

## Assessing A20 permit applications for onsite wastewater management systems

Training for Council Officers

### Land Capability Assessments What they should contain

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## EP Regulations 2021

- Impose obligations for land managers (Councils) relating to onsite wastewater management (OWM) systems (<5,000L/day)
- Council (A20) permit and condition the construction, installation, alteration and operation of OWM systems
- If required, the permit application must be supported by a Land Capability Assessment

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## LCA Definition

- Environmental Protection Regulations 2021 (EPR) defines LCA as:  
“an assessment of the risks of harm to human health and the environment of the proposed or existing on-site wastewater management system at the site, taking into account the proposed or existing use of the system”
- Regulation 26(2)(e) lists a LCA as prescribed information for an A20 Permit application “if required by the council or Victorian Planning Provisions”

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## Reference Material

- Guideline for Onsite Wastewater Management (GOWM) (EPA, 2024)
- Guideline for Onsite Wastewater Effluent Dispersal and Recycling Systems (EDRS Guideline) (EPA, 2024)
- Code of Practice (CoP) – Onsite Wastewater Management, Publication 891.4 (superseded)
- Victorian Land Capability Assessment Framework (2<sup>nd</sup> Edition, MAV, DEPI & EPA 2014), or as amended

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## Victorian LCA Framework

- Model LCA Report (MAV & DSE, 2006 as amended)
- Document and water balances from [www.mav.asn.au](http://www.mav.asn.au)
- Victorian Land Capability Assessment Framework (Word - 1.1MB)
  - VLCAF irrigation area sizing spreadsheet (Excel – 42.0KB)
  - VLCAF trench and bed sizing spreadsheet (Excel – 27.9KB)

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## The Model Land Capability Assessment Report

## LCA Framework

- Recommended report structure
- Recommended content based on the current guidelines (2014)
- Standard calculation spreadsheets (irrigation and trench)

Land Capability Assessment  
Lot 585 Bundalagwah Road,  
Maffra

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## LCA Purpose

Intended to:

- Identify locality, landscape and soil characteristics significant to the selection, location and size of an OWMS
- Assess the capability to sustainably manage all wastewater within allotment boundaries (containment)
- Quantify risk and gather relevant information to inform the design process and formulate a sustainable Management Plan
- Enable 'authority' to make informed decision on viability of an unsewered development proposal

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## When is LCA required?

- Recommended for all unsewered development
- May not be required by Council if site is considered low risk or if adequate information is already available
- In many LGA's OWMP will inform 'risk' status of unsewered land
- Currently LCA is mandatory for unsewered development in Special Water Supply Catchment areas (Ministers Guideline: Policy 1); where, dwelling density >1:40 ha or non-residential development

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## Who should complete an LCA?

- Must be completed by a person that Council considers is "suitably qualified and to a standard acceptable to the Council"
- Generally, a person who has appropriate technical expertise and experience in site and soil assessment and onsite wastewater design
- Councils may require written verification of qualifications, experience, professional membership and professional indemnity (PI) insurance

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## LCA Framework procedure

- Site Details
- Desktop Assessment
- Field Investigation (Site and Soil assessment) and Interpretation
- Constraint (Risk) Analysis
- OWMS (Treatment and EDS) Design
- Risk Mitigation
- Management and Maintenance
- Detailed Site Plans

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## Site Details

- Setting the scene:
  - Site description including context, location (property ID, street address), township details
  - Development type, including existing and proposed development (scale and scope)
- Consultation:
  - Understand authority (Council or WA) requirements for LCA (e.g. OWMP)
  - Other agencies (DEECA, CMA etc.)
  - Land owner expectations and responsibilities

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## Desktop Assessment

- Property boundaries, roads, land zoning and planning specifications
- Topographic information (contours, landscape position and surface hydrology)
- Imagery (current and historic)
- Soil mapping
- Climate data (rainfall and evaporation)
- Groundwater resources (domestic and public supply)
- Location of services (water, sewer, gas, electricity etc.)

