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PERMACULTURE DESIGN CERTIFICATE

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# Design Portfolio



2022/23

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## Introduction

I have been interested in gardening in general for much of my life having seen my father garden, as well as grandparents, aunts and uncles, including one uncle who had a market garden in Te Puke for many years. Although I did not do a lot of hands-on gardening growing up that changed when I married and moved to our own property in 1984.

Most of the gardening I saw done growing up was with a minimum of “fuss”. There was a compost pile so I understood a little about gardening. Once my husband and I had our own space I began reading widely, from the library in those days which led me from gardening in general to organic gardening practises, companion planting and, in 2003, my introduction to permaculture through Linda Woodrow’s *The Permaculture Home Garden*. I was so fascinated by the idea I purchased a copy of the book.

I’ve kept a sporadic gardening journal since 1996 which has been great for having a bit of a record of – “When did we do/make/plant \_\_\_\_\_ ?”

I first heard of the Regenpreneur *Permaculture Design Certificate* in 2021 and decided to add to my knowledge through the course. Whilst my husband and I have made improvements over the years I always welcome new knowledge and learning plus the chance to look at our property through even more of a permaculture lens via the modules of the course.

## Permaculture ethics and principles

The three permaculture ethics are:-

- Care of the Earth
- Care of People
- Fair Share

The twelve permaculture principles are listed below. They have been and are being used to a greater or lesser extent on this property.

- Observe and interact
- Catch and store energy
- Obtain a yield
- Apply self-regulation and accept feedback
- Use and value renewable resources and services
- Produce no waste
- Design from patterns to details
- Integrate rather than segregate
- Use small and slow solutions
- Use and value diversity
- Use edges and value the marginal
- Creatively use and respond to change

# 1. Site Analysis

## 1.1 Permaculture Design Questionnaire

Contact person	
Address	Suburban Wellington
Preliminary Goals	To care well for the property we live on, grow and harvest what vegetables and fruits we can, create garden areas that are pollinator attractive as well as being aesthetically beautiful. To return what we can to the soil to continue improving it. To use natural soil amendments and sprays. To share excess with whanau and community. To pass on knowledge to those who would like to learn.

### Your Property

1.	Size of property	809 square metres
2.	Do you have a copy of the tax map, plot plan or survey map of the property? If so, please attach.	We have a copy of the title deed with the lot information. Image attached following this table.
3.	Are you aware of any historic uses of this land such as farming, logging, etc?	No – although possibly farming at one stage
4.	What kind of property <b>surrounds</b> your property? (residential, business, etc.)	Residential – both low and high density housing
5.	Please describe the number and type of buildings on this land (including any outbuildings.)	1 house with garage, 1 greenhouse, 1 children’s playhouse
6.	Does your property have any desirable views?	There are views to the East and North, a little to the South – even though these are residential they are pleasant as they are hillside views mainly.
7.	Does your property have any <b>undesirable</b> views?	Since 2019/20 a 17 unit high density development to the rear of our property has 3 units directly behind and overlooking the top of our property.
8.	Are there any special privacy or “screening” needs?	See #7.
9.	Do you know what type of soil you have? (Clay, Sandy, Loamy, Rocky)	More clay based from observation, quite a lot of “rotten rock” (Saprolite?)
10.	Have you had your soil tested?	No
11.	Have you observed any drainage problems (wet ground, standing water, water in your basement etc.) on your property?	Yes – Since the removal 5 years ago of mature Norfolk pines and other trees in the section behind, plus building of the units there is more water run off down our section.
12.	Have you noticed any areas of soil loss or erosion?	Over the last 5 years due to the major earthworks needed at our boundary, in some areas encroaching slightly, there has been some mild erosion as well as gaps between digger excavation and retaining boards – these gaps are on our side of the retaining boards!
13.	Any areas that are too hot/dry in the summer?	In summer the earth will crack as it dries out.
14.	Describe elevation changes on your property. Where is the low spot, the high spot and are there any sloped areas?	The lowest/eastern point is the road level. The highest point is the top/western boundary of the property. From road to top of property there is a 23metre change in slope.
15.	Describe any unique features of the landscape.	Native trees - some planted 25+ years ago, some volunteers.

16.	Do you know where your septic tank & leech field are located? Or where your sewer lines cross your property?	Yes, we can see wastewater lines on the Wellington City Council maps.
17.	Any specific site “challenges” or problems that you really want to solve or minimise? (Noise, privacy, drainage, maintenance, poor soil, erosion, etc.)	Patience while trees grow to screen the top of our property from the properties behind us. Continuing to amend the soil with compost, mulch in the garden beds especially.

