

# LAND CAPABILITY ASSESSMENTS

## EXPLANATION OF REQUIREMENTS

Updated June 2017

The following information is provided as a general guide to help explain the City of Greater Bendigo's requirements for preparing Land Capability Assessments (LCAs). Further information about LCAs can be found in the following documents available at [www.epa.vic.gov.au](http://www.epa.vic.gov.au):

*Code of Practice – Onsite Wastewater Management 2016 (Pub 891.4 EPA)*  
*Land Capability Assessment for Onsite Domestic Wastewater Management (Pub 746.1 EPA)*

### What is a Land Capability Assessment?

Land Capability Assessments (LCAs) are detailed written reports that assess various aspects of development sites, including the way it is proposed to be developed in the absence of reticulated sewer. The primary focus of an LCA is to determine the viability of onsite wastewater management by considering the risks presented to public health, environment, and local amenity. An LCA provides vital information on site-specific limitations for onsite wastewater management, as well as suitable management strategies to reduce impacts of the system on its surrounds.

An onsite wastewater management system or 'septic tank system' as stated in the Act, is required where reticulated sewer is not available. *A septic tank system is a system for the bacterial, biological, chemical or physical treatment of sewage and includes all tanks, beds, sewers, drains, pipes, fittings, appliances and land used in connection with the system.* This definition is provided in the Environment Protection Act 1970 along with other legal requirements for onsite wastewater management systems.

The objectives of an LCA are listed in the Code of Practice – Onsite Wastewater Management 2016 to include:

- *Assess the capability of the site to sustainably utilize and manage wastewater within the allotment boundaries.*
- *Assess the capability of catchments to sustainably utilize and manage wastewater within sub-catchments or specific regions (where applicable).*
- *Determine high risk and sensitive areas within allotments and within catchments.*
- *Gather the relevant geographical and social information to adequately inform the process of designing the best practicable and most sustainable type of onsite wastewater treatment and effluent recycling/disposal system that should protect the health of the householders and the community, and protect the local environment from pollution.*

- *Formulate a sustainable management plan (in accordance with the Code of Practice – Onsite Wastewater Management 2013 and the conditions in the treatment system CA and the Council Permit) that:*
  - *Must be carried out by the property owner to ensure that impacts on the environment or public health do not occur or are minimized.*
  - *Will ensure the beneficial re-use of the treated water, organic matter and nutrients (where applicable).*

### **A Risk Management Apparatus**

There are a number of potential hazards associated with onsite wastewater management. These must be identified and properly addressed to ensure a sustainable and manageable development proposal. Identified constraints can include impacts on human health, allotment size, soil profiles and drainage capabilities, catchment contamination potential, proximity of the allotment to surface waters including seasonal creeks and dams, slope, rainfall patterns/flooding potential and even economic impacts. The LCA assesses these and other associated aspects and presents a detailed report that accompanies a development application.

Example: A potential hazard may include an existing house on an allotment that is proposed to be subdivided. The existing system is likely to have been installed under previous legislative requirements. It is important to ensure that the proposed ‘new’ smaller allotments are capable of sustainably managing treated effluent in accordance with current requirements. How is the existing system performing? Will the existing system require upgrading as part of the development? Can the allotment support the changes necessary to the system if the existing system fails? Where will it be located? What is the on-going management program that will be necessary to sustainably manage effluent on the smaller allotment?

It is important to consider the impact of existing development as well as the potential impact of the proposed development. The LCA must address each identified constraint and the management program must determine ways to ensure satisfactory ongoing performance of the system.

### **When is an LCA Required?**

An LCA:

- ***is generally required*** to support all applications to subdivide land in unsewered areas. This will present at the Planning Permit Application stage. The LCA must provide sufficient detail about wastewater management on each proposed lot and demonstrate that wastewater can be maintained within the allotment boundaries. This remains a requirement for lots that are not proposed to be developed at the subdivision stage as it is vital to ensure that the beneficial use of each property in the City of Greater Bendigo is not unnecessarily limited.

- **may be required** to support applications to install or alter on-site wastewater management systems. This is determined on a case-by-case basis. The Responsible Officer assessing the application will request an LCA if they deem further information is required to support the proposal.
- **is mandatory** to support applications to install onsite wastewater management systems in declared Special Water Supply Catchment Areas.