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## Desktop Assessment

- Land use mapping (adjacent and regional context e.g. agriculture)
- Environmental Overlays (Flooding, Bushfire, Ecology and Special Water Supply Catchment Area)
- Strategic Plans (development strategies, lot size requirements, backlog sewer etc.)
- Known OWMS limitations (poor soils, shallow rock or GW in locality)
- Owner expectations and understanding

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## Constraints Mapping

- The desktop assessment is used to develop a preliminary overview of the Site (Constraints Map), identifying:
  - constraints and opportunities for implementing an OWMS
  - poor ground conditions
  - data gaps for further investigation
  - suitable areas for EDRS installation, and
  - target locations for soil boreholes or test pits

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## Field Investigation

- Desktop site and soil assessment must be supported by on-ground confirmation and observation of key site and soil features in accordance with Table 1 and 2 of the LCA Framework (MAV, 2014)
- 'Level of Investigation' based on development scale (single-lot or subdivision / rezoning)
- Site walkover
- Take photos and fieldnotes of observations

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## Site Assessment

- Aspect
- Climate
- Erosion and landslip
- Fill
- Flooding
- Groundwater
- Suitable land
- Landform
- Rock outcrops
- Setback distances
- Site drainage
- Run-on and run-off
- Seepage
- Slope
- Surface hydrology
- Vegetation and cover

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## Soil Assessment

- Minimum 2-3 excavated (pits) or augered (holes) to a depth of at least 1.5m within potential land application areas (LAA)
- More test holes may be necessary if the soil varies widely within the LAA
- Physical and chemical testing of collected soil samples (in field or lab conditions)
- Detailed bore-logs of each soil test location, describing key characteristics of each horizon
- Soil bore-logs and testing results should be included in the appendices

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## Soil Assessment

- Physical
  - Texture
  - Structure
  - Mottling
  - Coarse Fragments
  - Soil Moisture
  - Soil Stability
  - Soil Category
  - Design Loading Rate (DLR)
- Chemical
  - pH
  - Sodicity (ESP) or Dispersion
  - Salinity (EC)
  - Cation Exchange Capacity (CEC)
  - P-sorption

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## Constraint Analysis

- Table 3 (Site) and Table 4 (Soil) of the LCA Framework provide semi-quantitative risk assessment methodology (MAV, 2014)
- Level of 'constraint' documented for site and soil characteristics, based on observed field conditions
- Moderate and Major constraints to OWMS should be addressed to the extent that the design can reasonably be expected to meet appropriate public health, environmental and amenity requirements
- Suitable mitigation measures explored

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## OWMS Design

- Assess the nominated OWMS design against the most limiting site and soil features
- Nominated effluent dispersal system suited
- Hydraulic and contaminant loads suitably assimilated
- Proposed OWMS can achieve effluent quality and performance objectives for the site
- Demonstrated consultation with the owner (expectations, costs, management, servicing availability, future contingency planning)

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## Design flow

- Design flows from the GOWM (EPA, 2024) are calculated based on multiplying the household occupancy by the design flow rate (Table 4-1)
- Household occupancy is based on the number of bedrooms, including any additional rooms that could be converted to a bedroom, at the discretion of the council
- Consider expected use of the premises and existing reticulated water meter data

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## Design flow - commercial

- Design flows (hydraulic and organic) for community and commercial sites, not including those not treating sewage, should use Table 4-4 of the GOWM and existing metered water usage data

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## Risk Mitigation

- The entire OWMS design and approval process provides risk mitigation, from the LCA, to how constraints are addressed in the design, to who does the design, installation and inspections
- GOWM Sections 4.5 and 4.6 address setbacks and other constraint responses (flooding, small lots, challenging soils, shallow soils and salinity)
- EDRS Guideline – Sections 4.5 and 4.7 address setbacks and risk reduction measures (DLR, stormwater control, raised EDS, pathogen and nutrient management, additional modelling and reserve areas)

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## Management and Maintenance

- The design should contain details on how the OWMS is to be operated and maintained to ensure good ongoing performance for that particular design. This should include timing
- Chapter 6 of the GOWM and Chapter 7 of the EDRS Guideline provide suggested operation and maintenance measures (see Tables 47 and 48)
- Monitoring that will be completed should be included, i.e. regular checks on solids, component operation, etc.

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## Checklists

- Checklists for application assessments allow for a repeatable and consistent assessment process that can be analysed
- The EDRS Guideline includes checklists for permit application assessment and OWMS assessment for Part 5.7 of the EP Regulations
- The EDRS Guideline checklist focuses on references to the Regulations, GOWM and EDRS Guideline

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## Checklists

- Councils can develop their own localised assessment checklist from the EDRS example to generate an assessment report
- Suggested additional detail:
  - details of the report and assessor;
  - an explanation and reference for each point;
  - the priority of the information (critical, relevant, supporting);
  - space for comments

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## Checklists

- The EDRS checklist for A20 permit application assessment is attached
- A second assessment checklist is also included for use with the example LCA report today

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## Example LCA

- An example LCA report is attached
- Look through the report and through the assessment checklists
- If presented with the example LCA report, what additional information would you request?

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