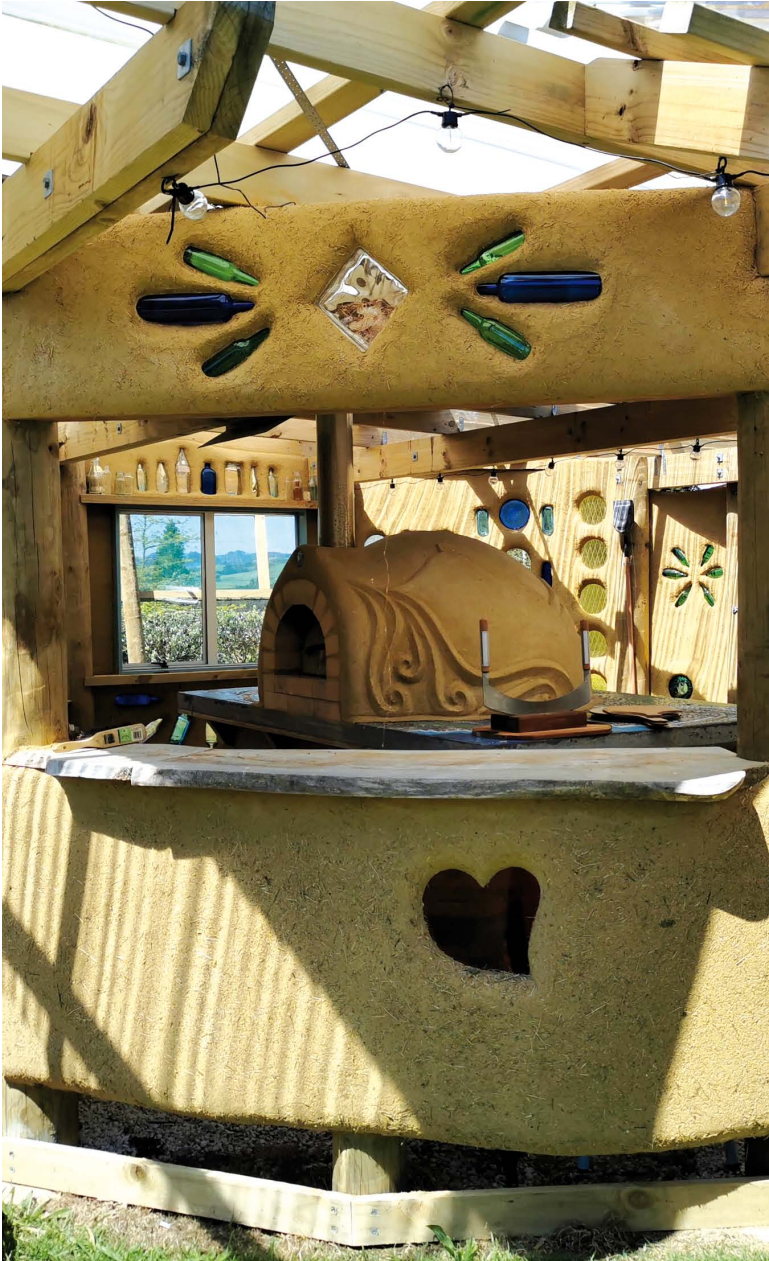


WAIKINO School Project



A very special project quickly becomes the heart of this Waihi school and wider community.

**Words and pictures
by Rose Tuffery
and Joanna Wheway**

In 2018 Waikino School Principal, Joanna Wheway was chatting to the EnviroSchools facilitator regarding their next steps as a Green/Gold EnviroSchool. The students had decided that the original in-ground permaculture garden beds area needed an upgrade. Through their inquiries they had found out about various types of earth building and wanted to incorporate this into their designs. Through the EnviroSchools facilitator Jo contacted local earth building expert and artist Rose Tuffery and Waikino's journey began!

It all began with Rose and the students exploring the school site and assessing what materials on hand could be used. Clay from the banks of their *te ngahere* (forest school), sand from the school sandpit, bamboo from the school boundary, wood shavings and hay used for the school livestock, gorse, bracken, pine needles, mulch, dried lawn clippings - all of these were used in test mixes to establish which mixes and materials would best fit the needs of the kids' design.

While the test bricks dried, the students, Rose and Jo worked on taking key elements of their design and created a master plan for the rebuilding of the

gardens and the earth building elements it would contain. These included two small corner walls to enclose the space symbolically, and a pizza oven, because this topped the tamariki's wishlist!

