

1.1 Project overview

Earthsong Eco-Neighbourhood is a non-profit, resident-driven ecohousing development, based on cohousing¹ and Permaculture². Its prime purpose is to demonstrate more sustainable housing in cities. The project consists of 32 rammed earth and macrocarpa townhouses on 1.67 hectares in Ranui, West Auckland. It will incorporate a number of environmentally innovative features, such as waste minimisation, non-toxic construction materials, solar space & water heating, rainwater reuse, edible landscaping, roading and impermeable surface minimisation, and shared facilities.

Autonomous 2-storey houses are clustered to protect open space, allowing common land for recreation, orchards, gardens, water management systems, and protecting an area of native bush. Neighbourhood layout and provision of a common building facilitate a sense of community, while protecting privacy.

Cohousing NZ Ltd, which is comprised of resident-to-be shareholders, is acting as the project developer. Resident design and management are essential aspects of the project and an ongoing body corporate will maintain common facilities and systems. Planning and design has also sought to accommodate a diverse range of age and income groups.

The neighbourhood is the first of its kind in New Zealand, and it has achieved considerable public, media³, and scientific attention during five years of planning.

Final working and engineering drawings of Earthsong Eco-Neighbourhood are nearing completion. Land Use Consent was granted in April 2000 and we anticipate commencing construction in November 2000.

1.2 Credentials

Established relationships with:

- Waitakere City Council, Planning, EcoWater, Ranui Community Development
- Minister for Housing & Transport (Hon. Mark Gosche)
- NZ Law Commission / Reform of shared ownership
- Western wastewater strategy / Project West.
- Standards NZ / Proposed Sustainable Land Development Handbook
- ARC, construction waste monitoring trial

Also supported by

- Energy Efficiency and Conservation Authority
- Environmental Building Association of NZ
- University of Auckland, School of Architecture and Planning
- Building Biology Institute, Reinhardt Kanuka-Fuchs
- Soil and Health Association
- Unitec, Landscape and Design department

Project management is by:

- Promanco Kenman Auckland Ltd

¹ McCamant and Durrett (1994), *Cohousing—A Contemporary Approach to Housing Ourselves*, Ten Speed Press, CA. Cohousing is based on a Danish model is experiencing rapid uptake in the USA.

² Mollison (1988), *Permaculture a Designers Manual*, Tagari, NSW. Permaculture is the practise of closing cycles and the design of diverse productive combinations of built, agricultural and ecological systems into sustainable settlements, for urban and rural areas.

³ The project website contains copies of some of the media material. (www.cohousing.pl.net)

1.3 Referees

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2. PROJECT DESCRIPTION

2.1 Description summary

- Construction of vegetated swales to direct surplus stormwater run-off, providing absorption back into ground-water, and filter and treat pollutants.
- Rainwater tanks will detain peak storm discharges, reduce total outflows, facilitate stormwater beneficial reuse, and provide some limited treatment.
- Construction of permeable paving in some car parking areas, and establishment of high permeability landscaped areas.
- A pond to be constructed as dual amenity and water treatment.
- The protection of 300m² native bush, 1500m² of heritage orchard.

2.2 Project Type

- Stormwater infrastructure

2.3 Location in the region

- Waitakere City

2.4 Location Details

- 457 Swanson Road in Ranui, Waitakere City

2.5 How the project gives effect to regional strategies

The complex interlinking nature of regional resource problems is recognised by Cohousing New Zealand Limited. In accord with Waitakere City's Eco-City strategic framework, Earthsong Eco-Neighbourhood is bringing together a package of technologies which in themselves are proven, particularly in the areas of energy and water conservation and efficiency. We recognise the limitations of the Resource Management Act 1991 in adequately addressing the more intractable environmental issues such as growing shortages of clean freshwater, topsoil loss, the cumulative effects of vehicle use, agrichemical use, excess resource consumption, and the green house effect. Evidence indicates that these issues can be effectively addressed at a cooperative local community level.

The Auckland Regional Growth Strategy seeks to focus intensification within the western rail corridor. Ranui is seen as an area for revitalisation and intensification as a small town centre. Earthsong not only contributes to this, but also demonstrates a model of medium density housing that also includes attention to quality open space. Positive models of higher density housing are greatly needed. Integrating and contributing to the wider community is a pivotal part of the project vision.

The Earthsong site was chosen due to its 500m proximity to a railway station and shops, in line with the Auckland Regional Land Transport Strategy. In addition, a 2500m² portion at the front of the Earthsong site has been allocated for mixed-use commercial development. The above combined with allowing residents to meet more of their social and recreational needs on site will contribute to considerable vehicle trip reduction.

