

Design by Choice or by Compromise

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It's uplifting to design with plants that you feel passionate about but the reality is that design with native plants, especially in an institutional context is about placing plants in very unnatural settings with an expectation that they will perform all year round, always and forever. Somehow the designer needs to retain the original emotion in the face of all the compromises that must be made.

Te Ara Whanui was the first kura kaupapa or Maori immersion primary school to be built in the Hutt Valley. I was exceptionally lucky that architect Fiona Christeller involved me at the very beginning of the site planning process.

Winter

The school had a strong vision; they wanted a green environment, a strong indigenous identity, an educational resource and a recreational resource. The pupils were to be organised in whanau groups and the buildings were to be designed within that structure so that a group of classrooms were clustered around a central courtyard.

However the site came with problems. Originally a swamp and only 1.4 kilometres from the Petone foreshore it was drained recently enough to be remembered by one longtime local who had to ride her horse to school and had to navigate around the swamp. There is a very high water table and this varies according to the tides. The site forms a long rectangle running east-west exposed to both the northerly and the southerly but liable to heavy frosts in winter. ie a great combination of salt, wind and water. It was formerly the site of a manual training school.

I developed a set of objectives. I'll concentrate on planting rather than discuss the hard landscape but the overall theme was to create a landscape that enhanced the buildings and defined the character of the school.

- Provide planting that enhanced the identity of the site and school
- Planting to be primarily indigenous species
- Provide educational opportunities for students
- Create a low maintenance landscape
- Create a safe environment for students
- Create a landscape that allows good supervision of students
- Create a strong focus and meeting place for school

activities

- Create an unique identity for each whanau court yard. Use planting to screen, shade and soften the environment

From this I developed a planting concept

Dominant Trees

Dominant tree species were pohutukawa, ti-kouka, ngaio, and karaka. They were selected for their ability to establish themselves quickly and their tolerance to the environmental conditions of the site.

These were to be used as specimen trees in lawn areas and as a grove along the main frontage to the school. I wanted to exploit the strong upright form of the cabbage tree and the pyramidal form of the karaka to emphasize entry points, allow views through from the street and provide shade on the lawn which would be used as a gathering point for formal entry into the school marae.

Theme / Identity Trees

Trees to whanau courtyards provided a strong identity to each space. Trees included totara, titoki, kowhai and puka.

Specimen trees

Specimen trees for education and ecology included miro, puriri, tawa, kauri, hinau, kahikatea, totara, rata and kamahi.

Northern Boundary Planting

it was intended to incorporate a wide variety of smaller-scale trees and shrubs to act as a buffer between the school and neighbouring houses, a visual backdrop and a teaching resource. Trees and shrubs in this area are to include the following species; akeake, kanuka, kohuhu, tarata, houpara, mahoe, kapuka harakeke, wharangi, raurekau, hebe species including koromiko, toetoe, taupata, kawakawa, ramarama, olearia species, rangiora, as well as a range of grasses and tussocks.

As this planting matured, it would create a range of microclimates that sustain in turn a greater range of plants eg. dry shade, damp shade, frost-free zones

There was also a range of small plant beds adjacent to buildings around the central courtyard, courtesy of the architect. Some were shaded, some were sheltered and

some were well-drained but they were an opportunity for using a larger range of species.

It all looked great on paper. So where is the compromise? Compromises are part of the normal process of designing; specific to the site, the school and the client brief.

Site

Some weeks after I had finished the concept and the school had accepted it, engineers discovered that after the original school was demolished, a building platform of 1 metre deep compacted basecourse had been placed on the front third of the site. The architect was ecstatic but I was less so. The good news: the front of the site had 50mm topsoil and the rear of site received some hardfill and some topsoil. Soil tests (the 3 metre deep hole) revealed the basecourse sitting over an impermeable layer of clay sitting on the original swamp. Not ideal planting conditions and the plant species and planting techniques had to be adapted to suit. I really wanted specimen trees at the front of the school for scale and shade and visual presence and these were limited because of the sheer cost and effort of establishing them.

Design and plants

The school wanted an extensive range of plants but I knew that a botanical zoo would be an inappropriate long-term solution for the site. Such planting is hard to establish, expensive to implement and takes experience to maintain.. I wanted a compromise between residential and institutional design and I wanted to use native plants. I also knew that any planting had to be robust and hardwearing, the sort of planting that could survive 80 plus kids confined within a courtyard at lunchtime.

There had to be some compromise so that we could use a range of plants that were suited to the site, hardy and robust, and yet could be fitted into a total design. Despite the practicalities I still needed to consider the plant qualities of form, line, colour, texture, size.

There are two important points here, both concerning design with native plants.

First, it's a common misconception that all native plants are hardy and any plant will grow anywhere. As you all know, in a natural situation, revegetation occurs over a period of time so that the larger trees grow only once a fertile, sheltered environment has been established. In an ideal world we would plant to establish initial cover, put in larger shrubs in 1 or 2 years time and come back in 10 years time to look at planting the large trees. Or we would use fillers to provide bulk and protection for the long term planting and to minimise weed growth. But in a design like this you only get one bite of the cherry, one budget, and one chance to plant. So we design for the long term,

spacing plants according to their size at maturity, then squashing them up a little to get quick cover then spreading them out because the initial design costs too much.