Once dry, the tests were assessed to decide which materials and proportions to use. As well as having the desired qualities, ease of gathering and processing the quantities of materials they required was taken into account.

Work began on the walls first as a more achievable challenge as Rose, Jo and the tamariki got used to working together. These wattle and daub structures began the long standing tradition of earth

building at Waikino, they just evolved.

All the senior students got involved and the joy of earth building is that there are many and varied roles that suit many and varied personalities and interests, perfect for Kino Kids.

Students stomped or mixed clay, wheelbarrowed or sieved sand, cut bamboo, tied framing, mowed hay, washed bottles or added mud mixes to the bamboo framing they had constructed.

Pretty soon they had run out of clay, but luckily one of the students had a farm down the road with beautiful grey/



PHOTOS, OPPOSITE PAGE -
Waikino School Pizza Palace, the 'new heart of the school'

ABOVE -
The whole community got involved with stomping, mixing and building the cob walls around the base of the concrete plinth.

PHOTO, LEFT -
The back door included an extra child-size hobbit door crafted by Dan with surviving timber from Whare Manu.



blue clay, the kind of clay that made Rose drool! So off they all went to restock their clay pits.

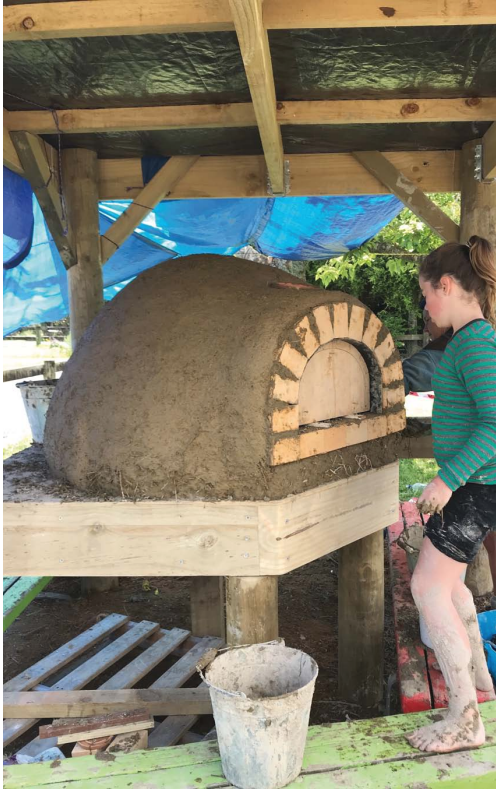
Building these two walls was such a fantastic experience that allowed Rose and Jo to work out how best to manage the student's abilities and levels of focus over time. It also provided them with insight into how well this kind of experience could allow each child to find their interest and expertise within the build. It was fantastic to see them beam with pride as they demonstrated how well they could cut bamboo to fit, tie knots, energetically stomp or delicately smooth mud.

Pretty soon they had two garden walls and the earth building bug had well and truly bitten!

Pizza Oven Version 1.0

Now it was time for the Pizza Oven to rise from the ground. This was to be located in a new space that the school had received EnviroSchools funding to help build, a makerspace for the Waikino tamariki to work on their own project based learning.

The oven itself was a more complex build than the walls and had more types of mixes for the kids to learn to make which many of the students found fascinating as it fitted with their mathematical brains. Others found designing the decorative panels on the oven's surface suited their skills and with Rose they created a design from their ideas; their mountain shape-Karangahake - with a crystal cave inside made from locally found crystals and rocks (even some obsidian that had been blasted out of Tuhua (Mayor Island) that they had found during their forest time),



their rivers, waterfalls and birds.

The completed oven and building got named Whare Manu as the schools values are held by native birds with creativity being the most important of these values, hence 'house of birds'. From the first time it was lit this oven, the gardens and the Whare Manu space became the heart of the school with the oven lit almost daily by students who needed extra settling time in the mornings.

Phoenix from the Ashes

In late 2020 the pizza oven was cranking out pizzas for a fundraiser for the Lion's Garden Ramble with the school gardens open for visitors,

a hugely successful weekend in divine spring weather. At 3am a passerby saw flames coming from Whare Manu where the pizza oven was housed and called the fire brigade. The whole community was devastated at the loss of the heart of the school. Jo's first call was to Rose to make a plan!

From this tragic event came an opportunity, the last of the students who helped to build pizza oven 1.0 had just left the school, which left lots of students who hadn't had a chance to be involved in earth building yet.

