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Domestic Wastewater Management Plan
Volume 1 - Final

Golden Plains

rmcg.com.au

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1 Introduction

1.1 Aim of this plan

In Golden Plains Shire there has historically been a dispersed rural settlement pattern with some compact, but relatively small, unsewered townships. There has been a strong recent surge in residential development, particularly in proximity to the nearby regional cities of Ballarat and Geelong. This has led to sewerage being provided in the central areas of Bannockburn and Smythesdale. However development also continues in unsewered low-density residential zones surrounding these and other nearby towns.

Finding affordable and appropriate solutions to manage domestic wastewater is one of the major constraints to residential development in Golden Plains Shire, outside of the sewered areas of Bannockburn and Smythesdale. There is also a significant workload for Council's environmental health team in ensuring householders manage existing onsite systems and install new onsite systems according to the required standards.

Domestic wastewater planning is about the management of wastewater generated from toilets, kitchens and bathrooms in houses, workplaces and public buildings. In this plan all properties that generate domestic wastewater are referred to as "houses" since they mostly are houses, but commercial buildings and public buildings are also included under this term.

Where sewerage is available, house owners pay water authorities to manage their domestic wastewater for them. Houses already connected to sewerage are not the subject of this plan.

Where houses are not connected to sewerage, onsite systems are required. Householders are legally responsible for their own wastewater management – that is they must ensure onsite systems are designed, installed and maintained to the required standard. Householders apply to local government to obtain permits for installation of onsite systems. Local government is responsible for overseeing the management and installation of onsite systems, including:

- Issuing Permits to Install/Alter and Certificates to Use onsite wastewater management systems
- Ensuring onsite systems are managed to the required standards
- Assessing land development applications to determine site suitability for onsite wastewater management

This plan aims to clarify Golden Plains Shire's responsibilities and sets in place a strategy for how Council plans to fulfil these responsibilities over the next five years.

This plan is intentionally brief. It does not attempt to describe in detail the legislative or technical background, nor does it repeat all of the responsibilities of property owners or other agencies. This document is simply the Golden Plains Shire strategic plan of action, and needs to be read in conjunction with various relevant legislation, regulations, codes, standards, planning policies, etc. A summary of the legislative context is provided in Appendix 1.

1.2 Conceptual framework

Domestic wastewater management relates to houses reliant on onsite systems, that is, houses (including commercial and public buildings) that are not connected to sewerage. This plan concerns itself with existing and future onsite systems in Golden Plains Shire. Domestic wastewater management needs to be tailored to the needs of each Shire because the nature of existing houses, the rate of residential growth and the natural environment vary from Shire to Shire.

Domestic wastewater management aims to ensure that existing and future houses in unsewered areas install and maintain onsite systems that can manage domestic wastewater within the bounds of the property in a manner that protects public health and the environment.

The following matrix (Table 1-1) shows a conceptual framework for domestic wastewater management developed by RMCG for Golden Plains Shire. Domestic wastewater management falls within one of four cells of the matrix. This DWMP is structured in a way that deals with each of these four categories of houses and onsite systems in turn.

Table 1-1: A conceptual framework for domestic wastewater management

	Unsewered land	Sewered (sewerable) land
Existing onsite systems	<p>Monitor and audit onsite systems and encourage house owners to achieve compliance and take action to rectify non-compliances.</p> <p>Develop and maintain information management tools (such as an onsite system database) for the purposes of managing existing onsite systems.</p> <p>Assess existing systems as part of planning processes (such as planning permits and building permits for house extensions and subdivisions) and request upgrades where necessary.</p> <p>Encourage water authorities to prepare sewerage management plans where the risk posed by a cluster of non-compliant onsite systems may justify the investment.</p>	<p>Facilitate the abandonment of onsite systems by encouraging owners to connect existing houses to sewer whenever possible.</p>
Future onsite systems	<p>Ensure land subdivision creates allotments that can sustain onsite systems.</p> <p>Ensure new houses and onsite systems comply with best practice requirements from day one, then manage as existing unsewered houses.</p> <p>Encourage water authorities to prepare sewerage management plans where the desired urban development density is incompatible with onsite wastewater management.</p>	<p>Avoid the installation of any new onsite systems in sewered areas.</p> <p>Ensure that new houses connect to sewer at the time of their construction.</p>

1.3 Structure of this report

This report is structured in line with the conceptual framework described above. A summary of the chapter structure is provided below (Table 1-2). Actions are identified in the text throughout the report using *italics*.

Table 1-2: Structure of this report

Chapter	Contents
Chapter 1	Outlines what domestic wastewater management is about and explains the logic and structure of this management plan. Also includes an overview of the Shire.
Chapter 2	Documents the existing onsite systems in unsewered areas and the various management issues associated with onsite domestic wastewater management.
Chapter 3	Anticipates future onsite systems in unsewered areas and identifies where the development pressures are and where perhaps new or extended sewerage might make sense.
Chapter 4	Briefly identifies the existing onsite systems in sewerred areas and how to manage these.
Chapter 5	Briefly explains how Council will avoid the installation of new onsite systems in sewerred areas .
Chapter 6	Discusses administrative processes required for Council to meet its obligations to manage onsite systems.
Chapter 7	Presents an action plan that captures all of the management requirements identified in the previous five chapters and discusses the resource implications for Council.
Appendices	Contains relevant background material including a summary of the legislative context and the action plan from the previous DWMP.
Volume 2	A separate document compiles studies undertaken as part of development of this DWMP. This includes the spatial risk assessment and technical analysis of land capability issues. This document is primarily intended to serve as a technical reference for Council Officers when considering site-specific development proposals.

1.4 Overview of Golden Plains Shire

Golden Plains Shire is located between the regional cities of Ballarat and Geelong. The Census of Golden Plains Shire in 2011 indicated a population of 18,765 living in 7,316 dwellings, with an average household size of 2.80¹. Figure 1-1 shows the Shire boundaries, surrounding local government areas, localities, town planning zones and declared water catchments. Points to note include:

- Most of the Shire is farmland (Farming Zone – FZ) where there are few domestic wastewater issues because the density of existing houses is low and the planning rules limit the density of new houses.
- Central and western Bannockburn contains the only Residential 1 Zone land and this land is sewerred or sewerable. Other localities that are sewerred are Smythesdale and Enfield. These three areas cover <0.5% of the Shire.
- The key areas of concern for domestic wastewater management are the zones that enable close development without sewerage, such as the low density residential (LDRZ) and township (TZ) zones. These tend to be located in close proximity to Ballarat and Geelong. Key towns include Bannockburn (the LDRZ surrounding the sewerred area), Teesdale, Inverleigh, Lethbridge and Batesford in the south and Smythes Creek, Haddon, Scarsdale and Linton in the north. The centrally located Meredith also has a high density of onsite systems.

¹ <http://profile.id.com.au/golden-plains/population?DataType=UR>

- There are approximately 6,700 existing onsite wastewater systems in Golden Plains Shire. Victoria in Future (published by the Department of Transport, Planning and Local Infrastructure) predicts the average annual growth in households between now and 2030 will be around 2%, which is equivalent to 35% increase over the next fifteen years. Assuming this growth is spread proportionately across the seweraged and unsewered part of the Shire, this represents over 150 new onsite systems each year.
- A small but important part of the Shire is contained within a designated open potable water supply catchment.

Volume 2 of this DWMP provides a risk assessment that contains more detailed spatial information including the location of the existing onsite systems and a spatial analysis of the various risk factors such as size of parcels, density of existing systems, topography, soils, groundwater and so on.

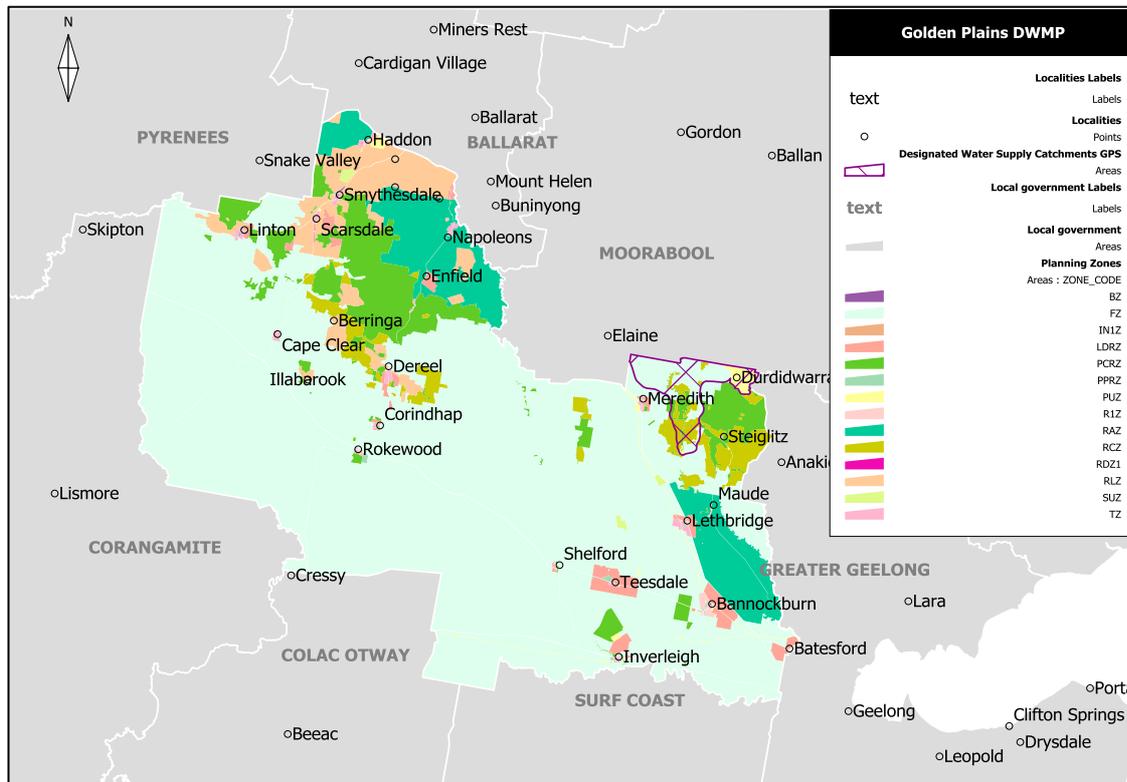


Figure 1-1: Golden Plains Shire

2 Existing onsite systems in unsewered areas

2.1 Introduction

This chapter discusses existing onsite systems in unsewered areas.

The vast majority of dwellings within the Golden Plains Shire are unsewered, resulting in approximately 6,700 existing onsite wastewater systems. The density of onsite systems increases with proximity to the regional cities of Geelong and Ballarat, particularly in and surrounding Bannockburn, Teesdale, Inverleigh, Lethbridge and Batesford in the south and Smythes Creek, Haddon, Scarsdale and Linton in the north. Meredith also has a high density of onsite systems.

A detailed spatial risk assessment was undertaken as part of the preparation of this plan, the findings of which are presented in Volume 2. In addition there has been a review of Council's records of onsite system performance and discussions with the Environmental Health team.

A key objective of the investigations has been to identify the high risk areas (or sites) to enable targeted monitoring and auditing of existing systems.

