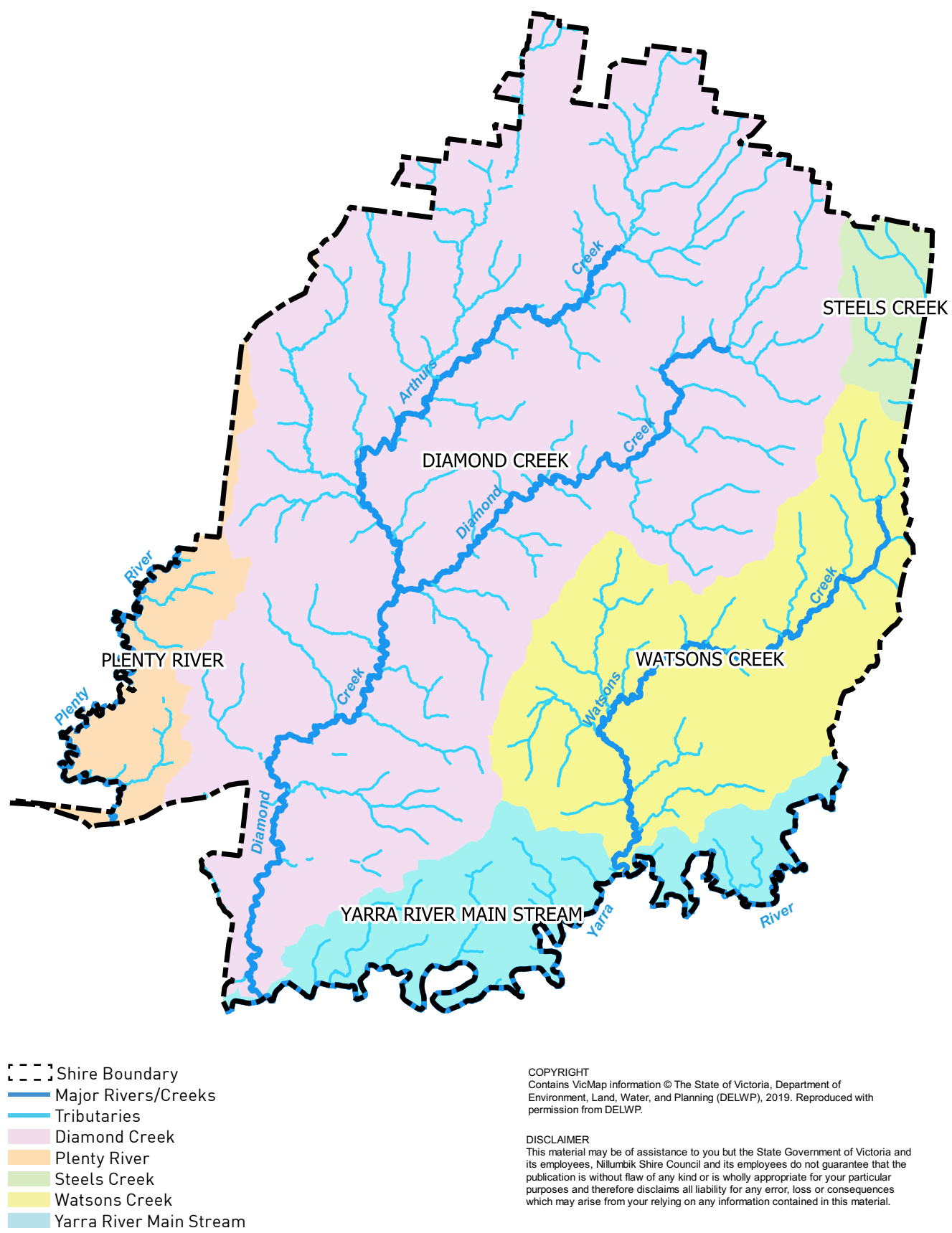


Figure 8: Main Water Catchments within Nillumbik

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.

