

Minimum Requirements for a Comprehensive LCA Assessment and Report (Very high risk)

Report Element	Comprehensive Requirements	Completed
1. Introduction and Background	Report summary/ executive summary.	<input type="checkbox"/>
	Confirmation of Sensitivity Rating.	<input type="checkbox"/>
	Confirmation of any relevant sensitivity overlays (e.g. landslip) as per communications with Council.	<input type="checkbox"/>
	Confirmation that property/parcel(s) meets minimum lot size criteria for COS Planning Scheme Zone.	<input type="checkbox"/>
	Current land use and development overview (including occupancy); single property/parcel, increase in building entitlements (subdivision) or non-domestic development.	<input type="checkbox"/>
	Name, contact details and qualifications (insurances) of LCA assessor (author).	<input type="checkbox"/>
	Site location (including address and property/parcel details) and owner.	<input type="checkbox"/>
	Property/parcel area.	<input type="checkbox"/>
	Proposed/existing water supply.	<input type="checkbox"/>
	Availability of sewer.	<input type="checkbox"/>
	Locality map showing the site in relation to surrounding region.	<input type="checkbox"/>
	Site survey plan (2m contours) will need to be conducted by a qualified surveyor.	<input type="checkbox"/>
2. Site Inspection and Field Investigations	Gather information on relevant Council, Water Corporation, Catchment Management Authority and State Government requirements, including restrictions and caveats on title, and planning/building/bushfire/flood controls, e.g. zones and overlays. Note Environmental Significant Overlays, potable water supply and DWSCs. Impose this information on a base map (or site plan) which shows their location with respect to title boundaries.	<input type="checkbox"/>
	Broad overview of locality and landscape characteristics that may pose a constraint to the sustainable application of wastewater on the Site and adjacent land, e.g. climatic information, groundwater and bore water information. (Refer to stage 3 pp.34 EPA Code of Practice (2013)).	<input type="checkbox"/>
	Details of date, time and methodology of site inspection and field investigations.	<input type="checkbox"/>
	Site assessment that considers all of the parameters as per Table 1 of the Victorian LCA Framework (2014). Detailed explanation of the level of constraint with regards to DWM and recommended mitigation measures to overcome these constraints.	<input type="checkbox"/>
	Minimum of two soil test pits or auger holes within the identified available effluent management area with additional test pits required for more than one soil type (multiple soil landscapes or facets) as per the current EPA Code of Practice.	<input type="checkbox"/>
	Soil assessment that considers all of the parameters in Table 2 of the Victorian LCA Framework (2014): <ul style="list-style-type: none"> • colour and mottling; • electrical conductivity; • Emerson Aggregate Class; • permeability and design loading rate (using soil texture); • pH; • rock fragments; • soil depth; • soil texture (field textural analysis); • watertable (depth to); • cation exchange capacity (CEC); and • sodicity (Exchangeable Sodium Percentage ESP). 	<input type="checkbox"/>

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	<p>Phosphorous Sorption Capacity is also required to be measured for the soil to which the effluent will be applied to.</p> <p>Detailed explanation of the level of constraint with regards to DWM and recommended mitigation measures to overcome these constraints.</p> <p>Soil permeability testing conducted in situ for the soil within the available effluent management area as per constant head well permeameter method (AS/NZS 1547:2012) must be undertaken to determine the sustainable daily effluent loading rates.</p>	
	Detailed review of available published soils information for the site. Soil landscapes and different soil facets should be mapped on the Site Plan.	<input type="checkbox"/>
3. Available Area and Setback Distances	Calculation of available effluent management area and location on Site Plan.	<input type="checkbox"/>
	Discussion regarding the achievability of the applicable setback distances (Table 5 of the EPA Code of Practice (2013)). Justification required.	<input type="checkbox"/>
4. LCA Confirmation	Confirm the results from Stages 1-3 of the LCA checklist with Council to assess the final Sensitivity Rating for the site to confirm LCA requirements for system selection and design. Provide a Site Plan showing the available effluent management area(s) and completed Sensitivity Pro-forma Checklist.	<input type="checkbox"/>
5. Cumulative Impacts	Using the desktop and site assessment information for the site, comment on any possible cumulative detrimental impacts that the development may have on beneficial uses of the surrounding land, surface water and groundwater.	<input type="checkbox"/>
	Viral Die-off Modelling to address pathogen transport concerns from the proposed land application area (e.g. Cromer <i>et al.</i> 2001).	<input type="checkbox"/>
6. System Selection and Design	Design maximum wastewater load (generation rates) and organic load for the proposed development.	<input type="checkbox"/>
	Description of existing system (if applicable).	<input type="checkbox"/>
	Target effluent treatment quality.	<input type="checkbox"/>
	Assess the capacity of the land to assimilate the treated wastewater based on the data collected and the total dissolved salts (TDS) in the potable water supply (see Section 2.3.4 and Appendix G of EPA Code of Practice (2013)) for both levels of effluent quality; primary and secondary.	<input type="checkbox"/>
	Description and location of applicable DWM treatment system options (refer to EPA website for list of currently approved systems).	<input type="checkbox"/>
	List of effluent land application options and detailed description of preferred option and location. Land application area to be sized on the most limiting balance as detailed below.	<input type="checkbox"/>
	<p>A water balance is required to size the preferred effluent land application area for the proposed development scenario.</p> <p>A monthly water balance using the prescribed 70th percentile climate data must be used for your location within the relevant Climate Zone, as detailed in Section 6.2.2 of the Technical Document. Alternately, a daily water balance model (i.e. MEDLI) using a minimum 30-year data period may be undertaken. A copy of the 70th percentile climate data is attached in Appendix C of the Technical Document.</p> <p>All inputs, results and justification to be shown in the report.</p>	<input type="checkbox"/>
	Undertake an annual nutrient balance (refer to pp.33 MAV (2014) for example methodology) for the proposed development scenario. All inputs, results and justification to be shown in the report.	<input type="checkbox"/>
	Prepare a site specific detailed hydraulic design for the land application area suitable for supplier quotation and construction.	<input type="checkbox"/>