2.2 Key observations from spatial risk assessment

The risk assessment involved consideration of the number, type, age and spatial distribution of existing onsite systems and the sizes of the associated allotments. This information was then overlaid with land capability information relating to topography, soil type, climate, groundwater and surface water resources. A series of maps was produced, culminating in an overall map of high risk sites that will be used to guide monitoring and auditing. The risk assessment is contained in Volume 2 of this DWMP.

Key findings from the risk assessment include:

1. There are three sewerage areas and they cover 10 km², which represents less than 0.4% of the land area of the Shire.
2. There are approximately 6,700 domestic wastewater onsite systems in the Shire. The treatment type is unknown for about half of these, but of the half that is known, septic tanks dominate in the north and sand filters in the south.
3. Almost 75% of the onsite systems are on parcels greater than 1.0 ha so are considered to be low risk in this climate irrespective of most other risk factors (an exception is the designated water supply catchment area).
4. The housing stock is a mix of new and old. (38% are older than 30 years, 38% are 10–30 years old, 17% are less than 10 years old and 7% are age unknown.)
5. 820 onsite systems (12%) are located on parcels smaller than 0.4 ha in area and by comparing the parcel area and house age maps, it can be seen there is a high correlation between these small lots and older houses located in the central parts of Inverleigh, Teesdale, Lethbridge, Maude, Meredith, Rokewood, Linton and Scarsdale.
6. There are 57 existing houses in the Moorabool River (Sheoaks) and Stony Creek (Geelong WTP) designated water catchment within 15 km upstream of the Moorabool River diversion point. 13 of these are within 2 km upstream of the diversion point.

7. The topography of the developed parts of Golden Plains Shire is relatively flat. Very few houses (about 140 or 2%) are on land where the centroid of the parcel has a slope >20%. Typically these are located away from the built up urban areas and on large parcels of land. Slope is not considered a critical strategic issue for the Shire, but will need to be addressed at an individual allotment scale when new installations occur.
8. Broad scale soil risk assessment using ASRIS (Australian Soil Resource Information System) indicates that 17% of onsite systems are on parcels where the property centroid overlies soil types with a high risk factor (31% are medium and 52% are low). As noted the soil mapping is not at sufficient detail to be used for determining LCA requirements or setting minimum land application areas. However, it has been used to target the proposed auditing program.
9. The densities of onsite systems indicate that there are a number of areas (particularly Bannockburn, Batesford, Inverleigh, Teesdale, Lethbridge, Meredith, Linton and Scarsdale) where density is greater than 40 No./km², and thereby considered high risk. High density when combined with small allotments (<0.4 ha) further increases this risk and the audit program is targeted to these areas.
10. The concentration of small vacant lots in residential type planning zones (i.e. town zone, low density residential zone) correlates well with the areas where there is a high density of existing onsite systems on small lots.
11. Recorded onsite system failures are few and don't exhibit a spatial pattern. These do not indicate a significant issue for the Shire at a strategic level, but will continue to be addressed on an individual basis. It is proposed that the level of monitoring/auditing undertaken by EHOs is increased and data available (e.g. from routine maintenance certificates) is better linked with the centralised onsite system database (subject to sufficient funding). As such, future consideration of failures at a regional scale may indicate trends.
12. Rainfall increases gradually across the shire from south to north. However, from a statewide perspective Golden Plains' rainfall is towards the lower band of rainfall so the risks to onsite system management have been assessed as low or medium. Impact of average rainfall on the land application area required has been addressed within the Land Capability Assessment Manual.
13. While multiple areas in the Shire have shallow groundwater (according to modelling results available from Visualising Victoria's Groundwater), there are only a few small patches where this shallow groundwater coincides with low salinity, good quality groundwater. These areas are considered high risk.

The spatial risk assessment recommends the following actions:

- Action 1. Integrate the onsite system database with Council's septic tank and valuations databases and spatial system.*
- Action 2. Focus onsite system audits on high risk systems as identified in the spatial risk assessment (Volume 2).*
- Action 3. Source spatial soil layers at better resolution ASRIS, if available, and refine the soil risk rating.*
- Action 4. Develop category for failed onsite system within Council's complaints database for better reporting on failed systems.*

2.3 Audit program

Council proposes to undertake an ongoing audit program of existing high-risk onsite systems. The spatial risk assessment identified almost 1,000 high-risk sites from which the audit program should be selected.

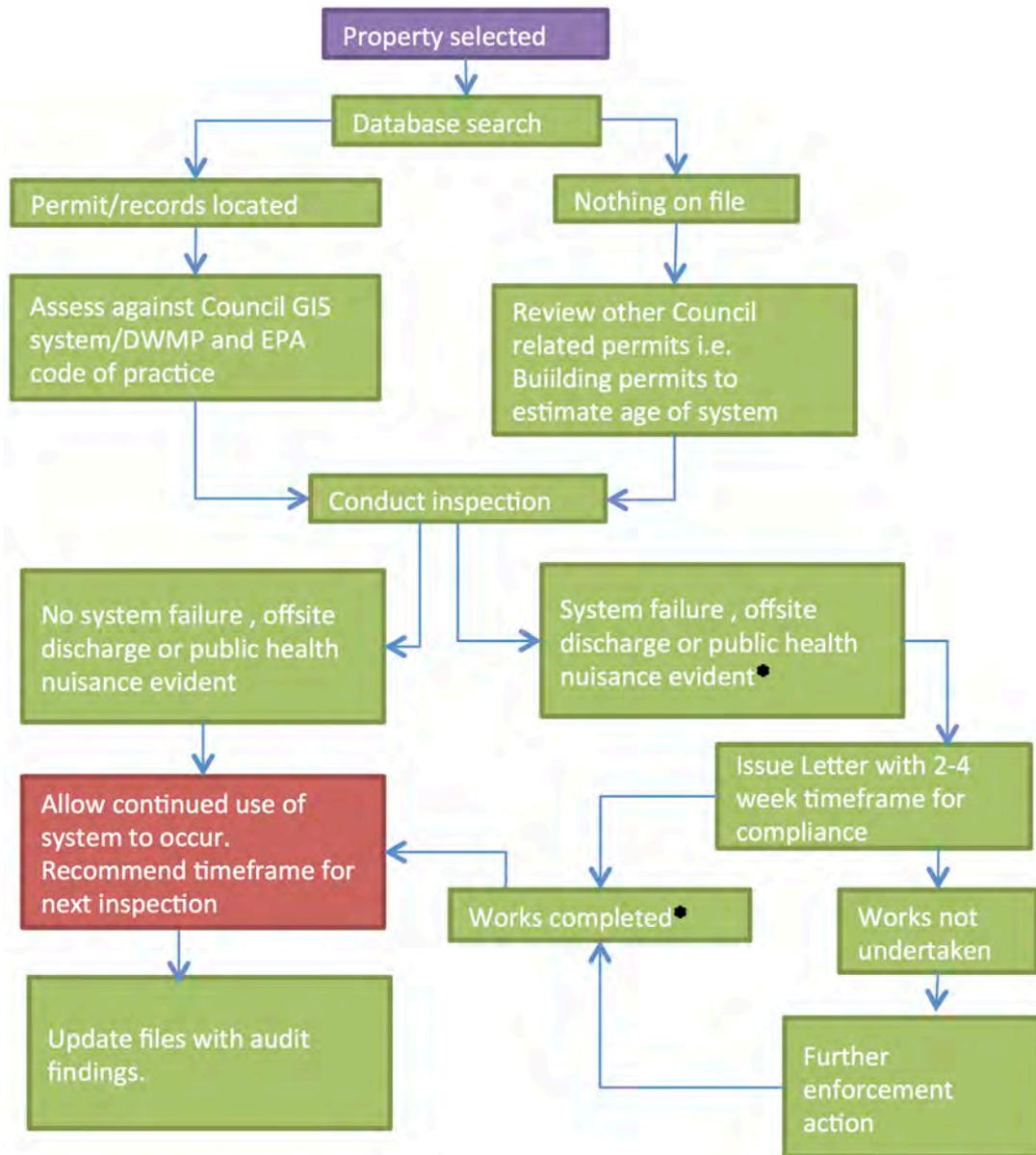
The following criteria was used to select properties for the audit:

- Existing systems within the designated potable water supply catchment
- Existing systems on small lots (<4000 m²) in densely developed areas (>40 houses/km²)
- Existing systems on small and medium sized lots (<10,000 m²) where the ASRIS soil type is rated as high risk
- Existing systems within areas where depth to groundwater is <5 m and groundwater salinity is <1000 mg/L TDS.

Properties selected for audit will include all systems in the designated catchment area and the remainder selected at random from the other three groups. 5% of systems will be audited per annum to achieve an audit of 25% of all systems throughout the life of the plan.

Audits will consist of a search of Council databases to find existing permits or records on any septic tanks at the property in question. If records are located a desktop audit will be conducted using Council's GIS software. These records will be assessed against requirements in this DWMP and current EPA requirements. Following the desktop audit an onsite inspection will be conducted using Appendix 3: Audit Checklist.

If a system is found to be failing and discharging offsite or causing/likely to cause a risk to public health enforcement action will be initiated to ensure the system owner carries out works/upgrades. This process will be in line with the flowchart shown in Figure 2-1. Systems within the potable water supply catchment area that Council direct to upgrade as part of this audit program will be required to meet current day standards in accordance with the EPA code of practice and relevant standards.



*Responsible water authority for particular property is to be notified at these stages

Figure 2-1: Audit program flowchart

- Action 5. Develop an information flyer to distribute to all properties located within the potable water supply catchment area. This flyer will contain general information on wastewater systems and the importance of safe operation within the potable water supply catchment area and further specific details of Council’s inspection/audit program of existing systems.*
- Action 6. Gather information regarding location of existing systems in the potable water supply catchment area as part of audit program. Explore mapping options for these systems on Council’s GIS software.*

2.4 Enforcement & Compliance

In accordance with Figure 2-1, when “further enforcement action” is required the following options are available to Council dependant on the circumstances:

Section	Court Fine	PIN	Comments
<p>53L Permit required.</p> <p>A person must not construct, install or alter a septic tank system unless the person holds a permit issued under this Part.</p>	300 penalty units	10 penalty units (body corporate), 5 penalty units (any other case).	May be used where septic systems are identified with no permit for its installation.
<p>53MA Compliance with permit.</p> <p>A person must comply with a permit and any conditions to which it is subject.</p>	120 penalty units	10 penalty units (body corporate), 5 penalty units (any other case).	May be used if a permit is issued for the system and it is found to not be in compliance with conditions.
<p>53MB Approval of septic tank system.</p> <p>A septic tank must not be used until the municipal council has inspected the septic tank system and issued a certificate approving its use.</p>	120 penalty units	10 penalty units (body corporate), 5 penalty units (any other case).	May be used where septic systems are identified that are being used with no certificate or approval to use.
<p>53N Maintenance of septic tank systems.</p> <p>An occupier of premises on which a septic tank is located must maintain it in accordance with the requirements specified in the permit issued by the municipal council for that septic tank system.</p>	10 penalty units	10 penalty units (body corporate), 5 penalty units (any other case).	May be used if a permit is issued for the system and the system has not been maintained as per requirements in the permit.