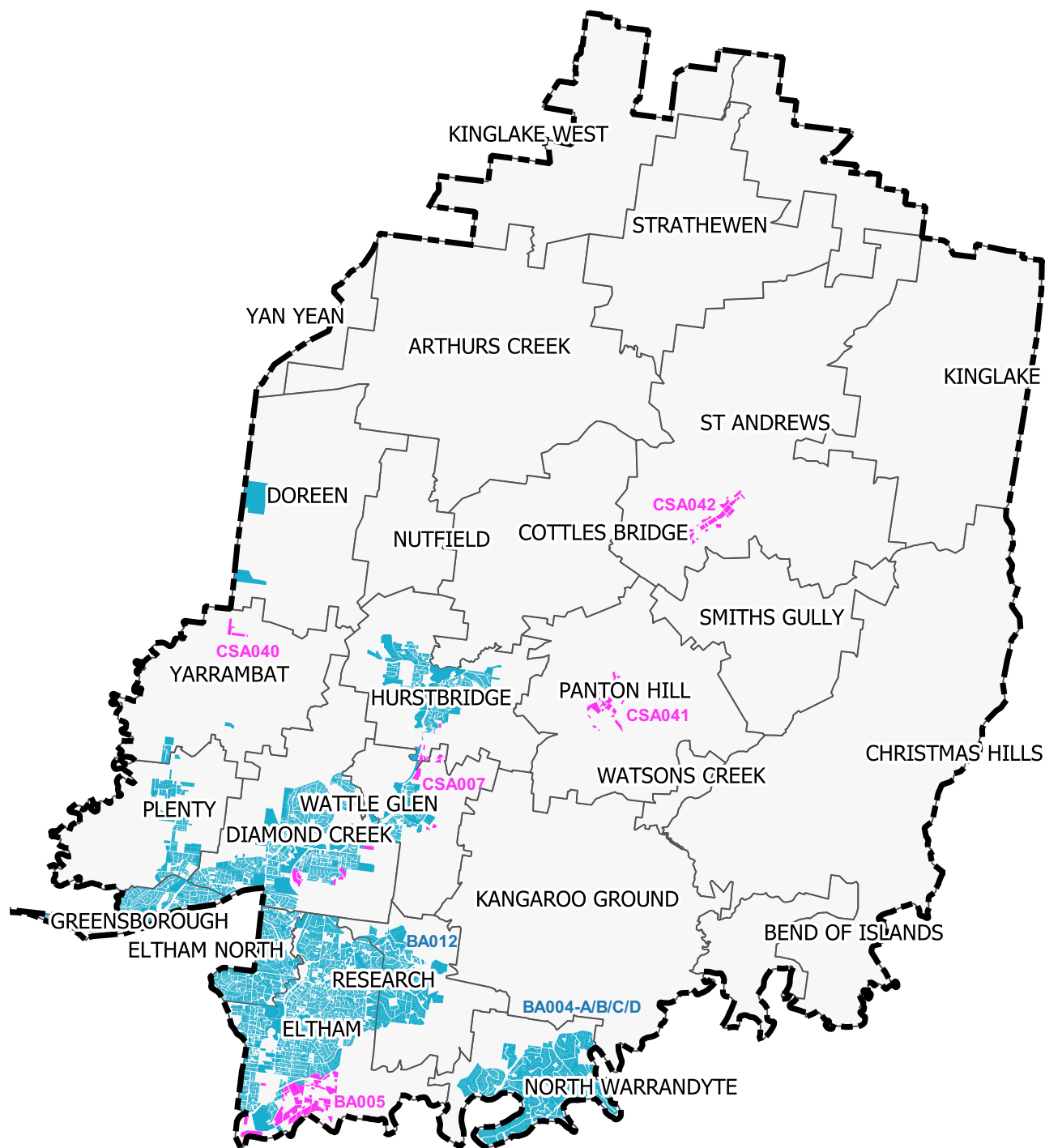
Figure 9 (right) shows the extent of existing Sewer Catchment Area within Nillumbik (i.e. areas serviced with sewer) and areas that are on the Community Sewerage Program (CSP); that have not yet been provided with a service. The 'township' areas listed on the CSP, are limited to properties within a centralised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



- Nillumbik Shire Boundary
- Proposed Sewered Properties
- Currently Sewered Properties (As of March 2019)

COPYRIGHT
Contains VicMap information © The State of Victoria, Department of Environment, Land, Water, and Planning (DELWP), 2019. Reproduced with permission from DELWP.

DISCLAIMER
This material may be of assistance to you but the State Government of Victoria and its employees, Nillumbik Shire Council and its employees do not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for any error, loss or consequences which may arise from your relying on any information contained in this material.

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 | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • Permitted system | <ul style="list-style-type: none"> • Pollution of water courses • Local visual amenity • Demand on Council drainage infrastructure |
| Treated on-site effluent discharge | <ul style="list-style-type: none"> • Permitted system | <ul style="list-style-type: none"> • Local visual amenity • Pollution of groundwater |
| Untreated off-site sullage (grey water) discharge | <ul style="list-style-type: none"> • Poorly maintained system with sand filter not functioning • Sand filter bypassed to stormwater • Septic tank full • Permitted system | <ul style="list-style-type: none"> • Nutrients • Pathogens • Odour • Visual amenity • Oxygen depleting material • Local land degradation • Pollution of water courses • Demand on Council drainage infrastructure |
| Ineffective regulation | <ul style="list-style-type: none"> • Failure to comply with permit conditions • Ineffective database • Non-connection to sewer • Unclear regulatory responsibilities | <ul style="list-style-type: none"> • Liability • Increased incidence of preventable pollution and environmental degradation • Increased risk to public health |
| Re-use of waste water | <ul style="list-style-type: none"> • Allowed re-use • Low water supply • Poor management by individual residents | <ul style="list-style-type: none"> • 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):

$$\text{Risk} = \text{Threat} \times \text{Environmental Value} \times \text{Sensitivity}$$

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 sewer development.
- 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 "Report and Consent" 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.