The stormwater management strategy recognises the adverse effects that impervious surfaces, such as roads, driveways, carparks, and roofs have on aquatic ecosystems. By additional stormwater quality treatment of these surfaces via rainwater tanks, porous paving and swales the Earthsong

Eco-Neighbourhood project presents an integrated approach to addressing these problems. The "demonstration" theme and intent of the Eco-Neighbourhood development also presents an ideal opportunity to publicise, to as wide an audience as possible, information on the range of stormwater options available in an urban environment, a key element of the regional stormwater strategy.

Cohousing NZ has participated in Project West and expects to be a vocal advocate in upcoming water reviews.

3. FINANCIAL INFORMATION

3.1 Estimated Total Project Cost

IA partial funding is being requested for the porous paving water quality treatment systems and rainwater tanks with a combined cost of \$104,820 excl GST. See attached spreadsheet of project cost data and breakdown for IA portion.

(The total cost of the stormwater and road system is \$347,560 excl GST (see attached spreadsheet))

3.2 Proposed Funding Sources

Private	[78]	%
Infrastructure Auckland	[22]	%
Other (sponsorship)	[0]	%

3.3 Funding Sources Currently Identified?

Private	[78]	%
Local Authority	0	%
Auckland Regional Council	0	%
Other	0	% (source: Potential commercial sponsorship)

3.4 Indicate how proposed Infrastructure Auckland funding will be used:

Capital	[100]	%
Operating Expenses	[0]	%

3.5 Current Project Status (% completion)

Feasibility Study	80	%
Draft Designs	50	%
Regulatory Approvals	30	% (Land Use Consent. Building Consent to be lodged early Sept)
Final Costing	30	% (swales design advanced and costed)

3.6 Describe any completed peer review or independent analysis

A comprehensive cost-benefit stormwater study was carried out by Worley Consultants using Cohousing New Zealand's Ranui site as a case study⁴. David Kettle of Worley continues to provide design overview in conjunction with EcoWater.

⁴ Worley Consultants, (August 1999), *Cost Benefit Analysis of New Technologies, Stormwater and Wastewater*, Waitakere City Council, Auckland.

4.0 COMMUNITY BENEFIT

4.1 Benefits the project will provide to the community generally:

- Stormwater treatment over and above that required by TP10.
- Significant increase of peak storm flow attenuation over that required, relieving pressure on downstream pipework known to be at-capacity and stressed.
- Demonstrating the viability of environmentally sensitive medium density housing in a particular relation to stormwater. Demonstrating and inspiring urban Permaculture, becoming less parasitic on rural ecology by growing food in cities. Reduction in packaging waste, and freight kilometres. Regular open days for community groups, students, schools, and scientific study to demonstrate the above technologies.
- Also a model of *cohousing*, as a more socially sustainable settlement. National significance in terms of strong local community, health, safety and security, and socially supportive mixed generations.

4.2 Benefits the project will provide to identifiable individuals or groups.

- The innovative tenor of the development will be an asset to the revitalisation of Ranui township and community.
- Providing a healthier and less stressful and time-consuming quality of life for residents.
- Energy and water conservation will generally benefit a region with over-loaded infrastructure, and have a globally significant impact⁵.
- Sustainable design recognises the importance of educating stakeholders, and the general public.
- Future developers in particular can draw inspiration and confidence from the presence of a successful example of environmentally sensitive medium density housing.
- Waitakere City and Watercare Limited will both benefit from reduced pressure on under capacity systems. Wastewater flows to Mangere Wastewater Treatment Plant are expected to reduced to nothing as a stage two on-site treatment plant is built.

4.3 Community consultation:

Cohousing New Zealand Limited undertook extensive community consultation as part of its Resource Consent process as follows:

- Newspaper and magazine items in most major publications throughout the 5 1/2 years of the group's development, as well as radio and television interviews.
- Direct consultation with local community groups such as the local community leaders, the Council community coordinator, church communities, and iwi.
- Letterbox drop and information events held at Ranui Community Centre July to December 1999. Open Days twice monthly since this year. A major Open Day held on March 26 2000 was opened by the Hon Mark Gosche, welcomed by Tangata Whenua and attended by 500 people.
- Web site.

4.4 Other options to the Stormwater Management of this project that have been considered

The following options were considered to be inadequate, impractical, or too costly:

- Standard Option: Run-off from impervious driveway, paths and parking areas, and roofs piped underground to large engineered pond.

⁵ Independent audits carried out on similar developments in the USA (Harmony Village, Colorado, Eco-Village at Ithaca, New York) demonstrated 40-60% electricity reduction, and 60-80% water reduction. Net CO₂ reductions of 60 tonnes per household per year. (Walker 2000, "Building Green Community on a budget", *Communities Journal*, vol 106:56, Rutledge, MO.)

- One million litres of underground concrete storage tanks, for detention and comprehensive rainwater re-use.
- All driveway, parking and paths in a Form-Pave type permeable surface.

DECLARATION

Signed:

Date: 31st August 2000
Name: Peter Scott
Title: Planning Coordinator, Cohousing New Zealand Limited.
For and on behalf of: Cohousing New Zealand Limited