Figure 2-2 Enforcement powers - Environment Protection Act 1970

Section	Court Fine	Comments
<p>61 Offence of causing a nuisance.</p> <p>A person must not (a) cause a nuisance or (b) knowingly allow or suffer a nuisance to exist on, or emanate from, any land owned or occupied by that person.</p>	120 penalty units (natural person) 600 penalty unit (body corporate).	In order for this power to be used the septic tank system needs to be causing a nuisance under the definition of the act. This means that the septic tank needs to be, or liable to be dangerous to health or offensive (noxious or injurious to personal comfort).

<p>Under section 62(3)(a), if a nuisance is found to exist, the Council must take any action that the Council considers appropriate under subsection (4) of this section. The powers available to Council in this subsection are:</p> <ul style="list-style-type: none"> ▪ Issue an improvement notice or prohibition notice (section 194) ▪ Enter and take steps to abate the nuisance and recover reasonable costs as a debt to Council by the owner of the land (section 66 – where the land is unoccupied or owner/occupier cannot be found) ▪ Bring proceedings (section 129(2)) 	-	-
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Figure 2-3 Enforcement powers - Public Health and Wellbeing Act 2008

2.5 Non-residential systems

Non-residential onsite systems, comprising commercial premises and community facilities, are not the focus of this plan. The recommended management approach to non-residential systems is for Golden Plains Shire to audit onsite systems associated with non-residential facilities in line with food safety and property maintenance inspections.

Action 7. Audit non-residential onsite systems progressively in line with routine food safety and property maintenance inspection programs.

2.6 Conclusion

There are approximately 6,700 onsite systems in Golden Plains Shire, mostly at a low density and on large enough lots that they should be able to easily comply with EPA requirements and therefore sustainably manage wastewater onsite.

The spatial risk assessment carried out for this study (refer Volume 2) found that the highest risk existing systems are those located:

- In the central parts of older unsewered townships where there are small lots and a high density of systems.
- In the designated water supply catchment area. There are a handful of onsite systems within 2 km of the Moorabool River intake for Geelong’s water supply.
- Between Cambrian Hill and Smythes Creek where there is high quality groundwater within 5 m of the surface.

A progressive audit of these high-risk sites has been recommended.

Broad scale ASRIS soil mapping has been used in the risk assessment, but this dataset is at a scale that is really too broad for meaningful risk judgements at an allotment, or even subdivision or town scale. If

more detailed soil mapping becomes available (e.g. the 1981 Soil Conservation Authority mapping is digitised more accurately) it could be used to refine the spatial soil risk assessment.

Improvements are recommended to the structure and completeness of the onsite system database and integrated reporting of complaints is also recommended.

3 Future onsite systems in unsewered areas

3.1 Introduction

There are significant expanses of land within Golden Plains Shire that have been identified for unsewered lower density residential development in which new onsite systems will be installed.

Broadly speaking, based on current development rates, there is ten years supply of land immediately available for low-density residential development across Golden Plains Shire and there could be as many as 1,500 new onsite systems installed over the next decade. Furthermore structure plans for many of the towns within Golden Plains Shire have identified further areas for future re-zoning.

When considering new development, there are five distinct cases:

- Greenfield development, where the provision of sewerage or the density of onsite systems is set at the time of subdivision.
- Infill development, where any new onsite systems must slot in to areas where there are already unsewered houses and small lots. This is the type of development that can occur in the central core of the older towns including Inverleigh, Teesdale, Lethbridge, Maude, Meredith, Rokewood, Linton and Scarsdale, but also as 'battle-axe' blocks in low-density areas.
- Potable water supply catchments. A small but important part of the Shire is contained within a potable water supply catchment where special planning guidelines apply.
- Single lot development that can occur in other unsewered parts of the Shire.
- Non-residential development.

This chapter addresses these five types of development separately.

3.2 Greenfield development

For this plan the term "Greenfield Development" is used to describe subdivisions that transform land from farming (or other non-residential) uses to residential form. This includes broad-acre, estate-type, developments as well as progressive growth fronts on the edges of existing residential areas. Unsewered Greenfield development would only relate to land designated as Rural Living or Low Density Residential Zone.

Council controls the planning process and provided that subdivision is undertaken in accordance with sound land capability assessments, then onsite systems in greenfield development should (in theory) be sustainable from day one.

The options for greenfield sites are:

- i. Require sewerage and encourage higher density development, or
- ii. Make sure the lot sizes are sufficient for long-term sustainable onsite wastewater management through the provision of detailed land capability analysis.

It will be critical to ensure that developments which occur in the middle ground between these two options are carefully considered to ensure that the cumulative impacts of the resulting developments can be adequately accommodated with the appropriate wastewater infrastructure.

Greenfield development is occurring at a number of fronts across the Shire including east and south of Bannockburn, north of Inverleigh, around Teesdale and Lethbridge and near Smythesdale. Onsite systems will be sustainable in greenfield development provided that:

- The lot sizes in the overall subdivision plan are based on sound regional land capability information (such as the 1981 Soil Conservation Authority work undertaken for the old Bannockburn and Buninyong Shires, or equivalent).
- At the time of development the appropriate treatment and reuse/disposal system is selected, and this is well designed and installed. Lot-scale land capability assessments may be required as part of this process.
- The occupier undertakes diligent ongoing management and maintenance.

The management philosophy for these greenfield areas is to achieve best practice planning, design and installation of onsite systems. The code², the standard³ and the land capability assessment framework⁴ are the tools of trade that Council's EHOs and planners can use to assess and manage this process.

As part of this project, RMCG has prepared an assessment manual on Land Capability for Onsite Domestic Wastewater Management in Golden Plains Shire. The assessment manual is presented in Volume 2 and includes guidance on minimum lot sizes. The focus in the assessment manual is on the key towns of Bannockburn and Meredith. These towns have been considered due to development pressure, existing onsite wastewater issues and availability of relatively detailed soil mapping. The lessons from these towns can be applied across the Shire more broadly.

Actions for unsewered greenfield development

Action 8. Encourage comprehensive Land Capability Assessments be prepared prior to the detailed design of Greenfield sub-divisions. The findings from these Land Capability Assessments should inform the number and configuration of proposed lots and the overall development density (average lot size).

Action 9. *The minimum lot size for sub-division in unsewered areas is 4,000 m², subject to:*

- *Maximum of 15% of each lot is to be set aside for land application areas, and*
- *House size is limited and water reduction fixtures/fittings used to achieve 750 L/day wastewater generation, and*
- *Secondary treatment and drip irrigation with a minimum land application area of 375 m² (increasing to a minimum of 420 m² where average rainfall exceeds 600 mm per annum), and*
- *Stormwater cut-off drains upslope of land application area, and*
- *Soil preparation to provide at least 150 mm depth of good quality topsoil (in situ or imported), and*
- *Application of gypsum to dispersive, sodic or heavy clay based soils*

² Code of Practice Onsite Wastewater Management, EPA Victoria, Publication 891.3, February 2013.

³ On-site domestic wastewater management, Standards Australia, AS1547: 2012.

⁴ Victorian land capability assessment framework, MAV, DEPI and EPA, 2nd edition, January 2014.

Action 10. Where there is evidence of more permeable soils – e.g. soil survey data at an appropriate scale (1:25,000) or a site (or town) specific land capability assessment – restrictions detailed in Action 9 may be varied.

3.3 Infill development

3.3.1 General

Infill development can take two forms:

- New houses on existing lots within the built-up parts of towns like Inverleigh, Teesdale, Lethbridge, Maude, Meredith, Rokewood, Linton and Scarsdale.
- Re-subdivision or excision of blocks, and the consequent construction of new houses in low-density residential areas.

Infill development can create tension between sustainable domestic wastewater management and orderly urban development. On the one hand, onsite systems require relatively large lot sizes to be sustainable, but on the other hand, smaller lots are attractive in urban areas because they allow for a more consolidated built form, and therefore more efficient use of urban infrastructure and land.

Given the intensity of existing development within the unsewered townships in Golden Plains Shire (as shown in the spatial risk assessment, Volume 2), infill development will be limited without some form of hydraulic wastewater relief such as traditional all-waste sewerage or perhaps piped greywater systems.

Within Golden Plains Shire, there are a number of small vacant lots – smaller than the recommended minimum of 4000 m² for greenfield subdivision. This is particularly the case for the central parts of older towns such as Meredith and Linton. These lots are identified on Map 9 in the Spatial Risk Assessment. The assessment manual for land capability (refer to Volume 2) gives consideration to development of these small lots and recommends the following.

Actions for infill development

Action 11. Develop an information prospectus regarding wastewater issues and new dwelling developments in unsewered areas. Provide information brochures to local estate agents, property developers and land capability consultants.

Action 12. Limit new development on existing small lots (<4000 m²) relying on onsite wastewater management to sites where: soil analysis provides evidence of higher permeability than clay dominated Category 6 soils, OR wastewater volume generated can be minimised through construction of a small house, indoor recycling of treated greywater or another alternative approach.

Action 13. Allotments created through re-subdivision of township zones or excision of lots in low density residential areas should be a minimum of 4000 m² unless there is potential for development as per Action 10. Care needs to be taken to ensure that both the existing system and any proposed system can each comply with the code and standard within the bounds of the respective new lots.

3.3.2 Individual towns

The following discussion addresses some of the issues relevant to consolidated development and wastewater management in each of the main unsewered towns.

Inverleigh

The Inverleigh Structure Plan Review (2005) contains good information about effluent disposal options, most of which remains relevant and is applicable to all unsewered towns. Specifically, the structure plan review noted that:

- Existing smaller lots within the township zone already present a problem with effluent run-off from septic systems.
- Development of the township-zoned area will remain severely constrained without the provision of suitable sewerage management facilities.
- Full implementation of a sewerage system was recommended (with reticulation, transfer and treatment solution, and commercial reuse applications in the vicinity of the treatment plant).
- Barwon Water, as a service provider, would only investigate a possible sewerage scheme if the risks have been identified and there is demonstrated community support for a scheme.
- Golden Plains Shire should obtain health and environmental information for Inverleigh such as odour issues within the township and the bacterial quality of flows in street drains. The bacterial sampling and tests should be carried out in accordance with procedures specified by a NATA accredited laboratory, and should analyse for total and faecal coliforms. Representative locations in the township should be selected, and samples taken at each location on at least three occasions. The date/time of sampling and weather conditions should be recorded for each sample, as well as any other relevant information (e.g. recent rainfall).

The situation at Inverleigh has changed very little since 2005, except that there is now perhaps more pressure for close-development and less appetite from water authorities and state government to fund reticulated sewerage. The feasibility of sewerage for Inverleigh should be revisited, with a focus on alternative non-traditional means of collecting, natural treatment and disposal or reuse. However, there is a need to first build sufficient evidence to demonstrate that this is the best option for the town. The revised monitoring and audit program for existing systems (refer to Section 2.3) will lead to increased understanding of the quality of wastewater management in the town. It is also recommended that stormwater quality monitoring is undertaken and an engagement/education program is established for residents to promote best practice onsite wastewater management.

Much of Inverleigh is subject to inundation from the Barwon and Leigh Rivers. Overlays showing the extent of floodway and land subject to inundation are shown in the planning scheme. Extra care is required when planning, installing and operating onsite systems on flood prone land.

Teesdale and Lethbridge

Teesdale and Lethbridge are both smaller than Inverleigh and they don't have the risks associated with flooding or proximity to the river. They are therefore lower priority for reticulated sewerage than Inverleigh (or Meredith, see below).

