

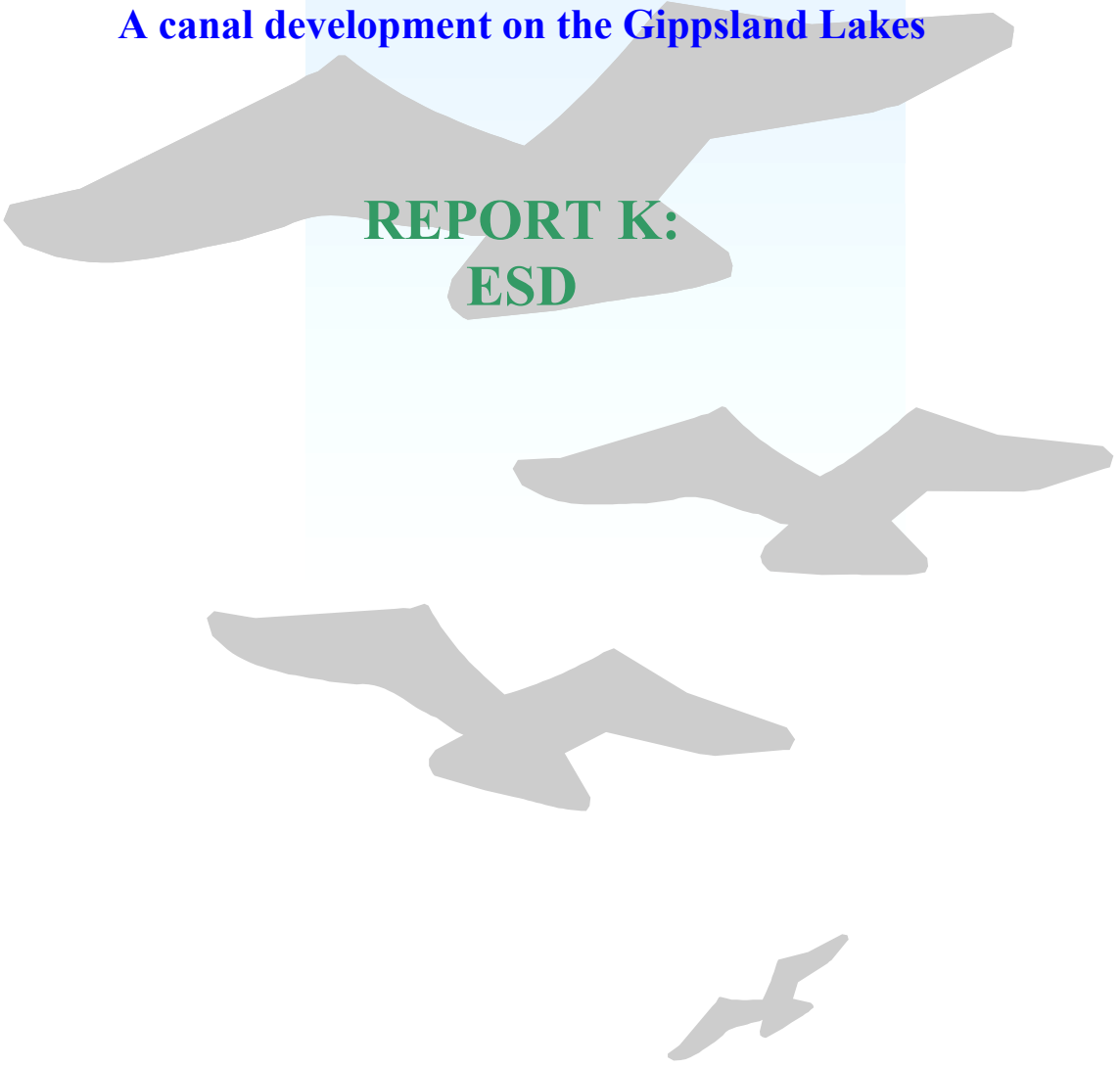


ENVIRONMENT EFFECTS STUDY

WELLINGTON WATERS

A canal development on the Gippsland Lakes

**REPORT K:
ESD**



ESD Guidelines

Environmentally Sustainable Development (ESD) Principles are required to be integrated into this project. The following principles are to be included into the design, construction and operational phases of each dwelling.

Heating / Cooling Energy

Houses are to be designed to achieve a Five Star energy rating when assessed using the SEAV FirstRate computer program. This will be achieved through appropriate design, insulation, shading, glazing, building material selection, insulation and glazing selection.

Design suggestions are noted below, but the final design will be required to achieve a Five Star rating overall.

- **Insulation** – Roof insulation should be a minimum of R3.5. Wall insulation should be a minimum of R2. The exposed underside of floors (both timber and concrete) shall be insulated to R1.5
- **Thermal mass** - Some thermal mass should be included where possible in all designs through the use of internal masonry and slab floors.
- **Air leakage** – minimise air leakage through gaps and cracks, skylights etc.
- **Cross-ventilation** – provide living spaces and bedrooms with an openable window on two separate walls to permit cross-ventilation
- **Glazing** - Single clear glazing should measure no greater than 25% of the floor area. Double-glazing is recommended, and on west facing windows, high performance glazing.
- **Shading** - North facing windows are to be externally shaded by a fixed eave (or other element) at an angle of 50 degrees measured from the bottom of the window sill. West facing glazing should be provided with vertical adjustable shading.

Design

- **North facing living space** - At least one major living space shall have a north facing (between 30E and 15W of true north) that is 20% of the floor area of the room.
- **Stairs** – Stairs shall be capable of being air locked off from ground floor spaces so as to prevent winter air rising up uncontrolled. Stairs shall also be capable of being opened at the top to act as a hot air drain in summer.

Clothes line

Each house shall have an external clothes line

Lighting

Lighting power density shall be no more than 8 W/m² for fixed lighting in houses.

Solar Hot Water

Solar hot water units are required. There shall be at least three solar collector panels used in the system systems.

Water

All water fittings are to be AAA rated.

All water using appliances are to be in the top 20% of their class, as identified on the web site www.energyrating.gov.au Click on "show comprehensive detail" button for water consumption details.

All rainwater is to be collected in tanks as noted above

Building material selection

When selecting building materials, the following should not be permitted:

- rainforest timber

When selecting building materials and construction processes, the following should be given preference

- recycled hardwood for durable external timbers
- recycled plastics
- plantation timbers
- materials made in Victorian
- Marmoleum in lieu of vinyl sheeting
- low VOC paints
- water based cross linked polymers epoxies
- prefabrication

Waste

Designs are to provide an identified space in the kitchen of at least 450 mm square for the storage of materials to be recycled. This shall be in addition to storage of materials to go to land fill.

Design are to identify on plans location of external storage of recycling containers to be collected from the kerbside pick up point.

Transport

Bike storage locations shall be nominated on the plans, with one space provided for each bedroom.

Universal Access

Houses are to comply with the requirements of the DDA.