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7. Mitigation Measures	Detailed discussion of mitigation measures to overcome any site or soil constraints posed to the sustainable treatment and application of wastewater on-site. This may include the following: <ul style="list-style-type: none"> • Storm water management • Soil amelioration; and • Vegetation establishment and management. 	<input type="checkbox"/>
8. Site Management Plan	Description of ways to improve wastewater and DWM system performance for residents' reference.	<input type="checkbox"/>
	Operation and Management Plan.	<input type="checkbox"/>
9. Conclusion	Conclusion summarising all the important design, sizing and mitigation requirements to ensure sustainable on-site DWM.	<input type="checkbox"/>
10. Site Plan Requirements	Site address, including property/parcel number and street number.	<input type="checkbox"/>
	All title boundaries.	<input type="checkbox"/>
	All relevant zones and overlays and/or restrictions (e.g. Council zoning and overlays, including Environmental Significant Overlays and DWSCs).	<input type="checkbox"/>
	Type of catchment (e.g. potable or other special water supply catchment).	<input type="checkbox"/>
	North arrow.	<input type="checkbox"/>
	Location of groundwater bores.	<input type="checkbox"/>
	Contour lines (2m intervals from survey plan or Council provided data), direction of slope and grade.	<input type="checkbox"/>
	Location of soil test pits or auger holes.	<input type="checkbox"/>
	Location of any significant site features e.g. rock outcrops or waterlogged regions.	<input type="checkbox"/>
	Location of intermittent and permanent surface waterways (dams, creeks, reservoirs and springs).	<input type="checkbox"/>
	Location of 1% and 5% Annual Exceedance Probability flood level contours lines (if applicable).	<input type="checkbox"/>
	Location, depth and specified use of groundwater bores on the site and adjacent properties from the register of the relevant Rural Water Corporation. Depth to groundwater table in winter (if less than 2.1m deep).	<input type="checkbox"/>
	Vegetation cover (can use aerial image as base map).	<input type="checkbox"/>
	Relevant setback distances as per Table 5 EPA Code of Practice (2013).	<input type="checkbox"/>
	Location of existing and proposed buildings, sheds, driveways, paths and any other improvements.	<input type="checkbox"/>
	Available effluent management area(s).	<input type="checkbox"/>
	Location of proposed land application area (sized to scale).	<input type="checkbox"/>
	Location of proposed stormwater cut-off drains adjacent to the land application area.	<input type="checkbox"/>
Location of proposed DWM system (nominal).	<input type="checkbox"/>	
Location of reserve land application area (sized to scale).	<input type="checkbox"/>	
11. Appendices	Copy of the water (hydraulic) balance calculations.	<input type="checkbox"/>
	Copy of the nutrient balance calculations.	<input type="checkbox"/>
	Figures.	<input type="checkbox"/>
	Site Plan.	<input type="checkbox"/>
	Soil bore logs for all test pits or auger holes.	<input type="checkbox"/>
	Copy of the Survey Plan.	<input type="checkbox"/>
	Certificate of Title(s) for property/parcel (plan).	<input type="checkbox"/>

Report Element	Comprehensive Requirements	Completed
	Proposed building plans.	<input type="checkbox"/>
	Planning Permit application (where applicable).	<input type="checkbox"/>
	Septic Tank Permit application.	<input type="checkbox"/>