There appears to be a recent trend for infill re-subdivisions in already developed low-density areas around Teesdale (as shown in Figure 3-1) and other parts of the Shire. Council needs to assess these very carefully to ensure these new lots are capable of sustaining onsite systems, and that the lot size and configuration suit the requirements of the existing onsite system.

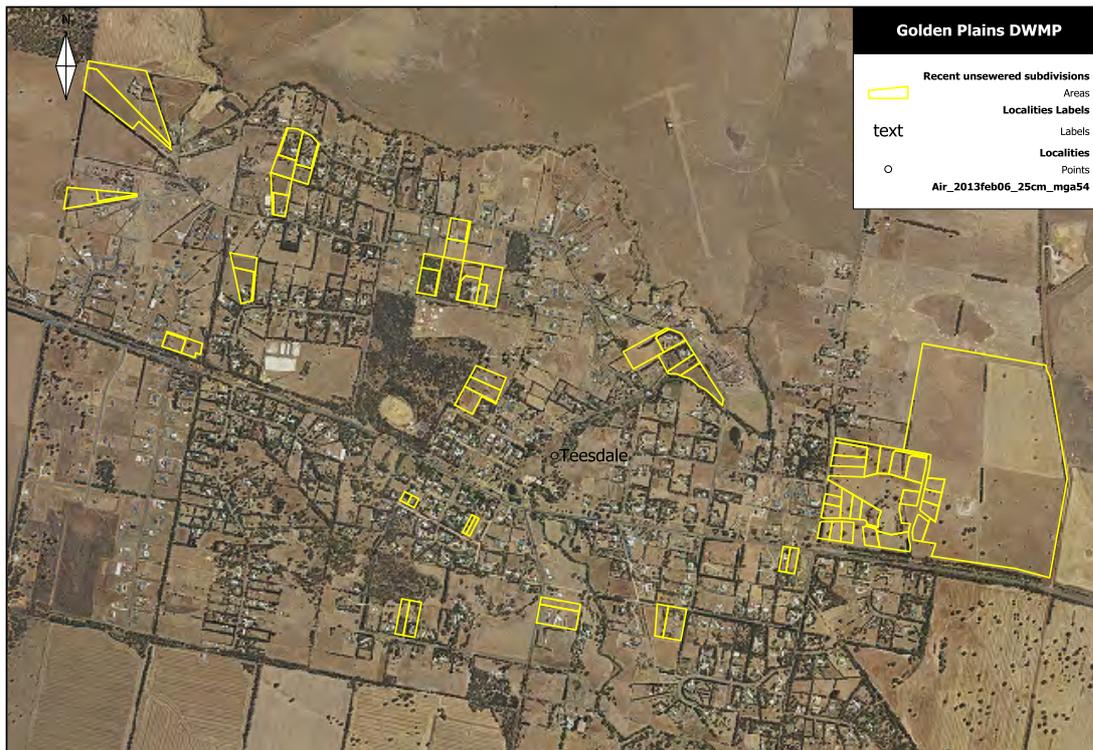


Figure 3-1: Recent subdivisions near Teesdale

Meredith

The Meredith Structure Plan Review (2010) makes the following remarks in relation to sewerage:

- Drainage and environmental issues associated with septic tanks remains an issue in the township of Meredith. The community is supportive of further investigation into alternative systems for the town.
- The implementation of reticulated sewerage in Meredith is not opposed by Barwon Water however the costs to residents make this option cost prohibitive. Under Council's DWMP Meredith was ranked as a Priority 4 township. Smythesdale and Inverleigh were Priority 1 towns identified for sewerage in the shorter term. The DWMP includes an action plan providing for the monitoring of treatment plants, educating residents about maintenance of systems and ensuring that contamination of surface waters by effluent is minimised.
- Alternative effluent disposal systems should be considered. This would provide opportunity for the Golf Course and or other enterprises to take advantage of treated wastewater that may become available as a result.
- The community have expressed concern regarding stormwater drainage throughout the town, which is compromised by failing septic tank systems.
- The strategic response for Meredith is to “Consider alternative effluent disposal options for the town other than the standard reticulated sewerage. This may be relevant to existing areas, land identified for development or both.”
- Any assessment of the suitability of the land designated as ‘Future Investigation Area’ for residential use must consider (amongst other things) sewerage and drainage issues including any impacts of the stability of soils in the Deadmans Creek catchment.

The situation at Meredith has changed very little, except that there is now more pressure for close-development but perhaps less appetite from water authorities and government to fund reticulated

sewerage. If sewerage does not take place, there will be limits on development within the town. Further discussion is provided in the assessment manual in Volume 2.

The feasibility of sewerage for Meredith should be revisited, with a focus on alternative non-traditional means of collecting, natural treatment and disposal or reuse. However, there is a need to first build sufficient evidence to demonstrate that this is the best option for the town. The revised monitoring and audit program for existing systems (refer to Section 2.3) will lead to increased understanding of the quality of wastewater management in the town. It is also recommended that stormwater quality monitoring is undertaken and an engagement/education program is established for residents to promote best practice onsite wastewater management.

Linton

Council officers indicate that the town has less development pressure than the other unsewered towns. Linton is considered to be lower priority for reticulated sewerage than Inverleigh or Meredith, although this conclusion should be reviewed in the next DWMP.

Scarsdale

While the old part of Scarsdale contains an area of relatively dense existing systems, there are too few houses to justify sewerage. This conclusion should be reviewed in the next DWMP once audit results are available.

Maude and Rokewood

Small group of houses and less demand for new dwelling development. Low risk.

Actions for priority towns

- Action 14. Develop an engagement and education program for residents of Inverleigh and Meredith to promote best practice onsite wastewater management.*
- Action 15. Undertake stormwater quality analysis programs in Inverleigh and Meredith to determine whether existing onsite systems are causing pathogen or nutrient pollution.*
- Action 16. Review outcomes of engagement and monitoring in Inverleigh and Meredith in 5 years and determine the need for sewerage and/or stormwater management controls. If required, request Barwon Water to develop sewerage management plans under Section 32 SEPP WOV.*

3.4 Open potable water supply catchment area

A small but important part of the Shire is contained within a designated open potable water supply catchment. The rules for development in the designated catchment area are more stringent than other areas, as set in the Minister's guidelines⁵. A key objective of the guidelines is that density of dwellings should be no greater than 1 dwelling per 40 ha, and each lot created in a subdivision should be at least 40 ha in area.

⁵ Guidelines for planning permit applications in open, potable water supply catchment areas, DSE, November 2012.

Subdivision

The private land in the catchment area is zoned either Farming Zone or Rural Conservation Schedule 3, which limit the subdivision to lots of a minimum of 100 ha and 60 ha respectively. So, from a subdivision point of view, Council's planning scheme gives adequate protection to the potable water supply catchment areas.

Dwellings

The planning scheme states for dwellings:

- Must be the only dwelling on the lot, both in the farming zone and the rural conservation zone.
- If the lot size is below 40 ha a planning permit is required for a dwelling.
- The wastewater must be treated and retained on-site in accordance with the State Environment Protection Policy (Waters of Victoria) under the Environment Protection Act 1970. (Both FZ and RCZ.)

Figure 3-2 shows the designated catchment area and existing onsite systems as 40 ha circles centred on the parcel centroid. The colour of the circles indicates that all except two of the onsite systems in the designated catchment are located on lots greater than 1.0 ha in size.

Where the circles overlap this indicates that the density of the existing onsite systems is greater than 1 house per 40 ha. This suggests that there is room for new houses in the northern part of the catchment, but not the south.

All new dwelling proposals in the potable water supply catchment area must be supported by a detailed land capability assessment, which specifically addresses potential impacts on the potable water supply catchment. These land capability assessments will be carefully considered by both planning and environmental health officers.

Council's audit program and monitoring activities as set out in this DWMP, will ensure that existing systems within the potable water supply catchment area are operating in accordance with permit conditions and EPA requirements and not discharging beyond property boundaries or causing public health risks.

Action 17. Integrate the potable water supply catchment area into Council GIS software.

Action 18. Identify the number of properties within the potable water supply catchment area that could potentially be sub-divided or developed with additional dwellings.

Summary

The existing planning controls enable Council to meet the requirements of the guidelines for planning permit applications in open, potable water supply catchment areas for any new dwellings.

The proposed audit program for existing onsite systems will target the designated catchment area and consequently address any issues with existing systems (refer to Section 2.3).

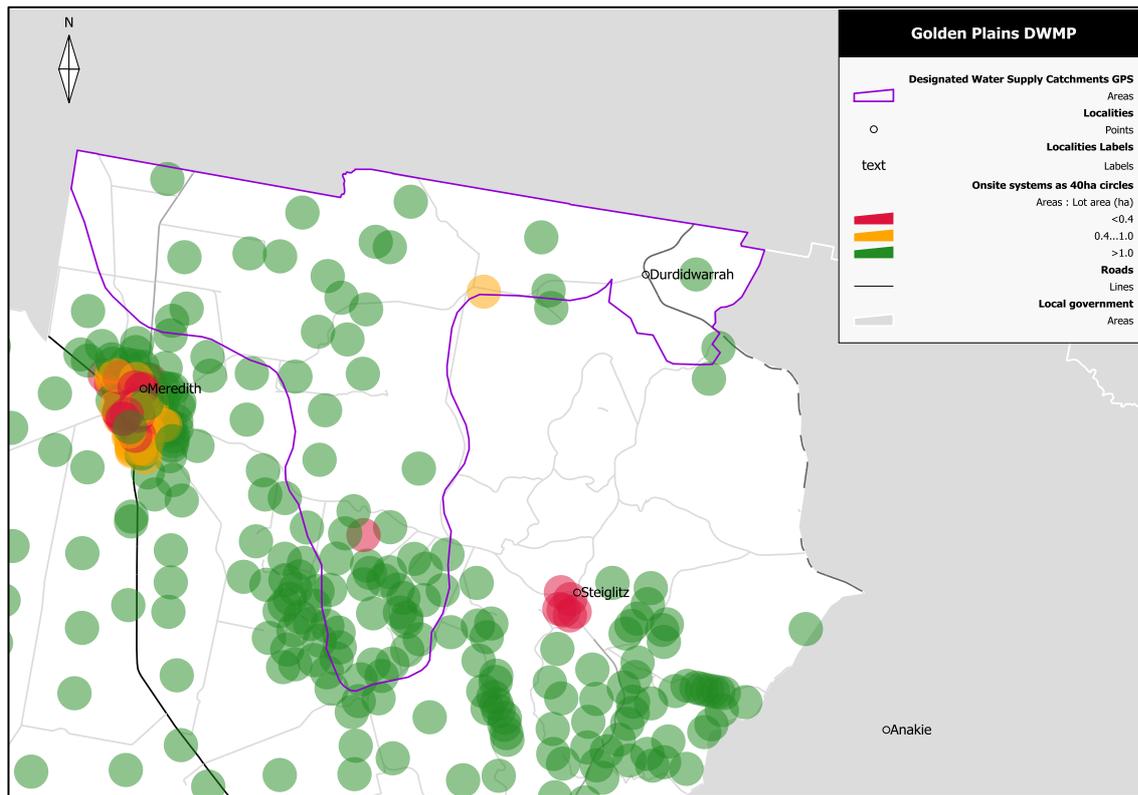


Figure 3-2: Designated open potable water supply catchment

3.5 Single lot development

Although uncommon, development can occur on individual lots that don't fit into the three categories above. An example would be construction of a new house within the Farming Zone – perhaps following demolition of an old dwelling. The lots are expected to exceed 1 ha in area and be able to accommodate onsite wastewater disposal/reuse.