The Environmental Health Unit encourages potential applicants to discuss their unsewered development proposal with an Environmental Health Officer prior to lodging a formal application. This helps to identify any potential hazards associated with the proposal, clarifies the information required and ensures that all necessary documentation is provided in the first instance. This will assist in avoiding delays incurred during the approval process instead of applications being returned for further information/clarification.

### **Is an LCA an EMP?**

In some instances, the City Of Greater Bendigo's Planning Scheme also requires that an Environmental Management Plan (EMP) be prepared as part of the planning application process. EMP's are a City of Greater Bendigo initiative to facilitate sustainable development of Rural Living Zoned land. Where a development requires both an EMP and an LCA, a combined document can be prepared provided that all relevant information is included. If these documents are produced separately, it is expected that their content remain consistent on relevant development details.

*NB: Separate guidelines are available for the preparation of Environmental Management Plans.*

### **To Sewer or Not to Sewer?**

Provision of sewer is always a preference of the City of Greater Bendigo. If a development is intended to remain unsewered, the development must be shown to be environmentally sustainable and to the satisfaction of the Planning Department, Environmental Health Unit and relevant Water Authorities.

The feasibility of providing reticulated sewerage should be seriously considered for the development of individual lots and for subdivision. This is especially relevant to proposals where residential development would result in allotments smaller than 10,000m<sup>2</sup> (1 hectare or 2 ½ acres) in size.

This concept is to ensure that inappropriate development does not proceed with an expectation that reticulated sewerage will come at a later date to solve problems being incurred. The LCA should therefore seriously explore the viability of providing sewerage if smaller lots are proposed as part of any new subdivision.

Effectively, the 10,000m<sup>2</sup> specification is not a minimum lot size, but rather a risk threshold or trigger point. That is, there are generally more significant risks associated with wastewater management on lots smaller than 10,000m<sup>2</sup>.

LCA's prepared for developments on allotments less than 10,000m<sup>2</sup> will need to satisfactorily address the identified higher risks including a detailed ongoing management plan and contingencies to be implemented should a system fail.

The approval of sustainable unsewered development effectively indicates that reticulated sewerage is not needed in those locations. This will have important links to the future strategic growth patterns for new residential development and the associated infrastructure required.

### **What Should a LCA Contain?**

The scale of information contained in a LCA may vary depending on the size or nature of the proposed development.

The LCA is a document written in a report format and should contain sufficient details to enable City of Greater Bendigo staff to make an informed decision about the proposal. Dot points with minimal detail, risk ratings with no explanation or tick the box reports are considered to be insufficient. It is important that LCA reports are clear, easy to follow and properly structured with appropriate headings and sections to provide the reader with an informed understanding of the proposal, risks identified and methods proposed to be implemented to address those risks.

The following is an example of a format for an appropriately structured LCA that contains suitable headings and sub-sections. Some further explanation and comments about the various aspects are also provided.

### **A Suggested Outline**

<b>1.0 SUMMARY</b>	Provide an overview of the report. Summarise the key aspects
<b>2.0 INTRODUCTION</b>	Set the scene. Introduce the subject and describe the purpose of the report.
<b>3.0 BACKGROUND</b> 3.1 Proposal Overview 3.2 Report Objectives 3.3 Report Background 3.4 Limitations/Assumptions Made	Explain the reasons for the development proposal and any associated specific information. Mention any discussions/meetings that have previously occurred between relevant stakeholders, including State and Local Government Authorities and who was involved. What information has the owner conveyed to the LCA assessor and what is not known? What assumptions are being made? Sufficient background about the proposal greatly assists City of Greater Bendigo staff in assessing the development proposal.

#### **4.0 SITE INFORMATION**

- 4.1 Location
- 4.2 Property Title
- 4.3 Area
- 4.4 Zoning and Overlays
- 4.5 Land Use
  - Past History
  - Existing Land Use
- 4.6 Use of surrounding land and features

Describe the subject site. Include locality maps, property dimensions and proof of ownership. Provide appropriate orientation details, including the direction of North. Show all land features on the allotment and nearby, such as existing house/s, sheds, driveways, dams, creeks water courses etc. What is the zoning of the land? What planning overlays apply? Discuss the use of the land - past, present and proposed. Is it consistent with surrounding land use?