### About You

18.	Who lives in the home?	Myself, husband and 1 adult daughter
19.	Do you need (now or in the future) to make your property accessible/usable by persons with disabilities or limited mobility?	At present, no. The access is usable by even elderly who are able to walk up. We have had a wheelchair access the property in the past thought this is more difficult.
20.	Does anyone living here have allergies (to plants, bee stings, etc.) that you are aware of?	No – we warn dog owners there are Karaka trees in their berry season.
21.	How much time do you currently spend maintaining your yard or landscape?	Ideally 1 – 2 hours per day – reality is that this doesn’t always happen.
22.	In the future how much time would you like to spend maintaining your yard or landscape?	Same or less - although I realise at times more time input may be needed.
23.	Do you employ a landscape or yard maintenance company or do you do this work yourself?	All the work is done by myself and husband.
24.	What are some of your favourite outdoor activities that you employ on your property?	Gardening, spending time on the patio or deck with a cuppa observing nature.
25.	What are some of the activities that you wish you could enjoy on your property in the future?	Same as above, perhaps easier maintenance
26.	What types of company do you entertain? Adults/Children/Mixed? Friends/Family/Co-workers? Neighbours?	Mixed adults and children. Mainly family, though friends occasionally.
27.	Please describe any pets that you allow outside.	One very large dog (ours) and one very small dog (daughter’s)
28.	How long have you lived in the house?	38 years.
29.	How long to you anticipate living here beyond today? Is the decision to stay or leave contingent upon any property or landscape-related issue?	3 to 5 years – perhaps longer. The property will not be easy to maintain as we age. As well as this we would like to live rurally.
30.	If this is a part-time residence, what times of the year will you be here regularly?	N/A
31.	To what degree are you interested in growing your own food?	Very interested – fruits/vegetables/ herbs
32.	Do you conduct business from home? From a home office? Retail? Other?	I have a dance costume sewing business that I operate from the home.
33.	During which seasons of the year do you spend time in your yard?	All seasons – there is always maintenance to do.
34.	Does your lifestyle incorporate any particular spiritual or religious practice that you would like to mention?	I am a Christian and hold a Christian world view.
35.	Do you see yourself implementing your permaculture plan fairly quickly, or gradually over time?	I already use some of the principles and so will continue on with them, incorporating more as time and funds allow.

## About Your Home

36.	How old is your home?	Built in 1952 so seventy years old.
37.	How is it primarily heated/	Wood burner
38.	Do you have a backup heat source in the event of an outage or fuel delivery problem?	No – it would mean adding more layers and blankets! We keep a good stockpile of wood to burn.
39.	How is your hot water heated?	Electricity in summer, wetback in winter or when the wood burner is burning well.
40.	Do you know how much electricity you use, on average, per day (see your electric bill for average kilowatt -hours/day).	Roughly – our bills stay pretty much the same year to year and due to the wetback can be less or not much more than in summer.
41.	How old are your windows?	Almost all are under five to ~ ten years old as the originals were replaced with double glazing over time and as funds allowed. The exceptions are the small laundry window and back door.
42.	Do you feel your home is well insulated?	Yes – this was not the case when we moved in, however we have insulated it.
43.	Where does your drinking water come from?	Municipal supply
44.	Does your neighbourhood/town have any special covenants or regulations governing how you can use your property/home for gardening, etc?	Chicken numbers are limited to eight. Coops must be sited two metres or more from any fence/boundary. No other covenants that I know of for what we wish to grow/do.
45.	Are you interested in renewable energy for your home? (solar hot water, solar electric, wind, etc.)	Interested - however not looking to install any of these in the foreseeable future.
46.	Are you interested in an energy audit to determine how best to reduce consumption and become more efficient?	Not at this point – I feel we keep our consumption fairly low already most of the time.
47.	Are you interested in learning about incentives for energy efficiency work or for renewable energy?	Should we move locations I would look in to these for the property we moved to.
48.	Any known structural problems with your house?	No.

## Garden Design Considerations

49.	Do you have any favourite styles or types of gardens?	<input checked="" type="checkbox"/> Edible Perennials (fruits, nuts, berries, etc.) <input checked="" type="checkbox"/> Vegetable gardens <input checked="" type="checkbox"/> Medicinal plants <input checked="" type="checkbox"/> Flower gardens <input checked="" type="checkbox"/> Culinary herbs <input checked="" type="checkbox"/> Cottage gardens <input checked="" type="checkbox"/> Formal gardens <input checked="" type="checkbox"/> Pollinator gardens <input type="checkbox"/> Moon/ Night gardens – not sure <input type="checkbox"/> Other
50.	What “moods” or tones do you want your landscape to convey?	<input checked="" type="checkbox"/> Bright <input checked="" type="checkbox"/> Cheerful <input checked="" type="checkbox"/> Relaxing <input checked="" type="checkbox"/> Welcoming <input checked="" type="checkbox"/> Playful <input type="checkbox"/> Social <input checked="" type="checkbox"/> Meditative <input checked="" type="checkbox"/> Private <input type="checkbox"/> Ordered <input type="checkbox"/> Other
51.	If you said “yes” to plantings, what varieties are you most interested in? (apple, peach, berries, nuts, etc.)	Apple, peach, plum, berries, currants

52.	Do you have any particular types of plants that you really love?	Native trees, flaxes and plants, flowers, roses
53.	How much “lawn” do you want in your landscape and what activities will the lawn be used for?	We have a lot of grass on our slope which we weed whack and use as mulch mainly.
54.	Do you have colour schemes that you envision in your landscape?	No – just lots of colour
55.	Which shapes/themes do you prefer in garden designs?	<input checked="" type="checkbox"/> Curves <input checked="" type="checkbox"/> Rustic <input checked="" type="checkbox"/> Tiered <input type="checkbox"/> Oval <input type="checkbox"/> Circles <input checked="" type="checkbox"/> Rectangles/Squares <input type="checkbox"/> Formal <input checked="" type="checkbox"/> Informal <input checked="" type="checkbox"/> Other
56.	What type of hardscape materials appeal to you?	<input checked="" type="checkbox"/> Flagstone <input checked="" type="checkbox"/> Stone <input checked="" type="checkbox"/> Wood <input type="checkbox"/> Slate <input checked="" type="checkbox"/> Concrete <input checked="" type="checkbox"/> Brick <input type="checkbox"/> Gravel <input type="checkbox"/> Wrought Iron <input type="checkbox"/> Other
57.	Landscape structures/special features. Which of these would you like to incorporate into the design?  Continued below	<input checked="" type="checkbox"/> Deck <input checked="" type="checkbox"/> Patio <input type="checkbox"/> Swimming Pool <input type="checkbox"/> Arbour <input type="checkbox"/> Gazebo <input type="checkbox"/> Trellises <input checked="" type="checkbox"/> Gazebo <input checked="" type="checkbox"/> Water feature/pond <input checked="" type="checkbox"/> Rainwater collection <input checked="" type="checkbox"/> Garden paths <input checked="" type="checkbox"/> Gates/fences <input type="checkbox"/> Fire pit <input checked="" type="checkbox"/> Sculpture/Sundial <input type="checkbox"/> Sauna <input type="checkbox"/> Hot tub <input checked="" type="checkbox"/> Cold frames <input checked="" type="checkbox"/> Greenhouse <input checked="" type="checkbox"/> “Kitchen Garden” <input checked="" type="checkbox"/> Herb Spiral <input checked="" type="checkbox"/> Rock wall(s) <input checked="" type="checkbox"/> Bench(es) <input checked="" type="checkbox"/> meditation/Quiet Space <input checked="" type="checkbox"/> Outdoor lighting <input type="checkbox"/> Playset <input checked="" type="checkbox"/> Play house <input type="checkbox"/> Tree house <input type="checkbox"/> Outdoor cooking area <input type="checkbox"/> Other