There is also another common belief or rather the idealisation of native planting, the beauty of the bush, verdant nature etc. Well, it isn't always like that. Nature close up can look less than ideal. It's a jungle out there. Plants get eaten, wind burnt, etiolated and suppressed. In the bush, plants on the exposed fringe areas get rougher treatment than most. And planting in this sort of ornamental situation is almost all on the fringes. Again there are a limited number of plant species available that will thrive in such exposed conditions.

There is often criticism that large scale design with native plants looks bland and monotonous but it is a challenge to create long edges or strands of planting that are vigorous, healthy and look good all year round.

So I make no apology for using indigenous but not endemic plant species in this highly modified environment with the additional stress of robust use and a requirement for plants that look good all year round. We ended up using 118 species some as bulk planting and others in small groups. There are very few one offs. We did use some cultivars for colour and variety and availability, mainly *Coprosma* and *Hebe* and just one or two yellow and red flax (not together).

Budget and Building process

Money always comes in a one-off amount. You cannot save it or stage planting and while maintenance generally is allowed for, it is not a long period, three months in this case. So we compromised by planting densely and spending money on quality topsoil and initial establishment. Even so we had to cut out a lot of planting and limit plant densities to meet the budget.

As in any project there are delays and changes. On a job this size with over 4,000 plants I was lucky that we had a good lead-in time, most plants were available and there were very few substitutions. This isn't always the case and as the demand for using native plants grows, there can be supply problems; this year *Chionochoa flavicans* was in high demand, and big numbers were wanted. Towards the end of the season it was impossible to get and even more difficult to substitute for.

But there were difficulties and as time dragged on some plants that the contractor had waiting, particularly hebes and ngaio, came perilously close to being rootbound. It's not unique to native plants but some species do not respond to being bagged up for a long time.

The main contractor stockpiled and screened the site topsoil and towards the end of the job the 'best' topsoil

tended to disappear as more building room was required. There are only so many places you can store large piles of soil. There was no money left to import topsoil but an awful amount of site non-topsoil (it's brown, it's there, it's soil) to be disposed of and a preference to leave it on site. I'm not sure if it's a compromise or just facing the realities of life but I do know that some plants got a slower start in Te Ara Whanui than I had anticipated. And this turned out to be critical for their survival.

School environment and requirements

Once the concept had been approved, the school passed on some specific requirements for harakeke, medicinal plants and berry plants for birds. We managed to include most of these in the design including miro, puriri, tawhero, koromiko although I felt the initial environment was too harsh for tawa. There were more problems with the ferns (kaponga, pikopiko, and herekia) and I suggested that they might be better as a second stage planting once a more favourable microclimate had been established. I note too that there are problems in establishing a common language and it took some research to establish just what genus and species this particular pikopiko was meant to be.

We reserved one area for planting on the opening day so that families or individuals could sponsor a plant and actually plant it. A great idea and the contractor was very obliging but as you can imagine, some plants got a better start in life than others did.

One and a half years later

Looking back: is it a success? I don't expect the planting to look complete even now but certainly the school has no regrets that they chose to commit a large chunk of budget to green landscape.

And yes, the planting does show signs of wear and tear although this was entirely predictable. The planting was done in early autumn with good quality stock, an adaptable contractor and almost ideal timing. Unfortunately the grass had not had time to establish and was roped off. The kids were desperate for places to play and the gardens looked like fun. However time has passed, planting has grown and developed a stronger presence and the level of damage has decreased.

Some plants have survived but look less than healthy. The kawakawa are too exposed but will improve as the surrounding planting grows to provide shade. Napuka planted close to the buildings has suffered some mildew damage but I'm told that this is common in the Hutt Valley this year and will be less evident as the plants mature.

The karaka on the front lawn are yellowed and seem to be struggling but they were large specimens at .9m and may yet sit for another year before they take off. Some of the larger trees don't take kindly to transplanting and sit for 1-2 years before taking off.

Good soil and fertiliser does assist initial growth and this is evident in areas around the school that received site rather than imported topsoil. As I said before, time is a luxury in a school situation and early establishment and growth is critical to survival.

Some plants were unsuited to site conditions. There have been localised site conditions that have caused plant failure. Most evident are wet patches where water ponds. We have lost some rangiora but as a trade off have found ideal locations for harakeke. The *Cortaderia richardii* never thrived and maybe the larger species would have been hardier.

The plant bed preparation, especially around buildings, was worthwhile. These are high-pressure areas and the plants have established well and are growing vigorously. The *Clematis paniculata* is in flower as we speak and the *Tecomanthe speciosa* has almost covered its support. Even the lancewoods that dropped all their leaves initially have reasserted themselves and grown.

In the longer plant borders the flaxes, tussocks and grasses are shooting away. Growth has been so strong that control is needed although maintenance can be too thorough!

There has been a trade off in the design with a deliberate decision that strong vigorous planting was ultimately more important than ecological planting, provenance, natural succession and use of endemic species. The vegetation is a source of pride. This school looks different and the landscape, both hard and soft, complements the architecture.

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