**Table 4: Domestic Wastewater Management Plan:
Action Plan 2019-2023**

| No | Strategy | Actions |
|---------------------------------------|---|---|
| Information and Data Collation | | |
| 11 | Review Application to Install/Alter a WTS form to ensure it is comprehensive and relevant to current standards. | <ol style="list-style-type: none"> 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: <ul style="list-style-type: none"> • 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) |
| 12 | All WTS information is readily accessible in a single database and enables identification of areas of critical concern. | <ol style="list-style-type: none"> 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. |
| 13 | Risk Prioritisation | <ol style="list-style-type: none"> 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. |
| 14 | Options for locating and mapping existing systems are investigated | <ol style="list-style-type: none"> 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 | <ol style="list-style-type: none"> 1. Section 32 notices to include basic information on property's WTS, broken into 3 main categories: <ul style="list-style-type: none"> • 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. | <ol style="list-style-type: none"> 1. Review all wastewater related information sheets (including the Wastewater Fact Sheet Series) to ensure they are: <ul style="list-style-type: none"> • 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 <i>Domestic Wastewater Treatment Guide</i> (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. | <ol style="list-style-type: none"> 1. Provide Council's <i>Domestic Wastewater Treatment Guide</i> to property owners when applying for a planning permit. 2. Provide Council's <i>Domestic Wastewater Treatment Guide</i> 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. | <ol style="list-style-type: none"> 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 <i>E.coli</i> in high risk areas. <i>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.</i> 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). | <ol style="list-style-type: none"> 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). <i>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.</i> 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. | <ol style="list-style-type: none"> 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). | <ol style="list-style-type: none"> 1. Follow up all properties that have sewer available but YVW has no record of connection, particularly in declared CSP areas. <i>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.</i> 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. | <ol style="list-style-type: none"> 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. | <ol style="list-style-type: none"> 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. | <ol style="list-style-type: none"> 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. | <ol style="list-style-type: none"> 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. | <ol style="list-style-type: none"> 1. Develop an on-going monitoring and compliance program that addresses the following issues: <ul style="list-style-type: none"> • 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 | <ol style="list-style-type: none"> 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. | <ol style="list-style-type: none"> 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). | <ol style="list-style-type: none"> 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 | <ol style="list-style-type: none"> 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. | <ol style="list-style-type: none"> 1. 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. | <ol style="list-style-type: none"> 1. Review and update the DWMP every five years (IRG involvement). |
| C4 | Develop and strengthen <i>internal</i> stakeholder relationships and collaboration. | <ol style="list-style-type: none"> 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 <i>external</i> stakeholder relationships and collaboration. | <ol style="list-style-type: none"> 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 | <ol style="list-style-type: none"> 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. | <ol style="list-style-type: none"> 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 | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • 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 septic 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 septic drop-in information sessions

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

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.

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.

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

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 (DWMMP) 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:

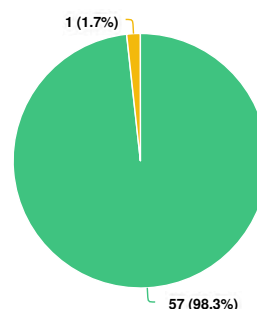
- On-site treatment
- Wastewater in Nillumbik
- Community Sewerage Program

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:

Do you have an on-site wastewater treatment (septic) system?



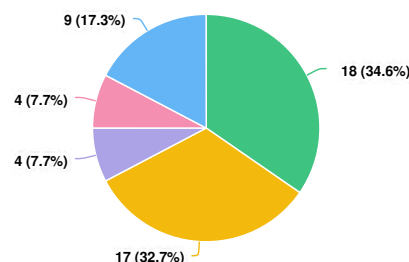
Question options

Yes No, I am connected to the sewerage system

Optional question (58 responses, 1 skipped)

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

What type of on-site wastewater treatment (septic) system do you have? See below for descriptions of each.



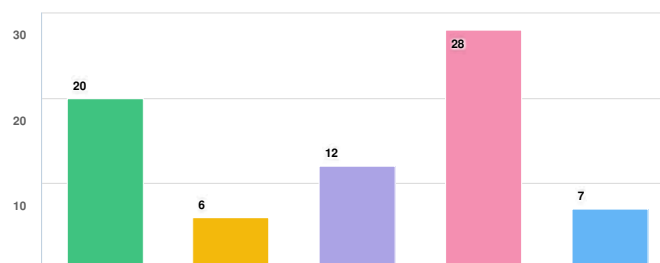
Question options

An (older) 'Split' system Septic and Trenching Septic to Sand Filter (to trenching or irrigation) Aerated Wastewater Treatment System (AWTS) Other

Optional question (52 responses, 7 skipped)

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

What type of wastewater monitoring and compliance services should Council provide across Nillumbik? Select all that apply.



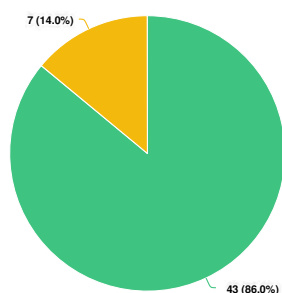
Question options

A reminder from Council that a maintenance service is due for individual wastewater systems Routine system assessments by Council Officers GPS Mapping to locate system components for individual properties Updates on changes to wastewater legislation that affect system owners Any other suggestions:

Optional question (59 responses, 0 skipped)

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

Would you like to be updated about any developments with the Community Sewerage Program for Nillumbik?



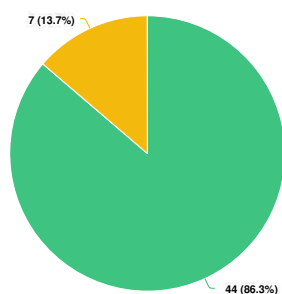
Question options

Yes No

Optional question (50 responses, 9 skipped)

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

Would you like to be updated about the progress of Nillumbik's Domestic Wastewater Management Plan?