#### **5.0 LAND FEATURES**

- 5.1 Topography
- 5.2 Soil
- 5.3 Climate
- 5.4 Vegetation
- 5.5 Drainage
- 5.6 Flooding/Flood Levels
- 5.7 Catchment Area

Assess the land features of the site. Show the slope of the land with contour lines. Discuss soil characteristics and profiles. Do they vary over the site? What density of development/onsite wastewater management can the soils sustainably manage this? Identify local rainfall patterns. Discuss site drainage, surface water, catchment areas and applicable flood levels.

#### **6.0 INFRASTRUCTURE**

- 6.1 Power
- 6.2 Telephone
- 6.3 Water
- 6.4 Gas
- 6.5 Sewerage
- 6.6 Access

What services are available and where are they currently located? What services are to be provided as part of the proposed development? Consider the provision of full reticulated services, including sewerage, particularly if allotments are less than 1ha. Discuss the proposal with surrounding landowners; is there opportunity to share infrastructure development costs for mutual benefit? Discuss why sewer is not being provided for allotments less than 1ha. What is the basis of creating new lots if less than 1ha proposed?

#### **7.0 PROPERTY USE FEATURES**

- 7.1 Livestock
- 7.2 Cropping and Horticulture
- 7.3 Bores and Dams
- 7.4 Building Envelope
- 7.5 Water Use

Discuss the capability of other land use features and the impact of the proposed development. Will these be limited/achievable given the need and location of onsite wastewater disposal? Are future dams possible/likely? Where could they be sited? Nominate building envelopes, wastewater management fields (including reserve areas). Suggest how the land could be sustainably developed. Show how the proposed subdivision layout and proposed allotment sizes are in keeping with the natural/existing features of the land.

## **8.0 LAND CAPABILITY**

- 8.1 Constraints
- 8.2 Mitigating Circumstances
- 8.3 Soil Percolation
- 8.4 Risk Rating
- 8.5 Land Capability  
Assessment Summary  
Table
- 8.6 Management Protocols

What is the capability of the soil for onsite wastewater disposal? What constraints and limitations are identified? Conduct percolation tests and discuss the results. Assess the overall data collected, summarise in an appropriate table format. Allocate risk ratings and identify protocols to be implemented to address identified risk.

## **9.0 EFFLUENT TREATMENT**

- 9.1 Recommended  
Wastewater Treatment
- 9.2 Design and  
Specifications
- 9.3 Disposal Fields and  
Reserve Area Allocations

Given the assessment conducted to date, including identified risks, what is the recommended way to treat and manage wastewater onsite? What prescribed standards are to be achieved? Provide details of relevant design specifications and reasons for recommendation. The information is likely to be quite technical and show design calculations and determinations made. What basis is the recommendation made upon? The LCA assessor should liaise with the landowner to discuss preferred options. Show the location of disposal field/s and reserve areas. Discuss suitable vegetation to receive wastewater, including nutrient uptake projections where applicable.

## **10.0 MANGAEMENT AND MAINTENANCE PROTOCOLS**

- 10.1 Sustainability
- 10.2 Householder
- 10.3 External Contractors
- 10.4 Other ongoing  
management,  
maintenance and  
reporting protocol

Develop a management program for the development proposal. This should be readily adaptable to a handbook type format to easily show the responsibilities of the various stakeholders – particularly owner/householder responsibilities, external contracts to be maintained, obligations of external servicing contractors, assessment and reporting/testing mechanisms. Discuss preventative management/maintenance and what to do if things go wrong.

## **11.0 CONCLUSION**

Summarise the findings of the assessment. Bring together the conclusions drawn and findings/recommendations made.

**12.0 ABOUT THE AUTHOR** Provide details of those involved in preparing the LCA. Include any other persons/companies used. Refer to section 1.8.3 of the Code of Practice 2013 and show that the author is a suitable person for the preparation of LCA's. Provide details of qualifications and experience, professional memberships, professional indemnity insurance etc.

**13.0 APPENDICES** Provide relevant appendices, including aerial photographs, site photographs, further technical supporting documentation, extracts from relevant sources quoted etc. Ensure these are appropriately numbered/correlated and referred to in the body of the main report for ease of reference.