### Design Relationships (You, Your Home, Your Landscape Working Together)

58.	Which “utility” features do you need to have incorporated in your design to support your lifestyle/landscape?	<input checked="" type="checkbox"/> Compost bins <input checked="" type="checkbox"/> Firewood Storage <input checked="" type="checkbox"/> Animal Shelter/forage (type: <a href="#">chickens</a> ) <input checked="" type="checkbox"/> Clothesline <input checked="" type="checkbox"/> Boat/Camper storage <input checked="" type="checkbox"/> Bicycle storage <input checked="" type="checkbox"/> Rubbish/Recycling Storage <input checked="" type="checkbox"/> Tool Shed <input checked="" type="checkbox"/> Other – <a href="#">Storage/Place for Bokashi bins, worm farm</a>
59.	Is there a smooth flow for foot traffic from inside the home to outside the home?	At the front yes, at the back a little trickier at present due to things which could be stored elsewhere. Still able to get through though!
60.	Are parts of the home “too exposed” to cold winds or hot sun?	Front of house gets hit with both Southerly and Northerly winds. Sun streams in northern side.
61.	Are you planning renovations to the home either now or in the near future?	No.
62.	Is there anything in the landscape that you (or anyone living here) would consider “special” or even “sacred?”	The trees we have planted are special – among them are matai, manuka, pohutukawa, camellia, feijoa and peach. The camellia and native trees were planted over thirty years ago.

## Breakdown Goals & Motivations for Doing This Work

	Very Important	Somewhat important	Interested, but not a priority	No Interest	Don't Know
To create an overall permaculture design for our property.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To live more sustainably.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To create a landscape that requires fewer inputs of time, money and effort in terms of ongoing maintenance.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To have an edible landscape.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To create an aesthetically/visually pleasing environment.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To more easily entertain in my home/yard.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To have a more energy-efficient or "greener" home.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To increase the value of my property.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To reduce the operating costs (i.e. energy, water, etc.) of my home	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Any Final Comments

NIL

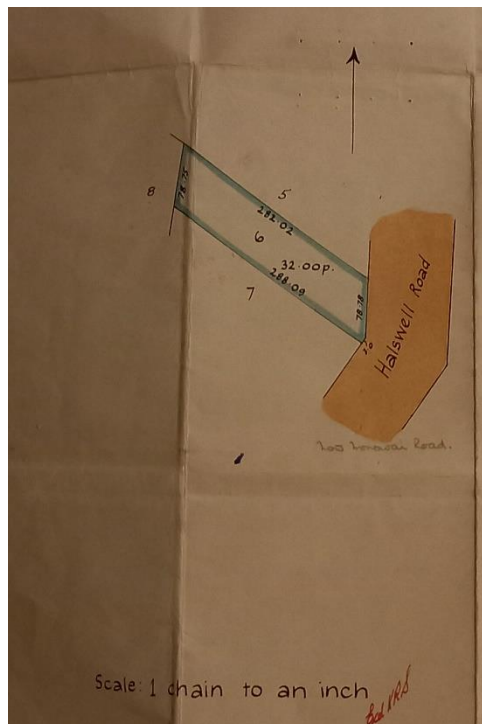


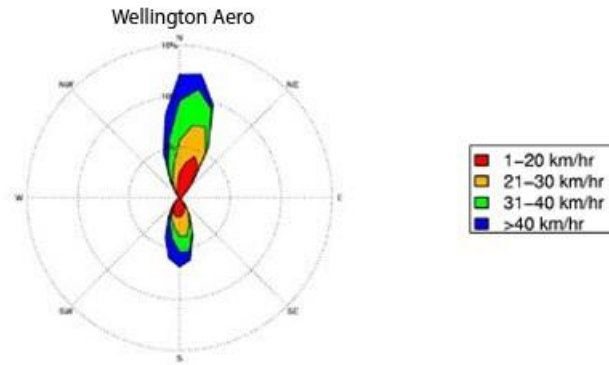
Image of part of the title deed from the lot purchase in 1950.