Question options

Yes No

Optional question (51 responses, 8 skipped)

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:

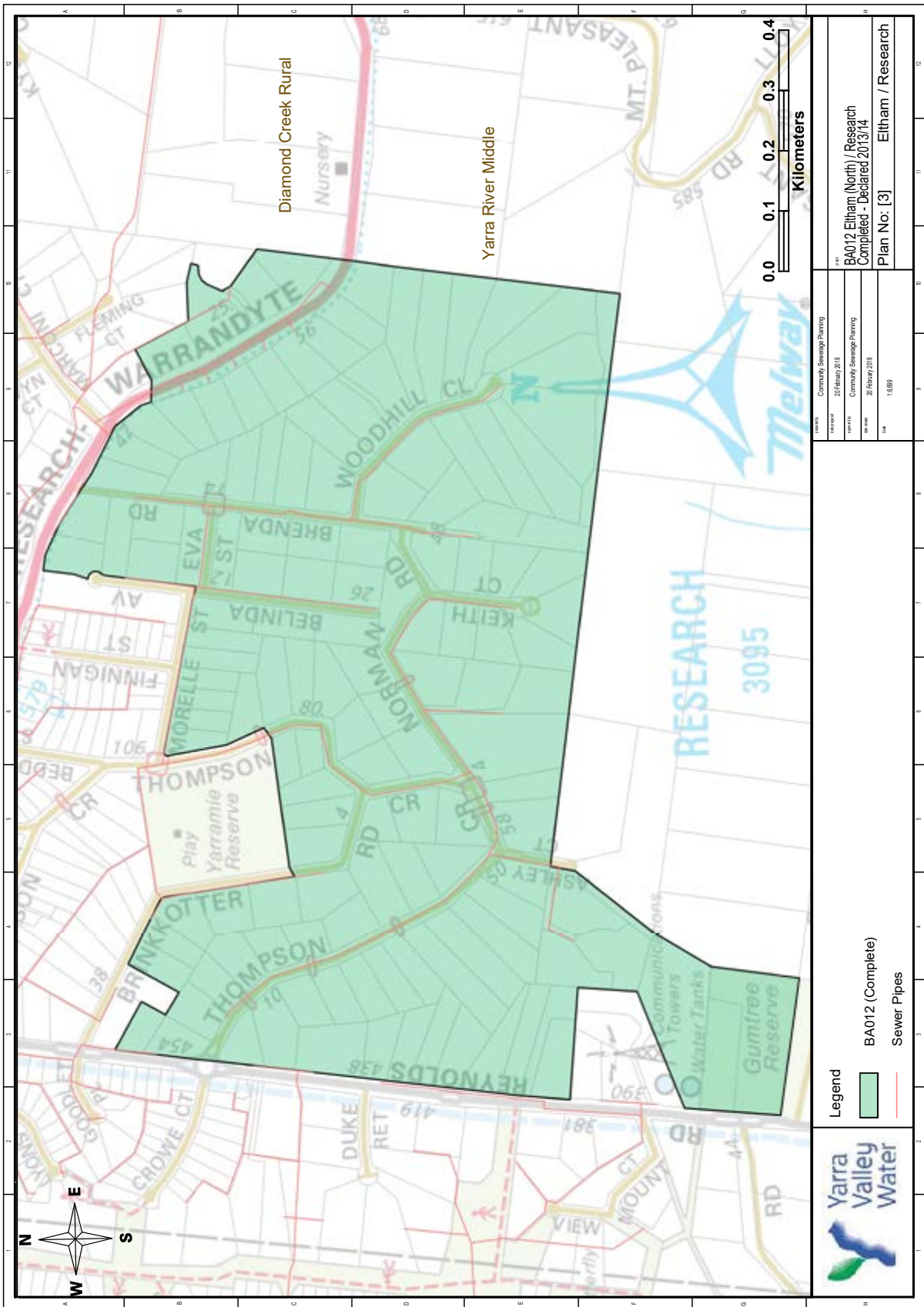
- The lack of WTS maintenance by residents is a significant issue across the Shire (pump maintenance and "de-sludging").
- The possibility of a maintenance reminder from Council for WTS owners
- The overall cost of up-grading existing older systems (to current EPA standards) is significant.
- Connection of a property to a new YVW sewer connection point can often be significantly more expensive than 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:

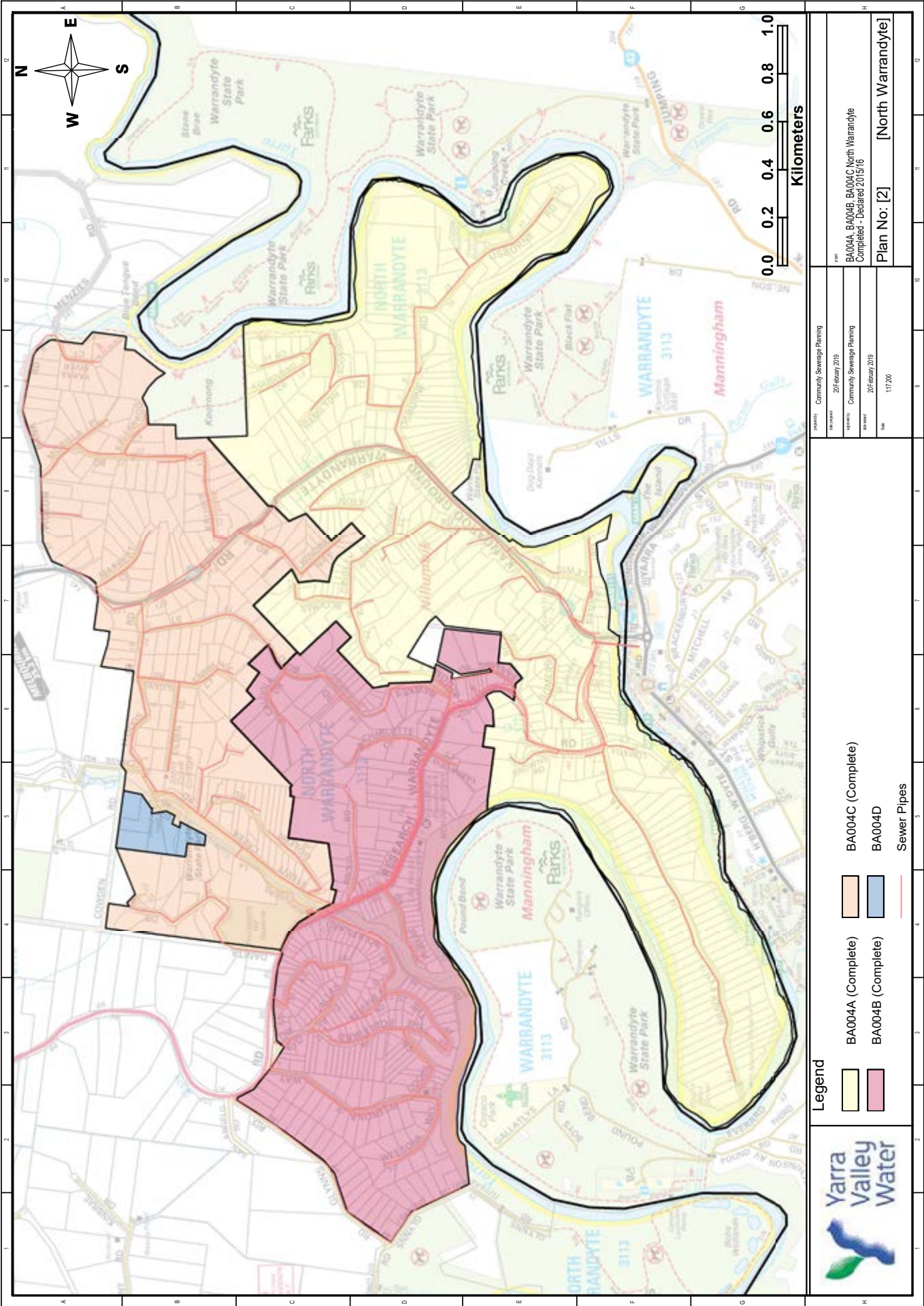
- The possibility of a fast-track application process for emergency plumbing situations (i.e. failure or damage to an existing system).
- An easier way to calculate what size the proposed system should be (to help complete these details on the application form).
- On-line application progress tracking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