Development will need to occur in line with the Shire's *Guide for Installation or Alteration of a Septic Tank System* – which is to be updated as outlined in Section 6.3. There are no additional actions required specific to single lot development.

3.6 Non-residential development

Any new non-residential onsite systems, comprising commercial premises and community facilities, should be supported by full land capability assessment and water balance calculations.

3.7 Conclusions

Future onsite systems in unsewered areas represent the main administrative workload for Council and are a significant risk. If new subdivisions are approved and/or onsite systems are installed without adequate planning and design, they will become legacy problems for the future. The scale of unsewered development in Golden Plains Shire is perhaps unique in Victoria, so Council needs to adopt strategies, policies and workflow practices tailored to suit.

Council, as the planning authority, controls the planning process so has the power to ensure that lot sizes in greenfield developments are set such that the land can sustainably accommodate onsite systems.

Infill development where there is no prospect of sewerage must be managed very carefully. When re-subdividing a parcel with an existing house and onsite system, care needs to be taken to ensure that both the existing system and any proposed system can each comply with the code and standard within the bounds of the respective new lots.

Given the intensity of existing development within the unsewered townships in Golden Plains Shire, infill development will be limited without some form of hydraulic wastewater relief such as traditional all-waste sewerage or perhaps piped greywater systems.

It is recommended that in the future both Inverleigh and Meredith are considered for alternative style sewerage. These towns are known to have existing problems and importantly the urban form and infrastructure lends itself to accommodating a greater density of residential development. Future strategies for wastewater management will need to be subject to additional stormwater monitoring and engagement with residents to build up a more robust case for change.

There is a small area in Golden Plains Shire that is a designated open potable water supply catchment. Ensuring best practice onsite systems in concert with existing planning scheme rules on subdivision and dwellings, will contain the risks.

4 Existing onsite systems in seweraged areas

4.1 Introduction

This chapter describes the management of existing onsite systems in the three seweraged areas in Golden Plains Shire (Smythesdale, Bannockburn and Enfield), which together cover <0.5% of the Shire area.

Table 4-1: Seweraged area summary

Name	Area (km ²)	Proportion of Shire area (%)
Seweraged area	10.3	0.4
▪ <i>Smythesdale</i>	1.2	0.05
▪ <i>Enfield</i>	2.4	0.10
▪ <i>Bannockburn</i>	6.7	0.25
Unsewered area	2695	99.6
Golden Plains Shire	2705	100

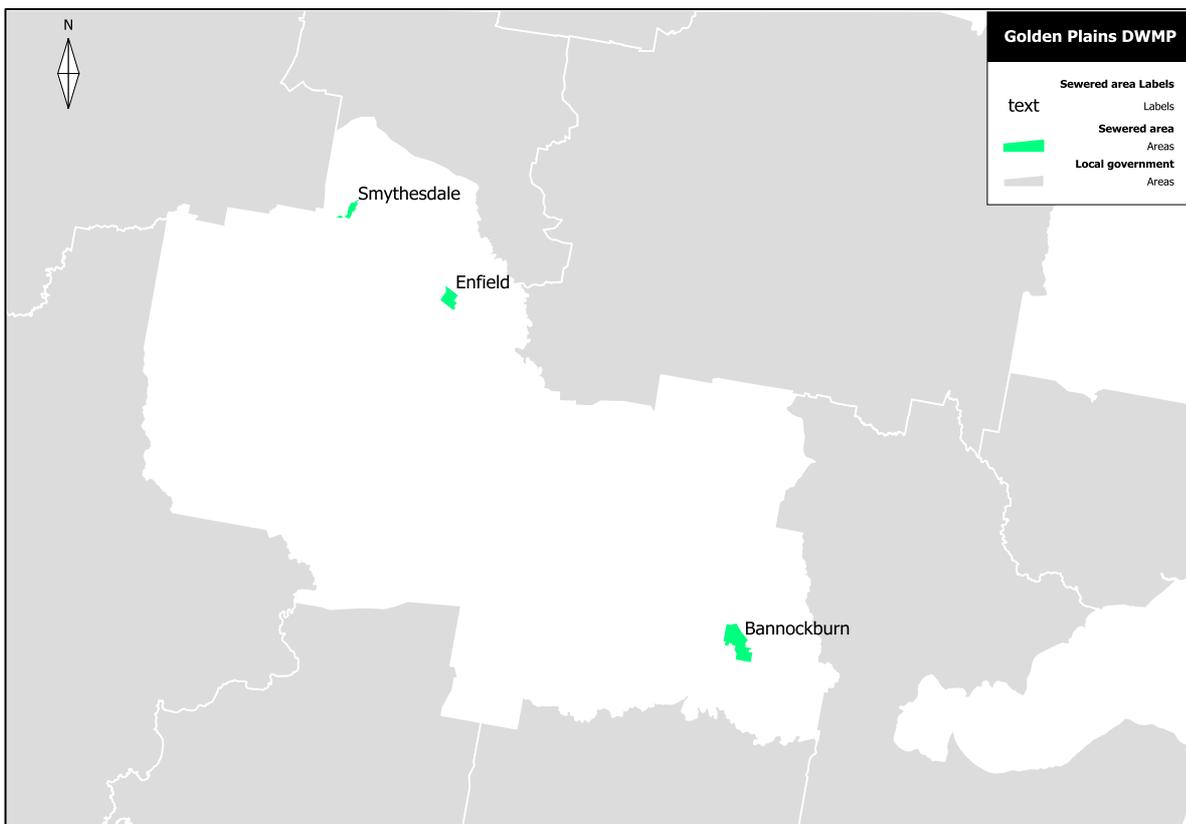


Figure 4-1: Map of seweraged areas

Smythesdale

Central Highlands Water completed a sewerage scheme in Smythesdale within the past two years. Some existing houses have not yet been connected. A sewerage district has been gazetted, but this does not exclude extensions beyond the seweraged area.

There are about 150 existing houses within the seweraged area, and approximately half of these are not yet connected to sewerage.



Figure 4-2: Smythesdale seweraged area

Bannockburn

Bannockburn is the largest sewerage scheme in the Shire. It started in the late 1990s as a backlog scheme to service the closely developed inner part of the town, but now also serves intensive new residential development to the west and south. The original scheme commands all of the Residential 1 and Business Zones and it is understood that very few houses within these areas are not already connected to the scheme.

Figure 4-3 shows that within the bounds of the sewerage area there is a significant amount of vacant land that will over the next decade convert into small lot (sewered) residential development.

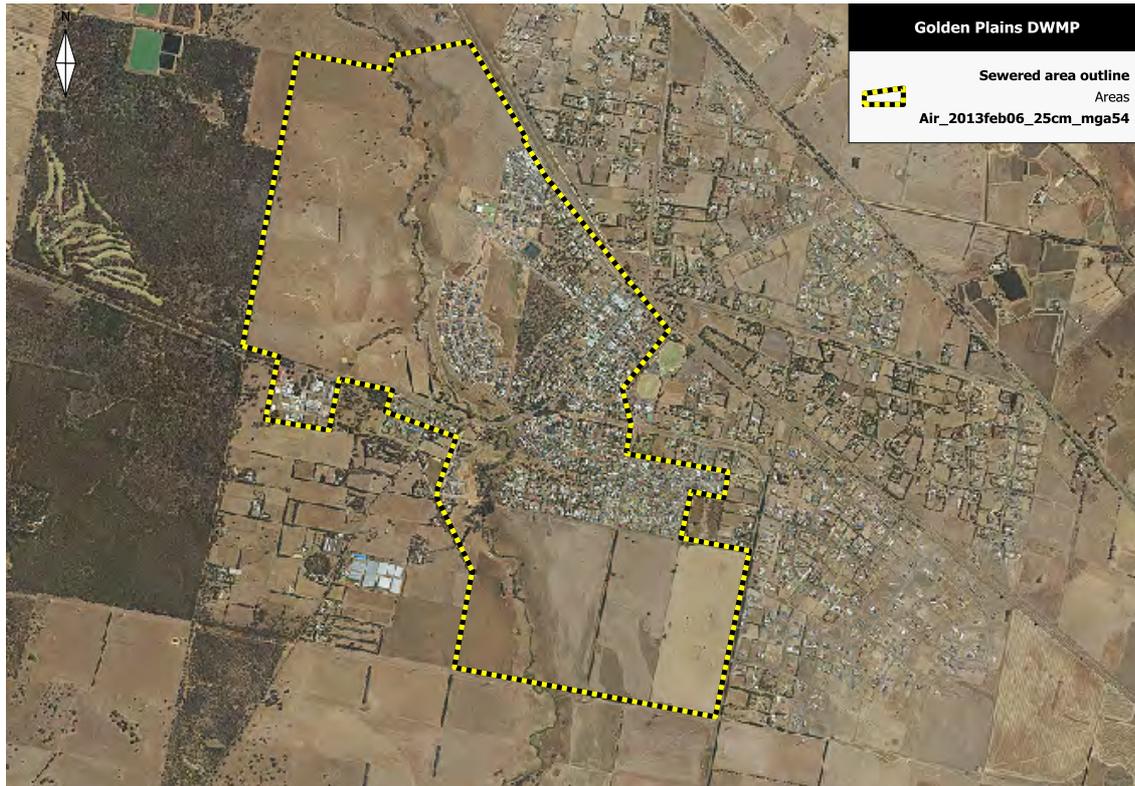


Figure 4-3: Bannockburn sewerage area

Enfield

The Enfield scheme was installed in 1996. All existing houses are connected and no further extensions are possible.