**14.0 BORELOGS & DATA** Supporting Soil Classification Data/Permeability test details etc.

**15.0 MAPS**

- Locality: Cadastral approx 1:25,000 and 1:2,000 scale.
- Site: Applicable for the proposed development – may include specific site assessment and general subdivision such as 1:100, even up to 1:500 scale.
- Land features and development.
- Infrastructure; location of existing water and sewerage.
- Land subject to inundation overlay approx 1:10,000.
- Proposed subdivision layout.
- Building envelopes.
- Wastewater management areas, incl. reserve areas.

**See section 3.6.1 of the Code of Practice 2013 for further details.**

### Who Should Prepare a LCA?

Whilst there is no specific recognised formal qualification or professional affiliation, the City of Greater Bendigo must have a high degree of confidence and certainty with regard to the outcomes and conclusions made by Assessors. The Assessor must have suitable professional training and experience, and have relevant tertiary qualifications from a reputable training institution in a discipline such as engineering or science, including soil science, agricultural science, environmental science, chemistry or geography.

Assessors should be accredited members of an appropriate professional body. In some instances, professional bodies will certify the competence of members. Individuals preparing LCA's should also hold relevant professional indemnity insurance to a level that will offer protection to the Council if problems arise in the future due to inadequate assessments. Finally, Assessors need to understand the consequences of the advice they provide. Assessors should place their responsibility for the welfare, health and safety of the community and the environment before their responsibility to sectional or private interests.

### **Clarifying the City of Greater Bendigo's Role**

City of Greater Bendigo staff are proactive in supporting sustainable unsewered development and are key players in achieving long-term sustainable development in unsewered areas - it is an important statutory role of the Environmental Health Officer.

It is therefore important that LCA's provide adequate information for the City of Greater Bendigo or its delegate/s to make an informed decision. The Code of Practice clearly provides that it is not the task of EPA or Council to undertake site and soil assessments for developers or individual landowners. Applicants should arrange for this to be done on their behalf. The Code also provides that the assessment should be sufficiently rigorous to allow the City of Greater Bendigo to be fully informed in preparing conditions for the development. The Code stresses that the assessment should be more than simply an audit of the provisions and recommendations set out in the Code.

The Code provides that Councils should not approve applications if the proponent's supporting information (including the LCA) is inadequate or if the proposed management program is impracticable. It also states that the onus of proof rests with the proponent to demonstrate that the proposal is environmentally sustainable.

City of Greater Bendigo staff are, however, pleased to discuss the general requirements of LCA's and options for domestic wastewater management. We acknowledge that the LCA concept is somewhat new to many landowners looking to develop or subdivide their land. Our staff are available to explain in simple terms the application process, potential limitations that may be experienced and associated aspects of unsewered development proposals.

### **Domestic Wastewater Management Plan**

A Domestic Wastewater Management Plan (DWMP) is a planning and management document that provides a mechanism for the development, implementation and review of programs to protect public health, the environment and local amenity. The City of Greater Bendigo's DWMP was approved and adopted in September 2006 and can be viewed at [www.bendigo.vic.gov.au](http://www.bendigo.vic.gov.au). The DWMP was prepared in accordance with the Model Municipal DWMP developed by the Municipal Association of Victoria in July 2005. The Country Towns Water Supply and Sewerage Program provided funding assistance for development of the plan.

The purpose of the City of Greater Bendigo's DWMP is to:

- Identify current responsibilities, practices, procedures and obligations for domestic wastewater management in the municipality;
- Identify the main environmental values and wastewater issues in the municipality;
- Assist with the long term planning and development of unsewered areas in the municipality; and
- Improve public health and environmental protection.

The DWMP provides an opportunity for the City of Greater Bendigo to strategically assess the wastewater issues within the municipality and develop appropriate strategies and actions to prevent wastewater problems or at the very least, minimise resultant impacts.

### **Further Reading**

- *Code of Practice – Onsite Wastewater Management 2016 (EPA Publication 891.3)*
- *Land Capability Assessments for Onsite Wastewater Management (EPA Publication 746.1)*
- *State Environment Protection Policy (Waters of Victoria)*
- *Australian Standard 1547*
- *Australian Standard 1546*