Appendix 3: Community Sewerage Program areas

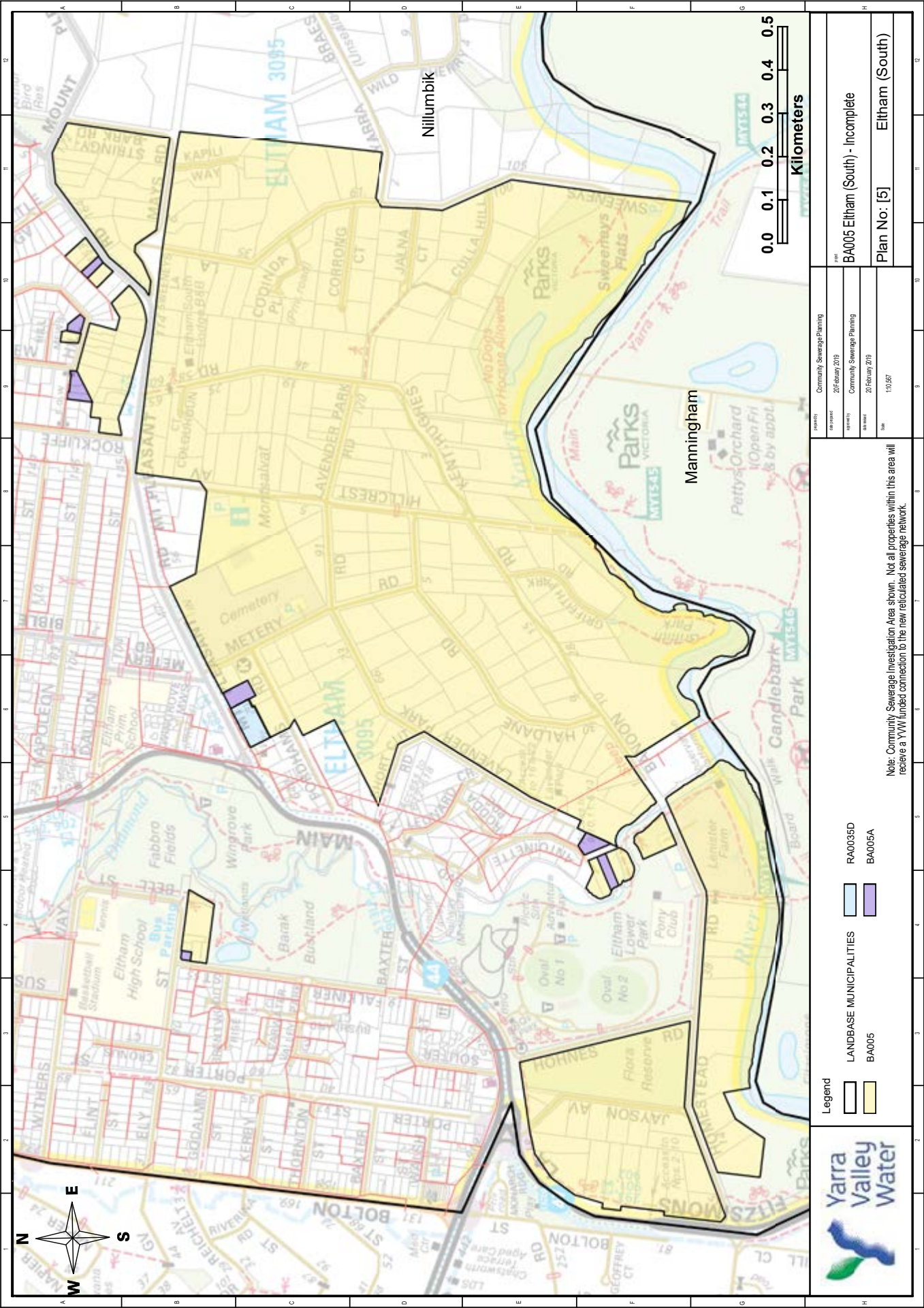
BA012 Eltham (North) / Research



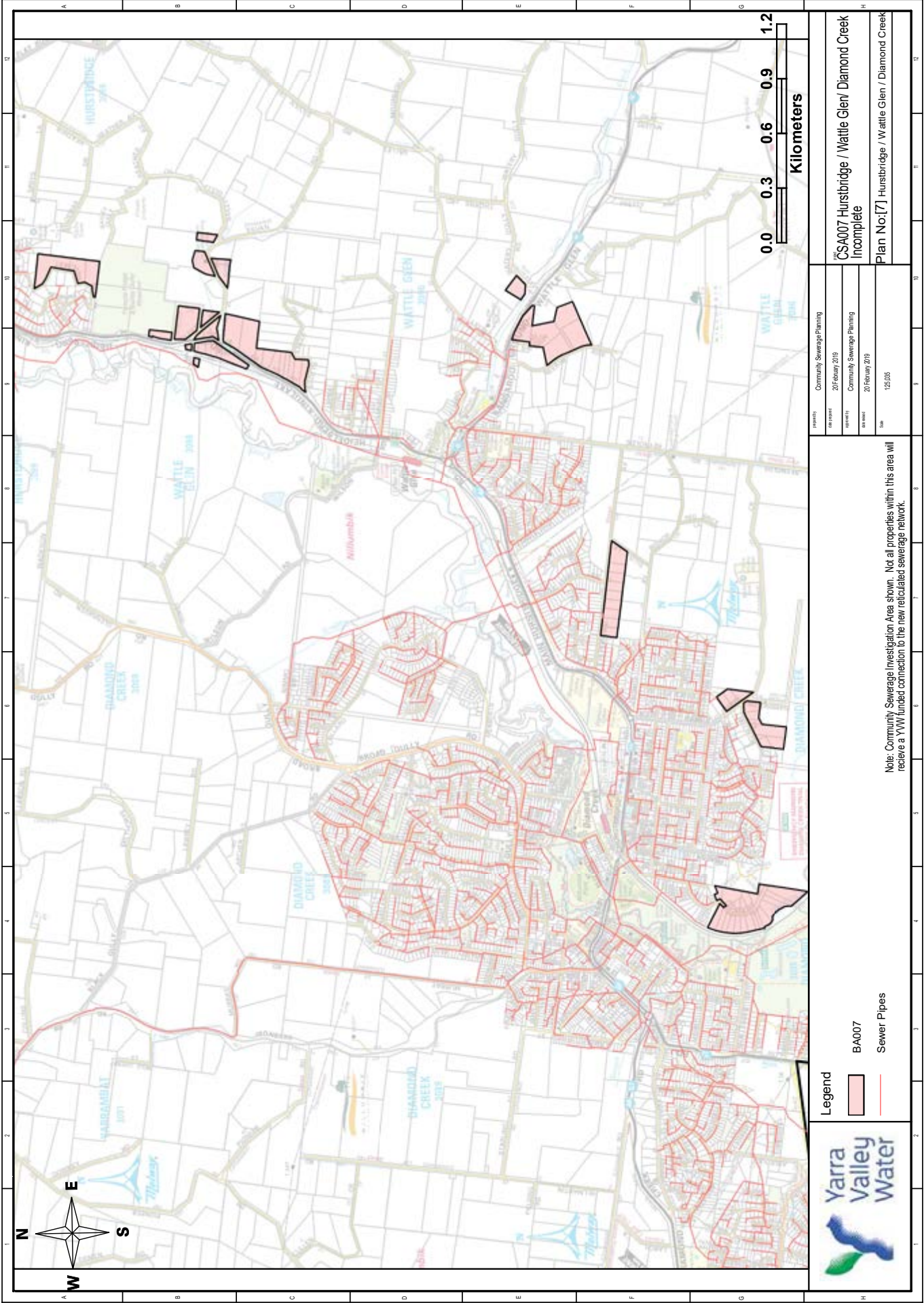