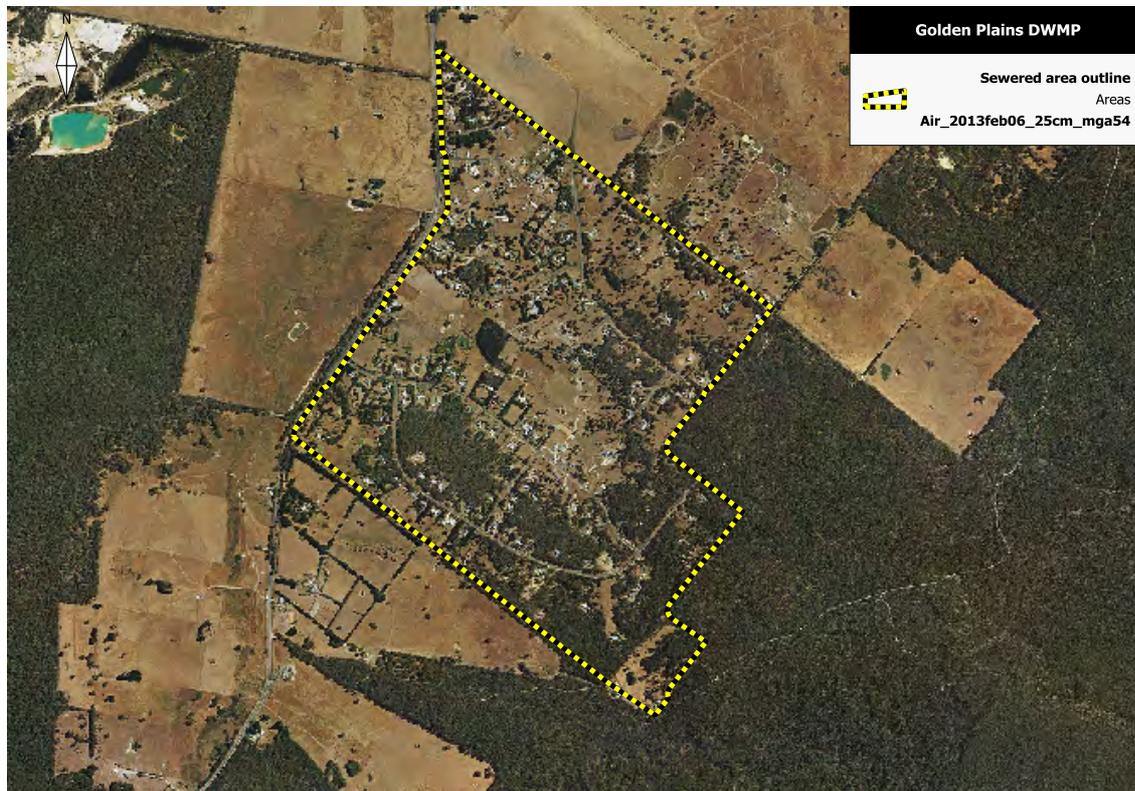


Figure 4-4: Enfield sewered area

4.2 Discussion

In principle all houses within these sewered areas should be connected to sewerage. In practice however, for various reasons, there are existing houses that are not connected to sewerage. Chapter 4 discusses the importance of avoiding any new onsite systems in the three sewered areas. This chapter explores the management of existing onsite systems in sewered (or sewerable) areas.

Coordination between Council, the water authorities and the affected landowners is the key. Ideally:

- The water authority should have a conceptual plan for the layout of future sewer network across the sewered areas and this can be used to identify the opportune time or trigger for connection of unsewered houses. Usually this will occur at the time of development of land during a short window of opportunity where the design layout of sewer network can be modified to connect any existing unsewered houses or provide sufficient depth for allotment control or future extension.
- Council will have a database of unsewered houses in sewered areas and will use brochures and information through estate agents and developers to ensure new owners are aware of the situation.
- Landowners will be aware of the status of their property.

At a steering committee meeting held during the preparation of this DWMP it was agreed that Council and the water corporations need to develop an agreement (or MOU) to achieve orderly management of onsite systems in sewered areas. The principles of such an MOU should be:

- Criteria and maps to deem whether reticulated wastewater infrastructure is considered reasonably accessible.
- New onsite systems should not be installed in sewer areas.
- Houses in sewer areas that rely on onsite systems should migrate to sewer whenever practicable. Upgrades to onsite systems should be actively discouraged.
- Where onsite systems in sewer areas are performing well, the urgency is not so great. These systems can be progressively resolved by opportunistic connection in concert with sewer extensions to new properties.
- Premises with failed onsite systems in sewer areas (found through audit or complaint) should be connected to sewerage as a priority. SEPP WOV provides a framework and agency powers for this connection process.
- Information statements and general information for homeowners in sewer areas play an important role in informing prospective and current occupants of their obligations in relation to connecting to sewerage.
- Council will develop a clear written procedure for the abandonment of onsite systems when a property is connected to sewer.
- Water authorities will prepare concept designs that show the location of unsewered houses within sewer areas and illustrate how the layout of future sewers will service these houses.
- Council will identify and flag relevant properties within the onsite system database, and explore options for reviewing Section 32 information statements for affected properties.

Action 19. Establish MOUs with Barwon Water and with Central Highlands Water that set out the agreed principles for managing existing onsite systems (and avoids any new onsite systems) in sewer areas.

Action 20. Develop a shared understanding between Council and Central Highlands Water of the plan for extending sewerage throughout the Smythesdale Sewerage District and share this information with owners and prospective owners through brochures and information.

4.3 Conclusion

Existing onsite systems in sewer areas are not a major domestic wastewater risk but coordinated efforts to opportunistically connect these houses will depend on good planning and communication between the water authorities and Council. The establishment of MOUs with the water corporations is recommended.

5 Future houses in sewerred areas

Golden Plains Shire contains three sewerred areas, as described in Chapter 4.

Council will avoid the installation of new onsite systems in these areas by:

- Supporting water authority requirements for new properties to connect to sewerage.
- Working with the water authorities to develop plans and procedures for the efficient extension of the sewer networks.
- Being consistent with decisions.

Onsite systems in sewerred areas are not a major domestic wastewater risk but coordinated efforts to opportunistically connect these houses will depend on good planning and communications between the water authorities and Council.

Action 21. Avoid new onsite systems in sewerred areas through good communication with water authorities and land owners.

6 Tools and administrative procedures

6.1 Introduction

Managing the process for new onsite system approvals and managing the health and environmental issues associated with the fleet of existing onsite systems are important responsibilities for Council. This section of the plan identifies the critical activities and processes for Council, landowners and water authorities.

6.2 Clear responsibilities

Council is not responsible for everything to do with onsite system management. Occupiers of premises, municipal councils and water authorities each have obligations under Sections 32-34 SEPP WOV, and plumbers, land developers and land capability assessors also have important roles to play in establishing sustainable onsite systems in unsewered areas. Section 1.8 of the EPA Code of Practice explains in detail the roles and responsibilities that various stakeholders play in domestic wastewater management.

One of the traps in onsite system management is duplication of requirements and blurring of responsibilities. Council needs to play a coordination role and make all parties aware of their responsibilities, but Council also needs to be careful not to assume other parties' responsibilities.

In simple terms, the rules and guidance for managing onsite systems are established in four key reference documents (Appendix 1 outlines context and legislation in more detail):

- State Environment Protection Policy (Waters of Victoria).
- Code of Practice Onsite Wastewater Management, EPA Victoria, Publication 891.3, February 2013.
- On-site domestic wastewater management, Standards Australia, AS1547: 2012.
- Victorian land capability assessment framework, MAV, DEPI and EPA, 2nd edition, January 2014.

Many of the issues related to managing onsite systems can be avoided or resolved if there is adequate communications between the relevant parties and an understanding of responsibilities. Rather than taking on all responsibilities, Council can play a coordination role by which it facilitates communication between the relevant players.

Action 22. Maintain regular up to date communication with plumbers, treatment plant installers, maintenance contractors, land capability assessors, liquid waste removal contractors etc. to inform on relevant waste management issues.

6.3 Guide for Installation or Alteration of a Septic Tank System

Golden Plains Shire has in place a *Guide for Installation or Alteration of a Septic Tank System*. This has been reviewed and recommended updates are provided in the Land Capability Assessment Manual in Volume 2. Key elements include:

- A list of site conditions that require a Land Capability Assessment covering lot size, groundwater risk, the designated open potable catchment area, topography, flooding potential and soil typing.
- Suggested LCA contents based on soil conditions and so on.

- Minimum land application areas for sites that do not undertake a LCA.
- Guidance on sand filter sizes and need for filter lining in permeable soils.

Action 23. Update the Guide for Installation or Alteration of a Septic Tank System to reflect the guidance provided in Volume 2 – Land Capability Assessment Manual.

6.4 Monitoring and audit program for existing systems

For Council to gain a better understanding of the performance of the existing onsite systems, a monitoring and audit program aimed at high-risk systems is recommended. Details are provided in Section 2.3.

In addition to reporting to water authorities as per flowchart Figure 2-1 for identified system failures an annual report and an independent audit of the plan (3 years into the plan) will be conducted and made available to the relevant stakeholders.

Action 24. Prepare an annual report summarising the results of auditing program and monitoring activities and other actions within this DWMP to be distributed to Barwon Water, Central Highlands Water and the Environment Protection Authority.

Action 25. Engage an accredited independent auditor to conduct an audit of this DWMP and associated implementation and scheduled actions relating to the Potable Water Supply Catchment Area. Audit report is to be distributed to Barwon Water and the Environment Protection Authority as soon as it is made available.

6.5 Resources for administration of onsite systems

Golden Plains Shire has a significant number of existing onsite systems. While most of these are low risk, there is a substantial workload in monitoring the higher risk existing systems and dealing with complaints and enquiries.

Additionally, Golden Plains will have a high number of applications for new systems over the next decade due to its proximity to Geelong and Ballarat and the popularity of low-density residential style development.

Ensuring there is trained and experienced staff and the necessary administrative systems to deal with the existing and new onsite systems is an ongoing challenge for Golden Plains Shire as it is for all local governments.

The previous DWMP recommended that Council investigate funding sources, including a special charge, for implementation of the DWMP action plan. Discussions with Council officers indicate that there is no appetite for such a special charge so instead it is recommended that the actions in this plan be budgeted in the appropriate environmental health or planning programs.

Action 26. Incorporate actions from this plan into the appropriate planning and environmental health programs funded through normal rate revenue.

Action 27. Conduct an internal review of the resources (i.e. number, experience and training of staff, effectiveness of the administrative systems and workflow processes) used to administer existing and future onsite systems.

7 Action plan

7.1 Introduction

This chapter reviews the action plan from the previous DWMP and presents a proposed new action plan based on the actions made in previous chapters in this document.

7.2 Actions from previous DWMP

The 2007/2008 DWMP had a series of actions, which are listed in full in Appendix 2 along with an indication of whether or not the action was implemented and whether or not the action is carried forward into this new plan.

7.3 Proposed actions for this DWMP

The actions listed throughout the earlier chapters from the action plan are summarised below along with suggestions for budget, responsibility timelines and performance indicators.

Table 7-1: Summary of proposed actions

Action	Budget	Resp.	Partners	Time line	Performance indicator
1. Integrate the onsite system database with Council's septic tank and valuations databases and spatial system.	Existing	Sen. EHO	GIS and IT	2015	Integrated system complete and functional.
2. Focus onsite system audits on high risk systems as identified in the spatial risk assessment (Volume 2).	Existing	Sen. EHO	--	Annual program	50 systems (5% of high risk systems) per annum
3. Source spatial soil layers at better resolution ASRIS, if available, and refine the soil risk rating.	Future program	Dev. Mgr	Consultant	2018	Revised soil risk rating.
4. Develop category for failed onsite system within Council's complaints database for better reporting on failed systems.	Existing	Sen. EHO	IT	2015	Category complete and functional.
5. Develop an information flyer to distribute to all properties located within the potable water supply catchment area. This flyer will contain general information on wastewater systems and the importance of safe operation within the potable water supply catchment area and further specific details of Council's inspection/audit program of existing systems.	Existing	Sen. EHO	--	2015	Flyer distributed and hosted on website.