Road name changed at some point



## 1.2 Site Characteristics

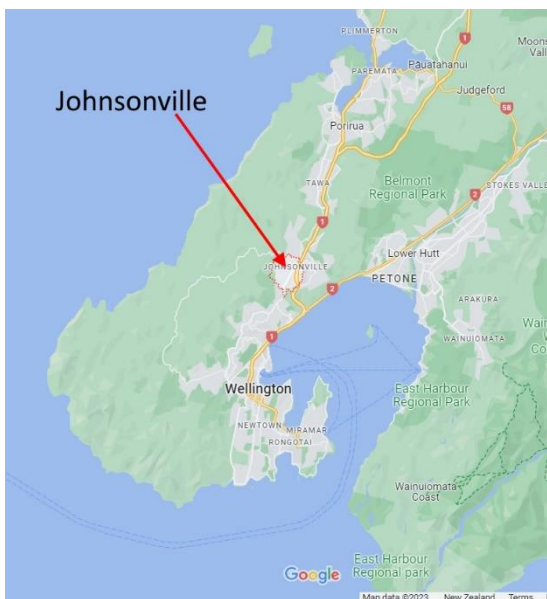
Wind – The wind for Wellington is predominately from the Northwest, from my observations, MetService Last 30 Days Weather, and NIWA. During winter there are cold, strong Southerlies which sometimes blow for several days in a row. These winds also cool down the overall temperature due to the wind chill factor.



Source: NIWA

## Rainfall

Looking at the following maps Johnsonville averages 1100mm to 1200mm rainfall per year.



Map showing location of Johnsonville within Wellington region

Source: Google Maps

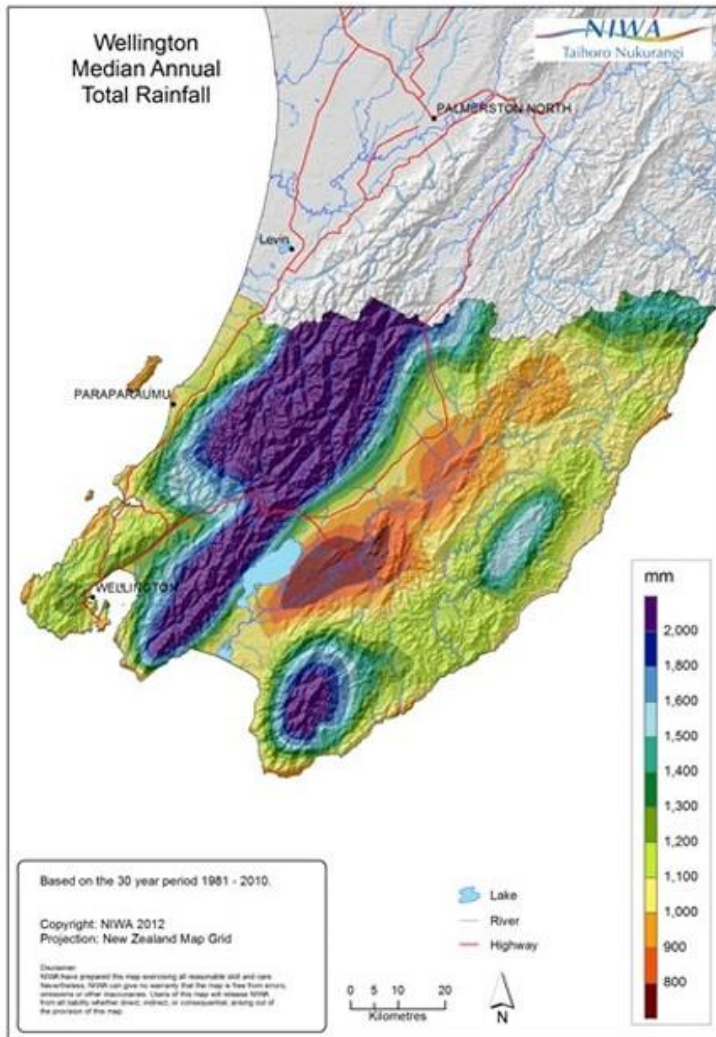


Figure 10. Wellington region median annual total rainfall 1981-2010.

Source: NIWA

Wellington receives 1207.1 mm of rain each year. This can be quite geographical with rain in the hills around Johnsonville but not in the city area and vice versa. A rain gauge would give me a truer record of the rain our property receives. The wettest months are June and July, with January and February being the driest.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rainfall (mm)	75.7	69.8	87.1	83.6	112.9	132.8	137.5	113.7	97.8	114.9	97.0	84.4
Rainy days	7.2	7.0	8.7	8.7	10.8	13.4	12.6	12.5	10.6	12.1	9.3	8.8

Rainfall and rainy days Wellington (1981 – 2010)

Source: NIWA

## Sunshine

Wellington receives 2110.3 sunshine hours per year. Again this is somewhat geographical from my personal observations of our property. Noting the weather details taken at Kelburn MetService and personal recordings Kelburn can have sun and Johnsonville be overcast and cloudy on the same day.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sunshine Hours	246.9	210.9	205.2	161.3	132.7	99.1	118.9	147.3	163.2	192.8	209.3	222.8

Sunshine hours Wellington (1981 – 2010)

Source: NIWA

## Temperature

Mean and Average temperature for Wellington is 15.9°C. Being closer to the ocean and with winds or breezes fairly constant there are not many frosts with an average of 9.9 frost days annually.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average Temp °C	16.9	17.2	15.8	13.7	11.7	9.7	8.9	9.4	10.8	12.0	13.5	15.4
Max Temp °C	20.3	20.6	19.1	16.6	14.3	12.2	11.4	12.2	13.7	14.9	16.6	18.5
Min Temp °C	13.5	13.8	12.6	10.7	9.1	7.2	6.3	6.7	7.9	9	10.3	12.2
Frost (d)	0.0	0.0	0.0	0.1	0.5	1.7	3.1	3.1	1.0	0.4	0.0	0.0

Temperature and frosts Wellington (1981 – 2010)