BA004A/B/C/D North Warrandyte



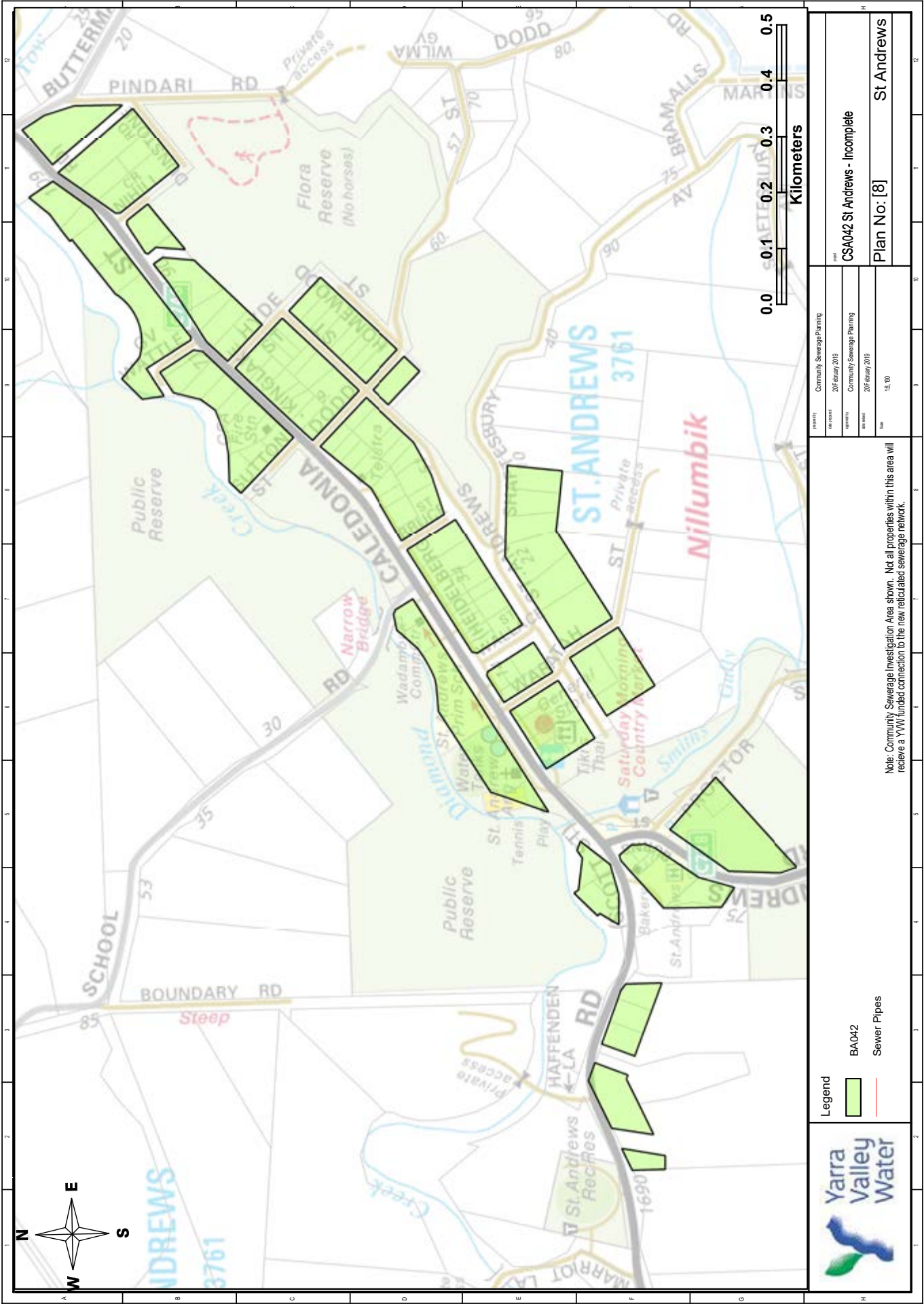
BA005 Eltham South



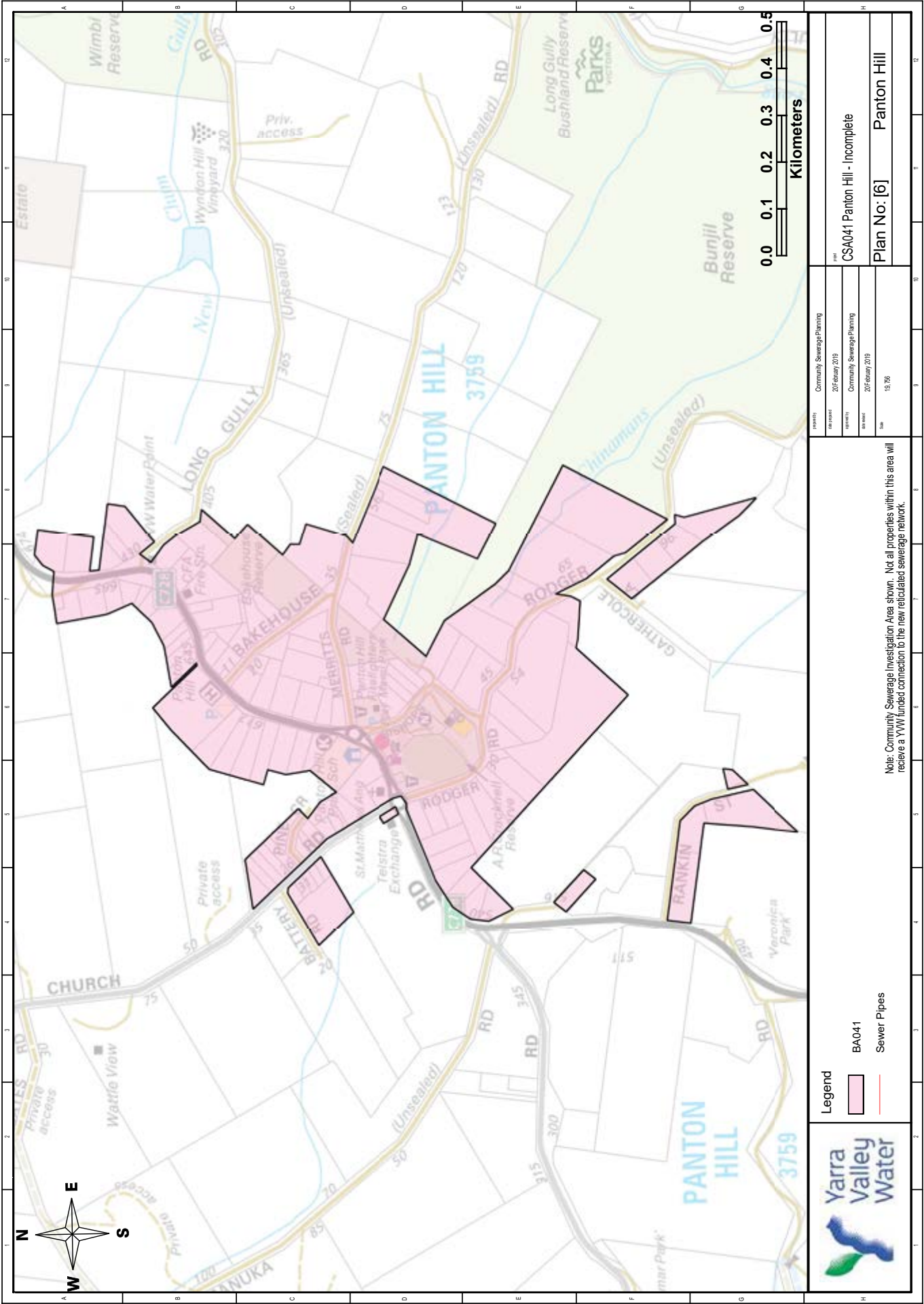
CSA007 Hurstbridge / Wattle Glen / Diamond Creek