Insurance money and then some extra was allocated to building a new pizza oven and replacing Whare Manu the makerspace. Between them Rose, Jo and Jo's husband Dan decided to build the new pizza oven

PHOTOS, OPPOSITE PAGE, LEFT + TOP RIGHT -

Stones from local rivers with crystals in were used for the base of one wall. Bottles inset as windows arches roof of slab of tree cut down at school. Rose and kids working on first garden wall. Living roof on first garden wall.

OPPOSITE PAGE, BOTTOM RIGHT -

Looking through the 2018 earthen wall arch to the new heart of the school.

THIS PAGE, LEFT + RIGHT -

Photos of the original pizza oven and Whare Manu.

PHOTOS, MAIN -
**Bottle stars with
 crystal centers and
 peephole windows
 for small children
 to discover.**

TOP+MIDDLE RIGHT -
**River rock footings
 and cob walls with
 internal bamboo
 framework.**

BOTTOM, RIGHT -
**The whole
 community got
 involved with
 stomping, mixing
 and building the
 cob walls around
 the base of the
 concrete plinth.**

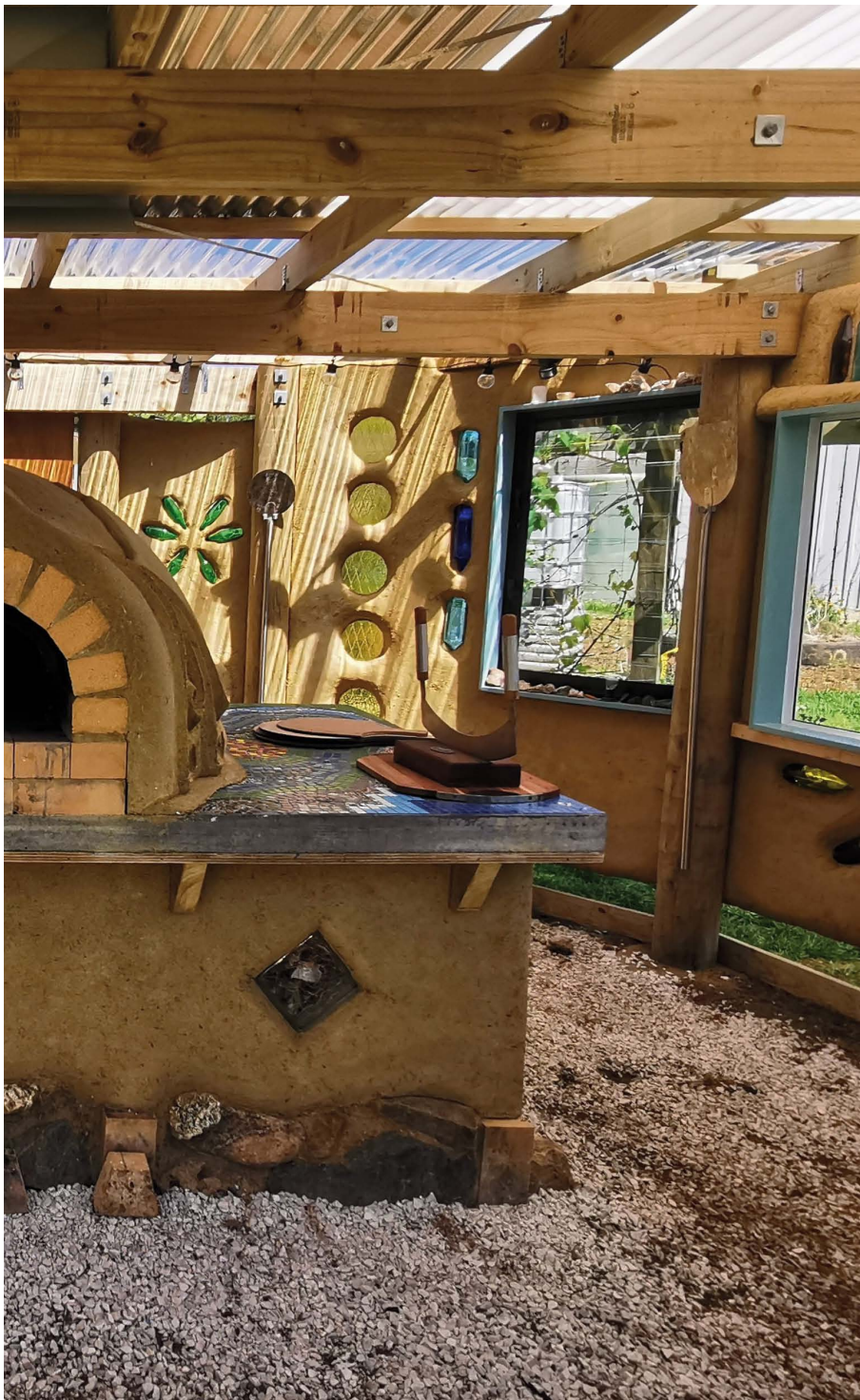


separately from Whare Manu so if something tragic was to happen again it wouldn't take out all the buildings. The second design built in every feature they could think of to make the pizza oven fire proof starting with a concrete plinth and cob walls along the front. Special wood storage hatches were located at the rear of the plinth, then to top it all off they decided to make earthen walls for the sheltering structure around the new pizza oven!