Source: NIWA

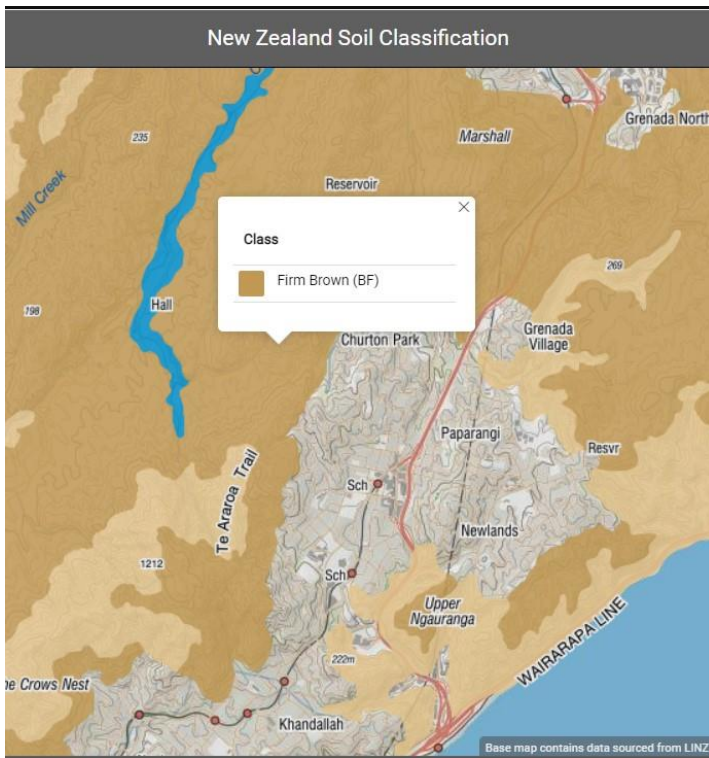
## Topography

The topography of most of Johnsonville is hilly and this is true of our property. The property is on an east to west moderate slope with a 23metre rise from the road to the western boundary. An overlay map showing contour lines is included with the base maps.

## Soil Type

As closely as I can tell from the NZ Soil Classification Landcare Research website maps our property has Firm Brown soil.

Firm Brown Soils are a strong, poorly structured sub soil, found in stable sites. Brown Soils have a brown or yellow-brown subsoil below a dark grey-brown topsoil. The brown colour is caused by thin coatings of iron oxides weathered from the parent material. Brown Soils occur in places where summer drought is uncommon and which are not waterlogged in winter. They are the most extensive soils covering 43% of New Zealand. Firm Brown Soils are a strong, poorly structured sub soil, found in stable sites. Brown Soils have a brown or yellow-brown subsoil below a dark grey-brown topsoil. The brown colour is caused by thin coatings of iron oxides weathered from the parent material. Brown Soils occur in places where summer drought is uncommon and which are not waterlogged in winter. They are the most extensive soils covering 43% of New Zealand.



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Source: LINZ

Soil Sample taken from one of the lesser used/newer garden beds.



Soil Jar test



Soil used from above soil sample.

Results of soil test – I used the Landcare Research websites soil portal instructions. I thought I had the done the calculations correctly however to confirm I used an online calculator and have included the results of this calculator.

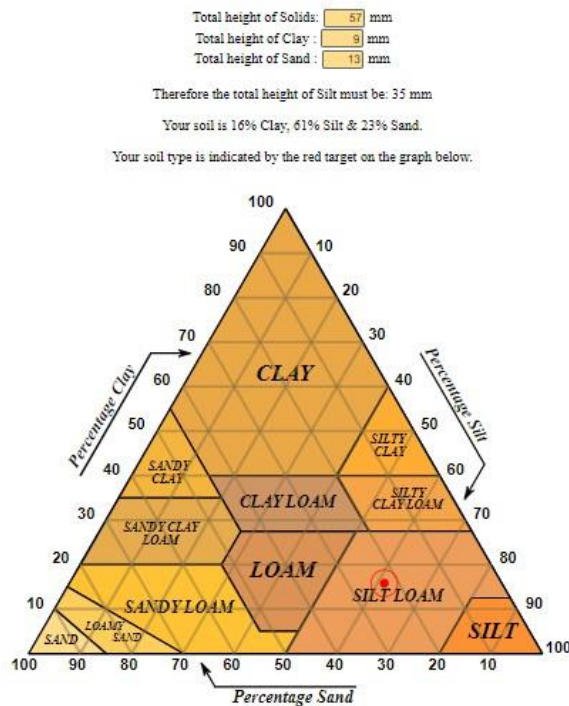
### Step 2: The Milkwood Soil Texture Calculator

This calculator is based on the USDA's soil texture triangle. They have a calculator too, but you need to calculate your own percentages. So we made this super-easy-to-use calculator tool below, to make it easier for you.

Now - enter the measurements you took during your Jar Test into the orange boxes in the calculator below. This will calculate the percentages of sand, silt and clay in your soil.

Once you've done that, a red dot will magically appear on the triangle below, indicating your specific soil texture type!

Source:  
<https://www.milkwood.net/soil-type-calculator/>



Red dot indicates the soil type.