Action	Budget	Resp.	Partners	Time line	Performance indicator
6. Gather information regarding location of existing systems in the potable water supply catchment area as part of audit program. Explore mapping options for these systems on Council's GIS software.	Existing	Sen. EHO	--	2020	Program complete
7. Audit non-residential onsite systems progressively in line with routine food safety and property maintenance inspection programs.	Existing	Sen. EHO	--	Annual program	Number of audits per year.
8. Encourage comprehensive Land Capability Assessments be prepared prior to the detailed design of Greenfield sub-divisions. The findings from these Land Capability Assessments should inform the number and configuration of proposed lots and the overall development density (average lot size).	Existing	Dev. Mgr	Sen. EHO	2015	Number of broad-scale LCAs.
9. The minimum lot size for sub-division in unsewered areas is 4,000 m ² , subject to: <ul style="list-style-type: none"> - Maximum of 15% of each lot is to be set aside for land application areas, and - House size is limited and water reduction fixtures/fittings used to achieve 750 L/day wastewater generation, and - Secondary treatment and drip irrigation with a minimum land application area of 375 m² (increasing to a minimum of 420 m² where average rainfall exceeds 600 mm per annum), and - Stormwater cut-off drains upslope of land application area, and - Soil preparation to provide at least 150 mm depth of good quality topsoil (in situ or imported), and - Application of gypsum to dispersive, sodic or heavy clay based soils 	Existing	Sen. EHO	Dev. Mgr	2015	Size of lots and density of new development.
10. Where there is evidence of more permeable soils – e.g. soil survey data at an appropriate scale (1:25,000) or a site (or town) specific land capability assessment – restrictions detailed in Action 9 may be varied.	Existing	Sen. EHO	Dev. Mgr	2015	Size of lots and density of new development.
11. Develop an information prospectus regarding wastewater issues and new dwelling developments in unsewered areas. Provide information brochures to local estate agents, property developers and land capability consultants.	Existing	Sen. EHO	Dev. Mgr	2015	Prospectus developed, distributed and hosted on website.

Action	Budget	Resp.	Partners	Time line	Performance indicator
12. Limit new development on existing small lots (<4000 m ²) relying on onsite wastewater management to sites where: soil analysis provides evidence of higher permeability than clay dominated Category 6 soils, OR wastewater volume generated can be minimised through construction of a small house, indoor recycling of treated greywater or another alternative approach.	Existing	Sen. EHO	Dev. Mgr	2015	Number of new houses on lots smaller than 4000 m ² .
13. Allotments created through re-subdivision of township zones or excision of lots in low density residential areas should be a minimum of 4000 m ² unless there is potential for development as per Action 10. Care needs to be taken to ensure that both the existing system and any proposed system can each comply with the code and standard within the bounds of the respective new lots.	Existing	Sen. EHO	Dev. Mgr	2015	Number of new houses on lots smaller than 4000 m ² .
14. Develop an engagement and education program for residents of Inverleigh and Meredith to promote best practice onsite wastewater management.	Existing	Sen. EHO	Dev. Mgr	2017	Program delivered.
15. Undertake stormwater quality analysis programs in Inverleigh and Meredith to determine whether existing onsite systems are causing pathogen or nutrient pollution.	Existing	Sen. EHO	Dev. Mgr	2017	Program report.
16. Review outcomes of engagement and monitoring in Inverleigh and Meredith in 5 years and determine the need for sewerage and/or stormwater management controls. If required, request Barwon Water to develop sewerage management plans under Section 32 SEPP WOV.	Existing	Sen. EHO	Dev. Mgr	2020	Program report.
17. Integrate the potable water supply catchment area into Council GIS software.	Existing	Sen. EHO	IT	2015	Integrated spatial layer
18. Identify the number of properties within the potable water supply catchment area that could potentially be sub-divided or developed with additional dwellings.	Existing	Sen. EHO	IT	2015	Properties identified.
19. Establish MOUs with Barwon Water and with Central Highlands Water that set out the agreed principles for managing existing onsite systems (and avoids any new onsite systems) in sewerage areas.	Existing	Dev. Mgr	CHW & BW	2016	MOU in place
20. Develop a shared understanding between Council and Central Highlands Water of the plan for extending sewerage throughout the Smythesdale Sewerage District and share this information with owners and prospective owners through brochures and information.	Existing	Dev. Mgr	CHW	2016	Plan in place.

Action	Budget	Resp.	Partners	Time line	Performance indicator
21. Avoid new onsite systems in sewerred areas through good communication with water authorities and land owners.	Existing	Dev. Mgr	CHW & BW	2016	Number of onsite systems in sewerred areas.
22. Maintain up-to-date communication with plumbers, treatment plant installers, maintenance contractors, land capability assessors, liquid waste removal contractors etc. to inform on relevant waste management issues.	Existing	Sen. EHO	Dev. Mgr	2018	Communications had.
23. Update the Guide for Installation or Alteration of a Septic Tank System to reflect the guidance provided in Volume 2 – Land Capability Assessment Manual.	Existing	Sen. EHO	Dev. Mgr	2015	Updated guide.
24. Prepare an annual report summarising the results of auditing program and monitoring activities and other actions within this DWMP to be distributed to Barwon Water, Central Highlands Water and the Environment Protection Authority.	Existing	Sen. EHO	Dev. Mgr	Annually	Report prepared.
25. Engage an accredited independent auditor to conduct an audit of this DWMP and associated implementation and scheduled actions relating to the Potable Water Supply Catchment Area. Audit report is to be distributed to Barwon Water and the Environment Protection Authority as soon as it is made available.	Existing	Sen. EHO	Dev. Mgr	2018	Audit complete.
26. Incorporate actions from this plan into the appropriate planning and environmental health programs funded through normal rate revenue.	Existing	Sen. EHO	Dev. Mgr	Annual program.	--
27. Conduct an internal review of the resources (i.e. number, experience and training of staff, effectiveness of the administrative systems and workflow processes) used to administer existing and future onsite systems.	Existing	Sen. EHO	Dev. Mgr	2015	Review complete and actioned.

Appendix 1: Context

This appendix seeks to establish the legislative framework, regulations, definitions and risks associated with domestic wastewater on which this DWMP is based. Legislation, policies and standards govern on-site domestic wastewater management within the state of Victoria.

Legislation and Codes of Practice

State Environment Protection Policy – Water of Victoria

The State Environment Protection Policy (SEPP) aims to ensure that all residential subdivisions are provided with reticulated sewer access at the time of subdivision. Where this is not possible each lot must be capable of treating and retaining the domestic wastewater within the boundaries of the proposed allotments. The policy directs councils to use the EPA's Septic Tanks Code of Practice, to assess the ability of proposed developments to retain wastewater within allotment boundaries.

Sections 32 and 33 of the State Environment Protection Policy – Waters of Victoria requires:

- Occupiers of premises with an on-site domestic wastewater system need to manage that system in accordance with permit conditions and the Code of Practice – Septic Tanks On-site Domestic Wastewater Management (2003) as amended. Occupiers also need to regularly assess the performance of their system against permit conditions.
- Municipal Councils to develop and implement a DWMP that:
 - Reviews land capability assessments and available domestic wastewater management options to prevent the discharge of wastewater beyond allotment boundaries and prevent impacts on groundwater beneficial uses;
 - Identifies the preferred options, together with costs, funding needs, timelines and priorities; and
 - Provides for the assessment of compliance of on- site domestic wastewater systems with permit conditions.
- Water authorities (where reticulated sewerage is identified in a domestic wastewater management plan as the preferred option for improved domestic wastewater management) in conjunction with the Environment Protection Authority and municipal councils, and in consultation with the local community, need to develop and submit to Government a sewerage management plan that:
 - (1) Reviews available wastewater management options;
 - (2) Identifies the preferred types and levels of sewerage services to be provided, together with costs and funding options;
 - (3) Identifies priorities and possible timelines for the provision of services;
 - (4) Identifies how the wastewater collected will be sustainably managed in accordance with the waste hierarchy; and
 - (5) Provides for a three yearly review of the plan and priority areas for sewerage.

Planning permit applications in open potable water catchment areas (2012)

The Ministerial Guideline puts further emphasis on the need for DWMPs, specifically requiring:

- The effective monitoring of the condition and management of OWTS, including but not limited to compliance by permit holders with permit conditions and the Code;
- The results of monitoring being provided to stakeholders as agreed by the relevant stakeholders;
- Enforcement action where non-compliance is identified;

- A process of review and updating (if necessary) of the DWMP every 5 years;
- Independent audit by an accredited auditor (water corporation approved) of implementation of the DWMP, including of monitoring and enforcement, every 3 years;
- The results of audit being provided to stakeholders as soon as possible after the relevant assessment; and
- Councils are required to demonstrate that suitable resourcing for implementation, including monitoring, enforcement, review and audit, is in place.

Environment Protection Act, 1970

The *Environment Protection Act 1970* is the primary legislation that regulates and controls OWTS installations. The EPA and Council is responsible for the oversight and management of these systems. The EP Act outlines the council annual returns lodgement process with the EPA.

EPA Code of Practice, Onsite Wastewater Management, Pub. 891.3 (2013)

The Code of Practice provides standards and guidance to ensure the management of onsite wastewater (up to 5000 L/day) protects public health and the environment, and uses our resources efficiently.

Section 3.1 of the code deals with planning processes and states: "*Whether an LCA is required or not, the proponent should engage a suitably qualified consultant experienced in onsite wastewater land capability and/or irrigation systems to design an onsite wastewater recycling/dispersal system. This system should best fit the features of the land, the needs of the proponent and address the risks of the site with sustainable solutions. Designing the land application system is the role of an independent consultant, not Council. Council's role is to assess the land capability and risk assessment report, flow rates, land application calculations and trench, bed, mound or irrigation design, not do the calculations or design the land application system for the property owner.*"

MAV Victorian Land Capability Assessment Framework January 2014

This framework is a guideline for land capability assessment professionals for preparing land capability assessments. This document can also be used by local government officers and other relevant stakeholders when assessing land capability assessments. This framework is to be read in conjunction with all relevant Victorian legislation, guidelines and codes and is not intended to replace or supersede these documents.

Public Health and Wellbeing Act, 2008

The Public Health and Wellbeing Act (2008) authorises officers within local council to manage infectious diseases, micro-organisms and allows the development of public health policy through providing for Municipal Public Health and Wellbeing Plans and State Public Health and Wellbeing Plans. The PH&WB Act also gives powers to Authorised Officers to investigate and remedy nuisances in their municipal district.

Water Act 1989. Pt 9 S.180 Septic Tank Permit Applications

The Water Act requires referral to water authorities when OWTS are proposed within a Water Authority's sewerage district, if the authority has lodged with the Council a written request to do so. There is jurisdiction under the Water Act s.183 to require an upgrade at any time to OWTS within a sewerage district.

Local Government Act, 1989

The Local Government Act empowers councils to enact local laws and set special charges for council activities. Councils could use these powers to develop local regulations for wastewater management provided these regulations are consistent with State policy and legislation and to raise revenue for its wastewater management programs.

Building Act, 1993

A compliance certificate from a Licensed Plumber is required at the completion of a OWTS installation before an Occupancy Permit can be issued for a new dwelling. Planning consent and report are needed prior to issue of a building permit.

Building Regulations, 2006

The Building Regulations require that any building permit issued for a building in an unsewered area that will produce wastewater requires consent from Council. This consent can be achieved by either issuing of a Permit to Install/Alter a Septic Tank under the Environment Protection Act, or by lodging a consent application under section 801 of the building regulations to install a septic tank system.

Planning and Environment Act, 1987

The Planning and Environment Act 1987, sets out the requirements for obtaining planning permits where an OWTS is required. The issuing of Septic Tank Permits is a separate process which does not provide a guarantee of a planning permit approval.