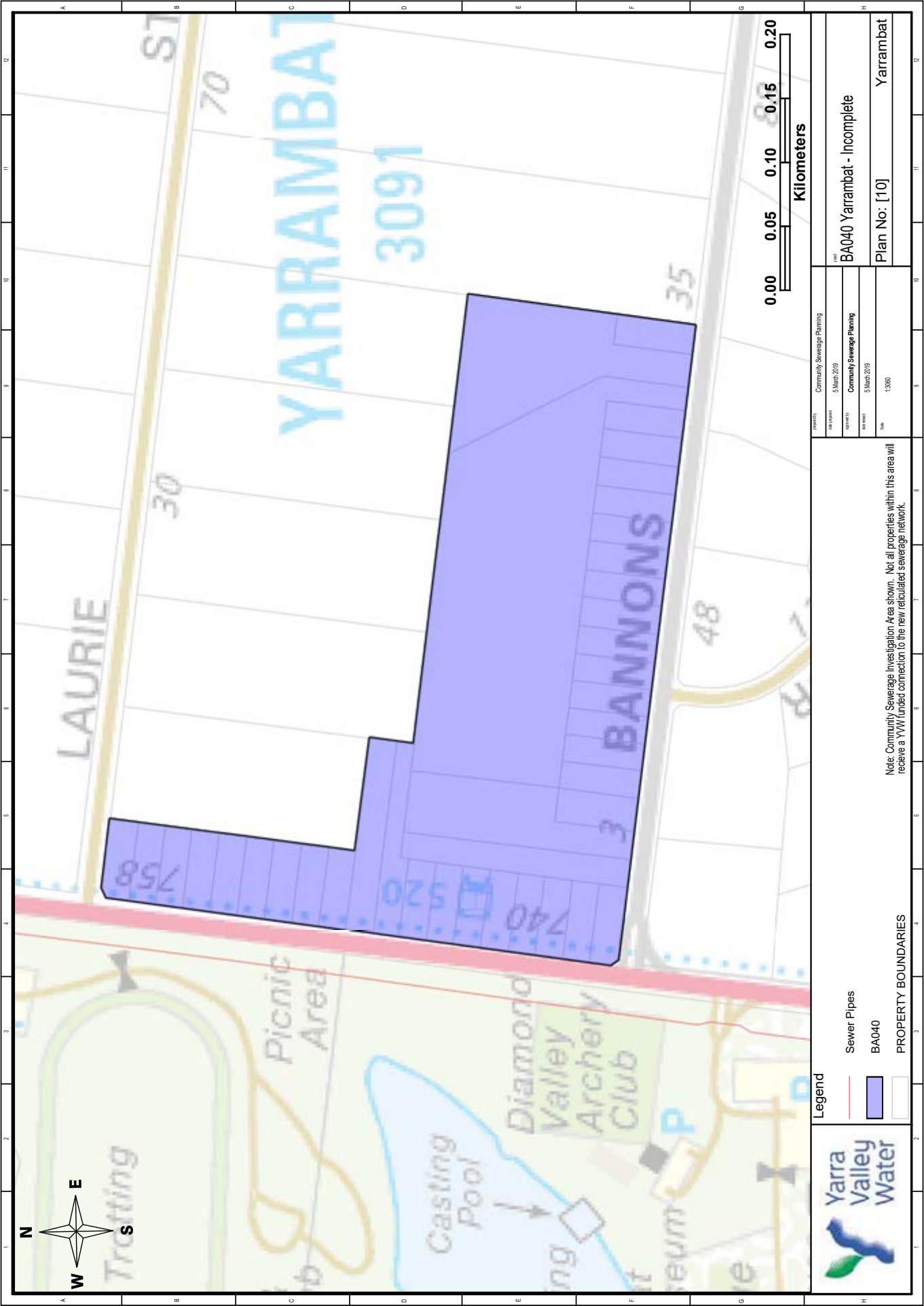
CSA042 St Andrews



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

Civic Drive (PO Box 476) Greensborough Victoria 3088
03 9433 3111 | nillumbik@nillumbik.vic.gov.au



nillumbik.vic.gov.au