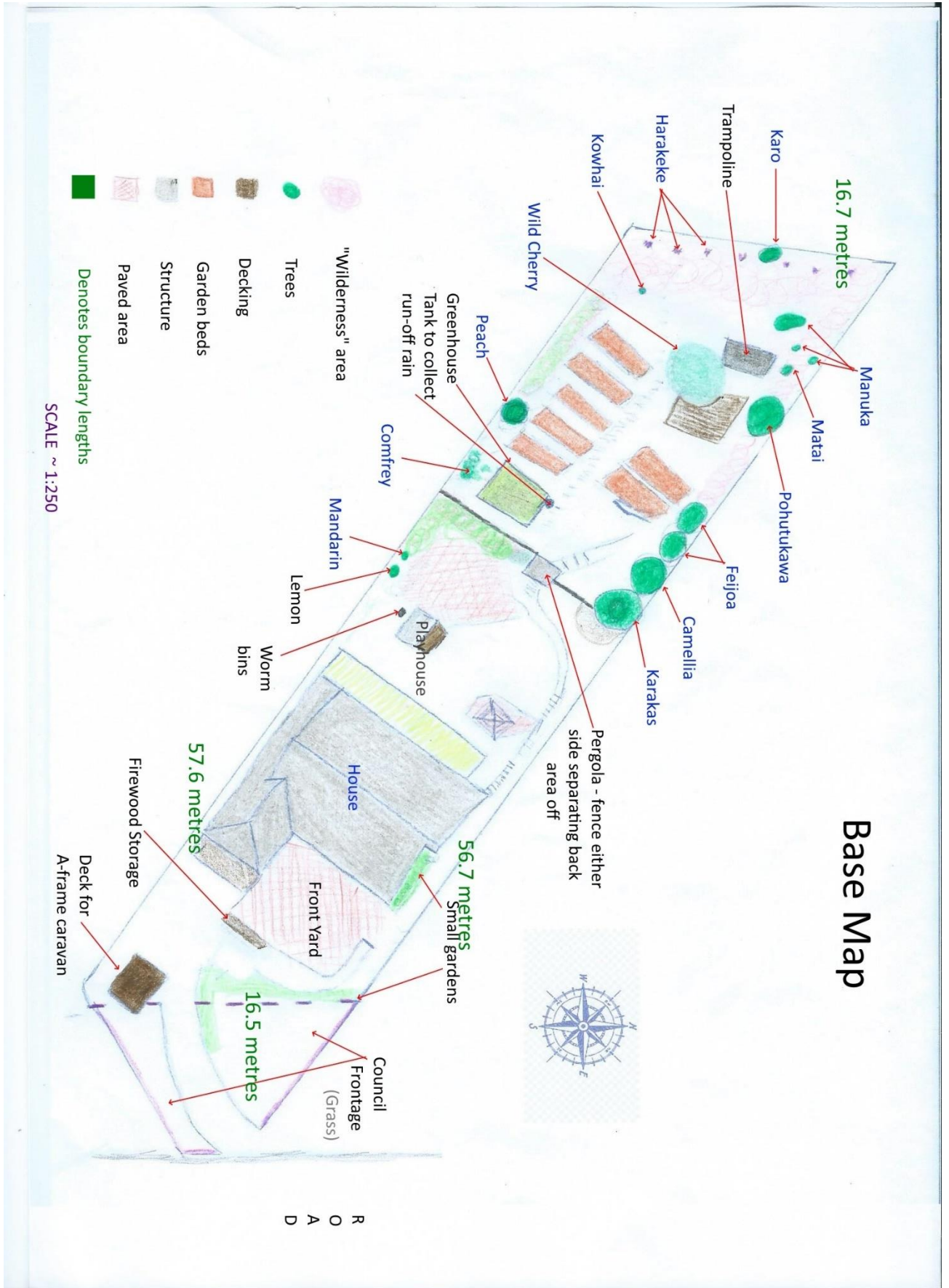
## 2. Base Maps.

Map 1 - showing location of property bordered in blue.