The following list of policy and best practice guidelines assists in assessing and ensuring best practice in the approval to use an OWTS on unsewered land:

- Code of Practice Onsite Wastewater Management (EPA Publication 891.3)
- Land Capability Assessment for onsite Domestic Wastewater Management (Publication No: 746.1)

Wastewater definitions

Onsite wastewater is divided into three categories:

- Blackwater - toilet waste (water flush, incineration, dry composting)
- Greywater - water from the shower, bath, basins, washing machine, laundry trough and kitchen (also called sullage)
- Sewerage - wastewater that includes both greywater and blackwater

Risks associated with domestic wastewater

The potential risks associated with inadequately managed wastewater are summarised in the table below.

<p>Public Health Drinking and Recreational Water</p>	<p>Drinking water supplies becoming contaminated with chemicals and bacteria from effluent as a result of poorly drained soils; small lot sizes; high usage; ageing septic tanks; and lack of proper maintenance of septic tanks. Illnesses that are contracted from effluent contaminated water include Gastroenteritis, Shigellosis, Giardiasis, Cryptosporidiosis and Hepatitis.</p> <p>Statistically significant risk of illness if people come into contact with contaminated water used for recreational purposes. Illnesses include ear and eye infections and respiratory infections.</p> <p>Effluent contains a range of pathogenic microorganisms (including helminths, bacteria, protozoa and viruses) that can pose health risks to humans and livestock.</p>
<p>Environmental</p>	<p>Septic tanks contribute high nitrogen and phosphorous loads in surface runoff to water catchments. Salts and excess nutrients can have detrimental impact on soils, vegetation, groundwater and surface waters.</p> <p>Septic tanks create direct bacterial contamination of the environment stimulating algal and weed growth.</p>
<p>Economic</p>	<p>There are costs associated with rectifying environmental contamination, advising residents and managing community anxiety, managing disease outbreaks, reduced tourism.</p> <p>For the owner/occupier the cost of replacing wastewater systems can be expensive.</p>
<p>Legal</p>	<p>Council has statutory duties under the provisions of the <i>Environment Protection Act 1970</i> and <i>Public Health and Wellbeing Act 2008</i>.</p> <p>Council has a duty to exercise its enforcement powers where it knows there is a breach of the legislation and there is a likelihood of injury.</p>

Council Plans

Council Plan, 2013–2017

The Council Plan sets out the following vision:

Golden Plains Shire offers a lifestyle and opportunities that foster social, economic and environmental wellbeing.

In partnership with the community we will provide strong leadership, encourage sustainable development and ensure quality services, to continue to improve the quality of life of residents.

Golden Plains Planning Scheme

Clause 21 of the Golden Plains Planning Scheme notes the *lack of reticulated sewerage systems and, in some places, poor soil conditions for disposal of septic tank effluent provide constraints to development*. Key elements of the Planning Scheme relevant to onsite wastewater management include:

- The Municipal Strategic Statement outlines future directions contingent on provision of reticulated sewerage in Smythesdale, and Inverleigh.
- Focus development and population growth in urban areas provided with reticulated sewerage.
- Clause 22.09 Low Density Residential Subdivision Policy requires consideration of soil capacity for onsite wastewater management in determining appropriate lot sizes.

Appendix 2: 2007/08 DWMP

Action	Progress	Retain in 2014 (Y/N)
Legislation / Codes of Practice		
1.	Discuss with the EPA the merits of giving Councils the same power as water authorities to repair septic tanks and retrieve the costs from homeowners.	Status Unknown N
2.	Compile policies re: wastewater on the development of small block in townships (<0.4 ha) and the subdivision of vacant blocks in township zones. These policies should indicate the principles that Council will apply when assessing any development proposals and the information it will require from developers.	Has been addressed in 2014 DWMP. Y
3.	Develop a protocol for the referral of planning applications to the EHO. The protocol should identify the range of applications that will be forwarded, the information that will be provided in the application, the information required from the EHO and the timelines for responses.	Procedural – In place N
4.	Pursue as a special project with external funds to identify and map the vacant blocks in the unsewered townships that could be unsuitable for development. Give consideration to what action should be taken with respect to these blocks – advising the owners, requiring consolidation with adjacent vacant blocks prior to development, changing the zoning of blocks etc.	In progress N
5.	Investigate the merits of advising land owners of developed properties about blocks that would be difficult to further develop from a wastewater perspective, of the limitations of their properties i.e. Owners that have reached the potential of their property due to extension/renovation etc. to be advised on completion of development. Owners of properties that have become a nuisance through inability to cater for wastewater disposal within boundaries to be notified not only to remedy the problem but advised that the property has reached its development capacity.	Procedural N
6.	Reaffirm to building surveyors that a Certificate of Occupancy is not to be issues until a Certificate of Approval to Use the septic tank is issued. Request building surveyors to advise their clients that their house should not be occupied, nor the septic tank system used, until a Certificate of Use is issued.	Procedural N
7.	Commission the open Office database and transfer all relevant information	In progress Y
Education program		
8.	<p>Introduce a wastewater management community education program. The components of the program should be as follows:</p> <ul style="list-style-type: none"> ▪ An education kit for homeowners on the proper use and maintenance of septic tank systems. The kit should be specific for the types of system installed on the property. This should include statements/information on: <ul style="list-style-type: none"> – The importance of knowing the location of the septic system and making sure it is accessible and what type of septic system has been installed and how it functions – The importance of not driving over the septic tank system and of considering the septic tank when planning any extension to the house or other project that might impact the system – The vegetation that is suitable to plant around septic tank systems – The importance of and advice on water conservation practices – The importance of regularly desludging septic tanks and emptying grease traps – The things that could typically go wrong with the system and how the home owner should respond – The things that do go wrong when owners attempt to repair or upgrade systems without reference to experience drainers/plumbers and Council. – A notice indicating that systems cannot be altered without Council's consent and a suggestion that the home owners should always contact Council before undertaking any works other than basic repairs on their systems. 	Brochure developed – requires update N
9.	Developing an education kit for new home owners that provides the same information as above. Meeting each new land owner to explain the kit.	Completed N

Action	Progress	Retain in 2014 (Y/N)
10. Conducting annual forums with plumbers, treatment plant installers, maintenance contractors, liquid waste removal contractors etc. to discuss relevant waste management issues.	N	Y
Monitoring		
11. Introduce a monitoring program of septic tank systems (excluding treatment plants), that includes the following: <ul style="list-style-type: none"> ▪ Inspection of 50 township and 10 rural systems each year ▪ Ensuring that tanks, pits, drains, pumps etc. are accessible and in good working order ▪ Ensuring that systems have not been altered and are not being driven on or built over ▪ Identifying the systems that discharge off-site and taking action to reduce and/or ensure that the discharge is as clean as possible ▪ Identifying the septic tank systems that are located near watercourses and ensuring that they are functioning properly ▪ Requiring rectification where there is a problem 	N	Modified
12. Introduce a council coordinated maintenance and monitoring program for treatment plans and sand filters. This program to involve the following: Developing a register of treatment plants and sand filters Sending a letter to owners requiring them to arrange inspection of their system and submission of reports and water samples Matching reports and samples against register Following up/sending notices to owners who are not submitting reports Requiring rectification works where necessary	N	Y
13. Introduce a program for advising residents when their tanks are due for de-sludging and include a requirements for owners to return to Council statement from desludge contractor on completion of work	N	N
Townships		
14. Request Barwon Water to consider provision of sewer to Inverleigh and Lethbridge. Request Central Highlands Water to consider provision of sewer to Linton, Scarsdale and Napoleons (in addition to Smythesdale)	N	N
15. Investigate funding sources, including a special charge, for implementation of this action plan.	N	Y

Appendix 3: Audit Checklist



DOMESTIC WASTEWATER MANAGEMENT PLAN

Appendix 3 – Audit Checklist Page 1 of 3

Property Address:		
Owner's name:		
Owner's phone no.:		
Officer's name:		
System Type (Circle):		
All Waste Septic Tank	Split System	Aerated Wastewater Treatment System
		Sand Filter Other
Disposal Method (Circle):		
Absorption Trenches	Sub-surface Irrigation	Surface Irrigation Other
Desktop Audit		
Permit no.:	Yes / No / N/A	Comments
Is there an existing permit on file?		
Do the permit/plans comply with current EPA Code of Practice?		
Do the permit/plans comply with DWMP? eg. location to groundwater		
GIS check for LSIO and setbacks to surface water?		
Are there any records for servicing of the system?		
Are there records of complaints regarding the system?		
Site Inspection		
Date & Time:	Yes / No / N/A	Comments
If a permit is available, is the system in compliance with permit conditions?		
Is a site plan available of the system		
Are there any odours evident?		
ST	Is the tank at ground level and accessible for inspections and maintenance? I/O's, access lids.	
ST	Does the tank appear in good condition? Does it require repair?	
ST	Has the tank been desludged appropriately? Can the owner provide evidence of this?	
ST	How large is the tank? i.e. 1500/1800L or 3000L.	
DB	Are any distribution boxes at ground level and accessible for inspections and maintenance?	
DB	Do the distribution boxes appear in good condition? Do they require repair?	
DB	Is effluent surfacing through the DB above outlet to ST?	
PW	Is the pump well in good condition? Does it require repair?	
PW	Is the pump well fitted with an alarm?	
PW	Is power supply to the pump well connected and turned on?	



DOMESTIC WASTEWATER MANAGEMENT PLAN

Appendix 3 – Audit Checklist Page 2 of 3

ORG	Is an ORG installed?		
ORG	Is there any evidence of effluent surfacing through ORG?		
AT	Is the absorption area wet or ponding effluent?		
AT	Is there any evidence of damage to lines?		
AT	Are there any trees in absorption area that may cause problems with root intrusion?		
AT	Is there any evidence of access from vehicular or livestock traffic?		
AT	Do the absorption lines appear to be installed level (i.e. across the contour)?		
AT	Have any structures been built over or within minimum setbacks to absorption trench area? i.e. sheds, paths, tennis court, piles of dirt, etc.		
SF	Is the sand filter area wet or holding effluent/water?		
AWTS	Is power supply connected and turned on?		
AWTS	Has the system been serviced as required? Have these records been submitted to Council?		
I	Is the irrigation area wet or ponding effluent?		
I	Is there any evidence of damage to lines?		
I	Is there any evidence of unapproved alterations to the irrigation lines?		
I	Is there any evidence of access from vehicular or livestock traffic?		
I	Have any structures been built over or within minimum setbacks to irrigation area? i.e. sheds, paths, tennis court, piles of dirt, etc.		

Notes (Works Required):

Abbreviations

- ST = Septic Tank
- DB = Distribution Boxes
- PW = Pump Wells
- ORG = Overflow Relief Gully
- AT = Absorption Trenches
- SF = Sand Filter
- AWTS = Aerated Wastewater Treatment System



DOMESTIC WASTEWATER MANAGEMENT PLAN

Appendix 3 – Audit Checklist Page 3 of 3

I = Irrigation

Site Sketch – If site plan not located on existing permit or not accurate — —

A large grid of graph paper for drawing a site sketch. The grid consists of 10 columns and 20 rows of small squares, with larger grid lines every 5 columns and 5 rows.