



**Environmental
Innovations**

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We're serious about
sustainability

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NLV
Environmental Sustainability
Innovations



CONTEXT

NLV focuses on creating sustainable Villages and Resorts and Resorts by beginning with the valuable context of social, environmental and financial awareness; globally, nationally and locally.

Sustainable

Living in such a way to ensure that succeeding generations may enjoy life as we do, in an environment that is not degraded.

Global

Globally the environment and sustainability move from peripheral to central consciousness as we realise that our current lifestyles and practices are unsustainable. For NLV our company mission is intimately built on the belief that sustainability is entirely possible and our responsibility to our descendants.

National

When planning and designing Lifestyle Villages and Resorts and Resorts, NLV considers various government reforms and sustainable goals. Bridgewater Lifestyle Village was the first of its kind in Australia and a recipient of various environmental awards and grants for its sustainable innovations.

Local

NLV responds to different locations and site specific issues by working with the land and the people; local community, Aboriginal heritage and biodiversity are areas of focus. NLV has created a Sustainable Living Foundation which invests back into the local community and environment through grants to research institutions, post graduate students and artists.

DESIGN

Living in sustainable style with sustainable systems. NLV aims to produce communities with high amenity and a strong sense of place that deliver innovative sustainable systems and protect the natural environment.





FEATURES FOR ECOLOGICAL SUSTAINABILITY

Saving water	Preventing Pollution	Using renewable enwergy	Protecting biodiversity	Growing food
Rainwater tanks	Waterwise and low-nutrient landscaping	Gas boosted solar hot water system in each home	Protecting existing trees and bushland onsite	Community garden allotment for vegetable
Greywater reuse systems	Use of vegetated swales and porous pavements for stormwater infiltration	Solar Photo Voltaie panels optional on houses	Bird nesting boxes added to many trees	Community fruit orchard
Stormwater harvesting		Solar Photo Voltaie on Clubhouse	Estuary buffer	Olive grove
3 level designed water sensitive private garden designs			Wetland buffer	Chicken farm for eggs
Water-efficient appliances	Low or no P detergents supplied from Planet Ark		Retained fauna corridors	
Waterwise gardens with local and native species	Nutrient reduction greywater recycling in Lifestylers' landscaping			



ELEMENTS

Energy efficiency and water waste management are key elements to sustainable development and easily achievable if planned from the beginning. At NLV, these elements are considered in a comprehensive manner from research, planning and design, through to construction and management.

Energy Efficiency

NLV's energy efficient home designs allow for a more comfortable lifestyle naturally. At BWM energy savings of up to 50% will be achieved through a combination of passive solar design, use of renewable power and sustainable lifestyle practices.

Passive Solar design and Thermal Comfort

Passive solar design involves designing buildings to make the most of solar gain by both minimising heat loss in winter and minimising heat gain in summer. Passive solar building are ideally oriented along the east-west axis with minimal glazing on the east and west sides of the building and maximum glazing on the northern side for winter solar gain. All NLV buildings and houses (other than Busselton and





Alternative Power Generation

NLV is investigating the use of alternative power generation utilising photovoltaic cells to generate power from the sun's rays. At BWM, photovoltaics are on the Clubhouse and Asset Recovery Centres (ARC) to generate energy for street and area lighting. NLV offers a variety of option packages for photovoltaic cells.

Energy Efficient Appliances

On all houses and buildings:

- Gas space heating
- Solar hot water systems with gas booster*
- Gas reticulation throughout the site
- 5-star gas cooking appliances*
- Energy saving luminaires
- Appropriate lighting levels

Greywater Recycling

Water that comes from the bathroom sink, shower and laundry is called greywater. Recycling greywater reduces the amount of wastewater as well as saving the amount of water a household uses.

The recycling occurs in the garden as sub-surface irrigation for the plants preventing any direct human contact with treated greywater. All BWM homes and buildings have Health Department approved G-Flow or Nylex diverter systems. Greywater will meet 76% of irrigation demand (based on 1.8 people/house occupancy.)

Stormwater Management

Stormwater control and quality management is via roadside swales. Excess stormwater runoff that is not infiltrated near the source is conveyed to larger vegetated swales within road reserves. These swales process the nutrients from the stormwater as well as allow natural recharge of the aquifer. Paving that lets water soak through allows natural recharge of ground water reserves.

Water Efficient Appliances

- “Aqualoc” tap flow regulators and water efficient showerheads
- 1500L rainwater tank
- Centrally monitored greywater reuse system for garden irrigation

Water Efficient Landscaping

- Stormwater harvesting
- Water sensitive private garden designs
- Greywater reuse systems
- Waterwise urban design and landscaping





Waste Management

In order to reduce waste and prevent pollution, waste management systems are designed into NLV Villages and Resorts and Resorts. Bridgewater Lifestyle Village is contributing to the State Water Strategy's target of 20% wastewater reuse by 2012. At BWM, wastewater will total to 50L/day into the sewer which is less than one third of the Perth average.

Recycling Solid Waste

Most rubbish goes to landfill, while at Bridgewater Lifestyle Village rubbish is treated as an asset. Solid waste recycling has been made easy, lessening the volume of useful items going into landfill as well and reusing valuable wastes.

- Innovative Asset Recovery Centres (ARCs) throughout the village enable efficient, sophisticated recycling
- 8 bin system for glass, plastics, metal
- Organic waste for composting and vermicomposting (worm farms)
- Paper and cardboard waste will be milled by Lifestylers to make new paper
- Could be expanded

Construction

NLV chooses sustainable materials and suppliers that are environmentally accredited and local wherever possible and economically viable. This means less production energy, less transport energy and choosing like-minded companies.

Sustainable Materials

Criteria for selection of sustainable materials include:

- Local suppliers
- Australian produces
- Environmentally-accredited companies
- Low embodied energy materials
- Recycled materials

Some Materials

- Housing is completely reusable and relocatable for another one or two lifecycles
- Steel frames for homes ensure a long life and potential reuse, the best form of recycling
- Insulation is up to 70% recycled glass
- The clubhouse is made of local rammed earth
- The clubhouse has a recyclable steel roof construction
- Porous pavements reduce stormwater runoff
- Water and nutrient wise landscaping materials are used in all landscaping
- Local limestone and rammed earth are used in the landscape
- Biowise mulch is used in all planted areas
- Timbers used are plantation or recycled

Choice of Supplier

Environmentally accredited (ISO 14001) companies are chosen where possible.

- Steel frames for NLV homes are manufactured by Bluescope Steel who aim to be water-efficient and reduce air, water and noise pollution in its operations
- Insulation is supplied by CSR Bradford, the fibreglass insulation batts use up to 70% recycled glass
- Rammed limestone for the clubhouse limits transport energy for raw material





Education and Evaluation

NLV invests in knowledge with a commitment to excellence, innovation and ongoing monitoring, research and development to enable NLV to maintain a pursuit of excellence for future Villages and Resorts.

Traditional Owners

NLV acknowledges, respects and learns from the traditional owners of the land about their land and culture. At Bridgewater Lifestyle Village, in collaboration with the local Noongar Elder Joe Walley and his Bilya Noongar Organisation Inc., NLV will provide ongoing education and a significant statement in the community to acknowledge the traditional owners.

NLV Staff Education and Research

- Staff attend relevant education programs to further their knowledge in the area of sustainability
- Staff research and conduct feasibility studies on new concepts and environmental innovations to enrich the design of Villages and Resorts.





ENCOURAGEMENT

NLV is constantly learning and improving and is encourages greatly in its sustainable pursuits by acknowledgement of its innovative achievements from Government Departments.



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