After that it could no longer be called a pizza hut and became known as the pizza palace.

As with the previous oven the school song that acknowledges the importance of the school's awa and maunga was incorporated into the design. This time all of their local mountains, rivers and waterfalls were represented on the oven sides.

Now the pizza oven was drying it was on to



making the pizza palace to house it in, as with all projects this evolved from ongoing korero that led to the design of a round building that wrapped the pizza oven like a cloak.

Big double stable doors would allow the whole front to open up and plenty of windows would let the beauty of the oven be seen from outside at all times, provide ventilation in summer and protection from the elements in winter. A child-sized, round, hobbit door was installed at the back.

The framing for the building was large, solid, round posts with a tin roof above the oven and clearlight away from the heat source to let light in. The curving, infill walls had bamboo framing with a daub mix high in fibre and clay to make it light, flexible and durable against wind-driven rain.

From these foundations, features of the building itself evolved as items were donated and creative inspiration flowed. Stories were built in everywhere as it all evolved.





PHOTOS, THIS PAGE -

The phoenix pizza oven was surrounded by a mosaic done by Jo that continued the rivers and mountains from the oven out across the work surface , telling stories in mud and mosaic.

OPPOSITE PAGE, TOP LEFT -

Structure appears for the new 'pizza palace'

MIDDLE+BOTTOM LEFT -

The school's mountains, rivers and waterfalls on the new oven

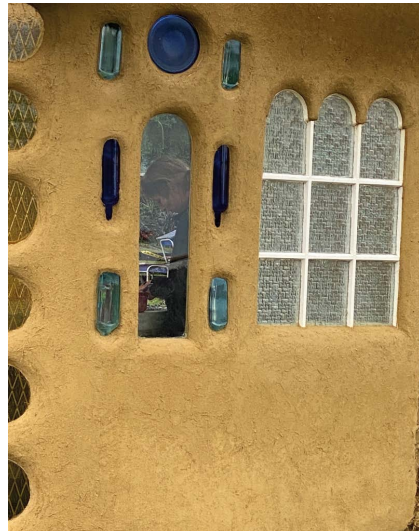
TOP+BOTTOM RIGHT -

A heart was installed under the adult bar as this would be the new heart of the school.



The phoenix pizza oven was surrounded by a mosaic done by Jo that continued the rivers and mountains from the oven out across the work surface. The large front doors and the rear hobbit door were made by Dan using surviving wood from Whare Manu. Bar leaners were made from slabs milled from a tree in the school grounds. One slab was placed at adult height and one at child height so that everyone could enjoy the oven in action. A heart was installed under the adult bar as this would be the new heart of the school.

Above the bar learners more glass bricks (with holes in for fairy lights) were installed along with coloured bottles donated by hardworking community members (who helped empty them).



PHOTOS, TOP LEFT+RIGHT -

Donated windows and bottles allowed for creativity to flow

TOP MIDDLE -

These frosted windows had the arches accentuated and old yellow pane windows became round peep holes. A clear pane was installed between them to allow for views

BOTTOM -

Rainbow of bottles and old bottles found by 'Kino kids in their forest school. At night the light spills out through a myriad of colours of windows and bottles.

A Rainbow of bottles was positioned to glow in the afternoon sun.

Interesting old bottles found by students during adventures in their forest school were built in to the walls while others were displayed on shelves nearby alongside treasures salvaged from the previous oven.

At night the light spills out through a myriad of colours of windows and bottles.

The whole building grew organically and felt like a phoenix rising. It feels good to be in a nurturing space, rich with stories. It showed us what is possible to create together with what we find around us. It taught us what it is like to be part of a great team who are open to creative inspiration and to finding solutions within every challenge that crops up.

And that beauty really does rise out of ashes.



AUTHOR BIO

Rose Tuffery is an artist, sculptor and builder in clay, based in Waihi on the edge of the beautiful Coromandel Peninsula.

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