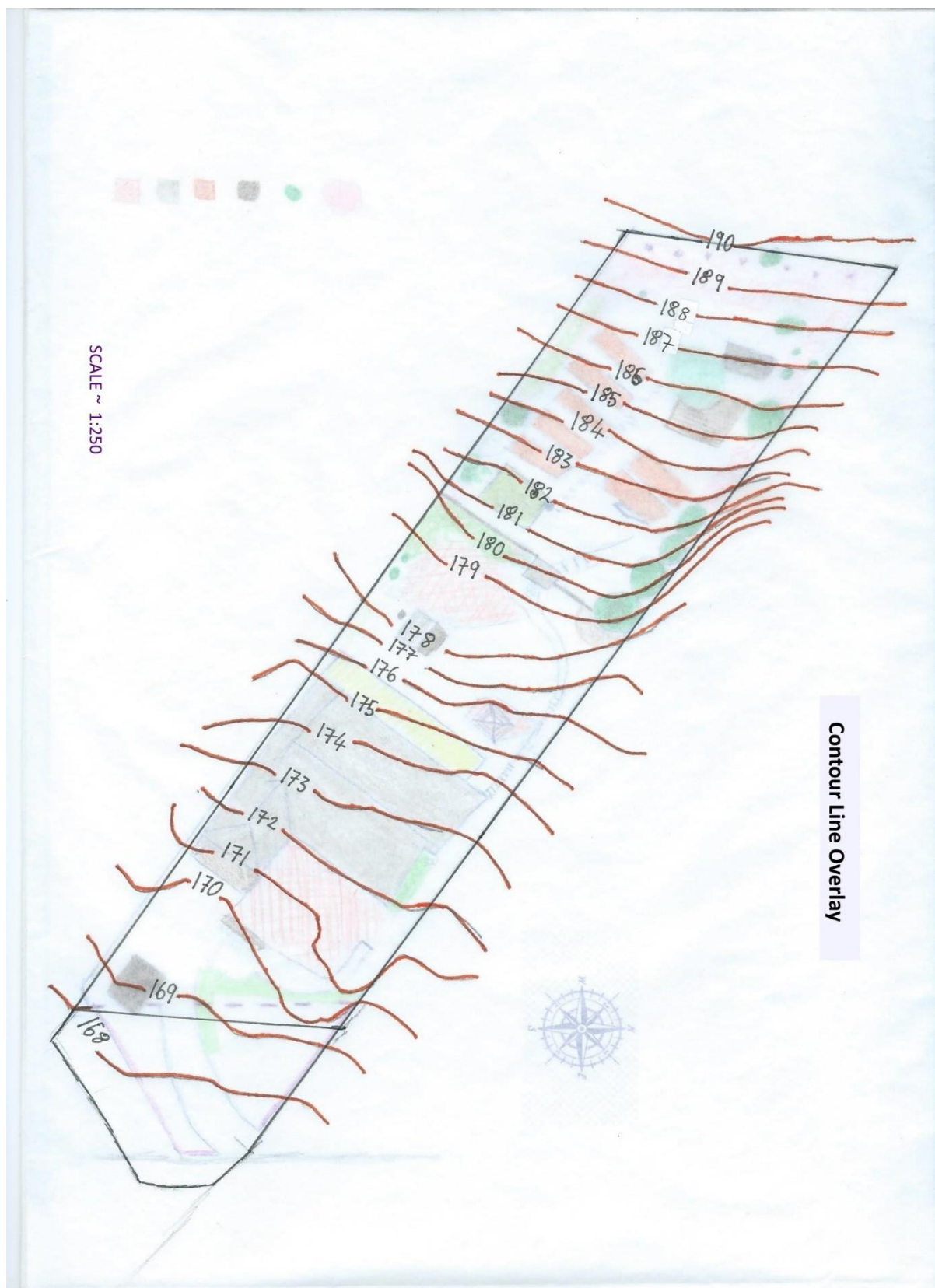


Source: Wellington City Council

Map 2 – Showing current buildings, trees, gardens etc.



Map 3 – Showing contour lines in metres above sea level



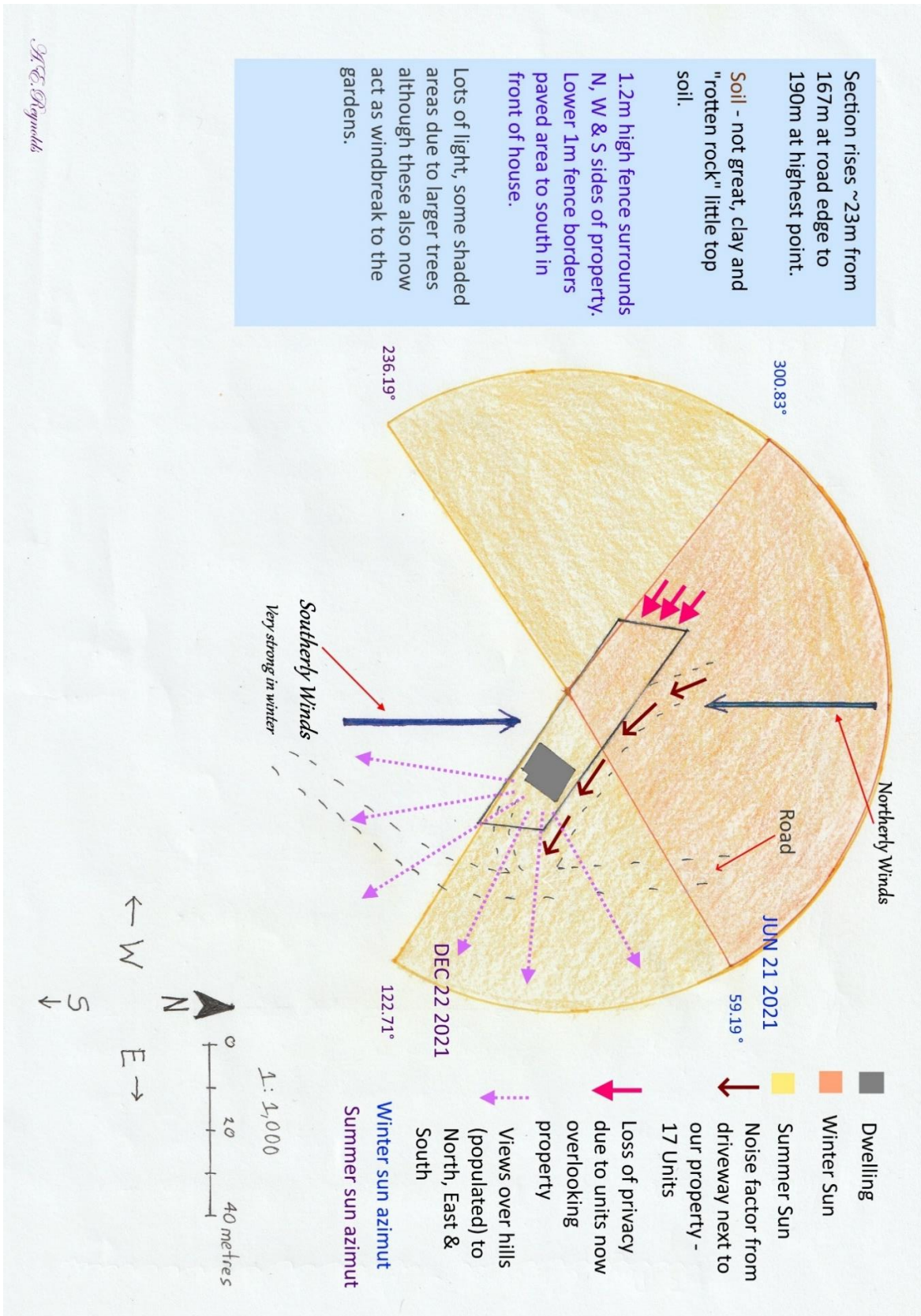
From the road edge (167m) there is a 23metre rising slope to the top or Western boundary.

Traced from screenshot of Wellington City Council online maps.

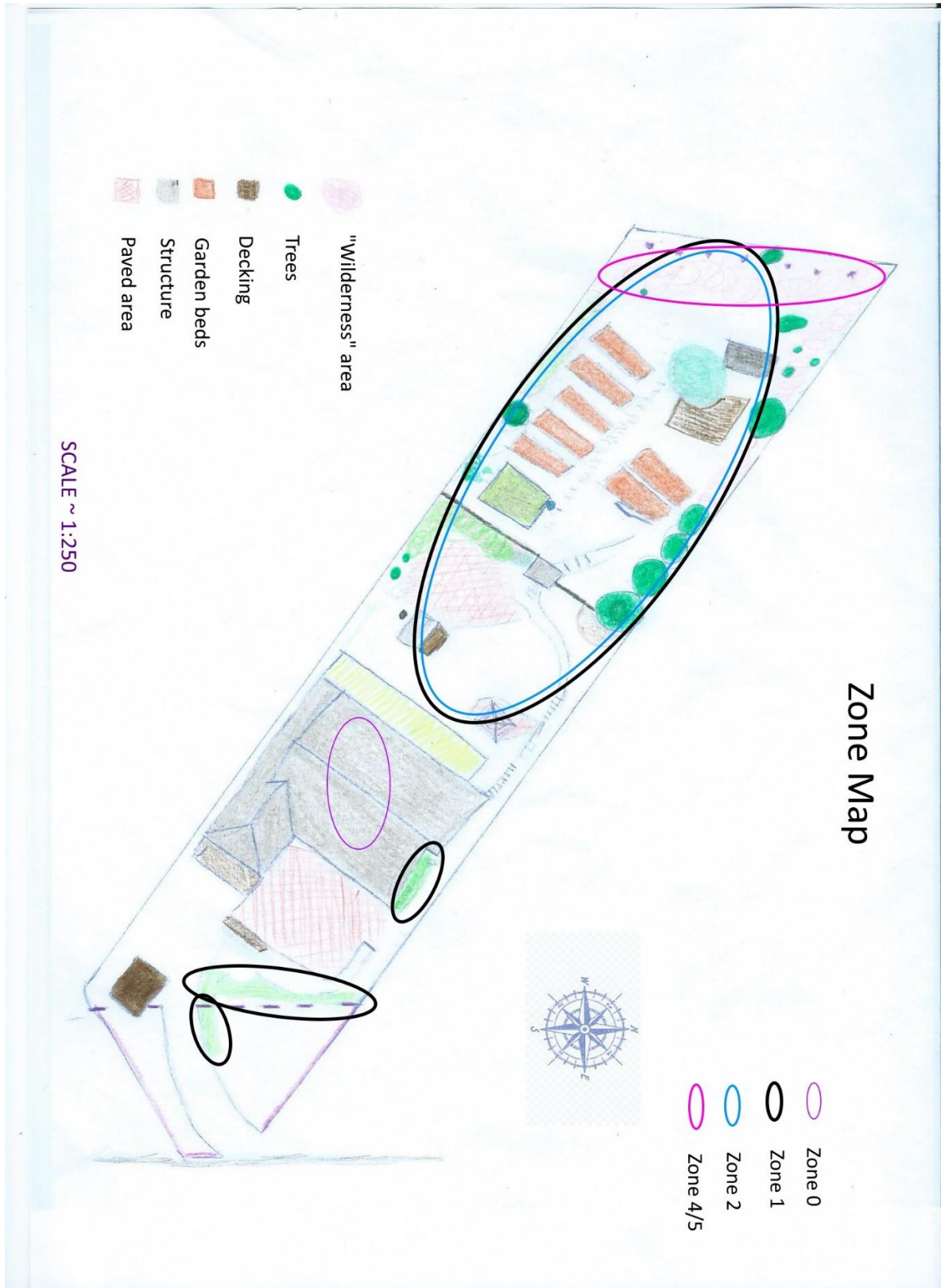


### 3. Sector and Zones Analysis

#### 3.1 Sector Analysis



### 3.2 Zone Analysis



Being a narrow 809sqm property the zones flow into or overlap each other.

## Zone 0 – The house

- A two storey five-bedroom stucco house. Built in 1952; we, the current owners, purchased it in 1984.
- Fully insulated, as well as under floor insulation
- Double-glazed excepting a small laundry window and glass pane in the back door. There is a door into the laundry from the hallway which provides a barrier to heat loss as it encloses the laundry between the hallway and the back door.
- Heating is provided by a wood burner which has a wetback. It is possible to cook on it too. When needed oil filled heaters are used – mainly for guests or when I am working upstairs on really cold days!
- Through doing this Permaculture Design Course I have discovered that the original owner or architect designed the house well. The main living rooms face north thereby providing passive solar heating when the sun is shining. Since the double glazing has been installed the house holds the heat very well. There is only one window on the south side of the house. This window is in the smallest bedroom, the three downstairs bedrooms are on the south side of the house.
- At this point in time there are no plans to install solar panels – the roof orientation faces East/West.

## Zones 1 & 2 – Most of the property.

Due to the property being suburban the majority of it is combined Zones 1 & 2. At the road frontage there is a small sloping grassed area, kept mowed, and a low walled garden using broken up concrete as the wall. For easy care this is planted with native grasses and harakeke (flax). It is mulched to reduce weed volunteers. There is a tī kōuka (Cabbage tree) and tarata (Lemonwood) both of which are mature volunteer trees.

Walking up the path to the house there is a retaining wall, built in the early 1990's to allow a paved area at the front of the house – a flat area for small children to ride trikes and bikes. Against the retaining wall is a roofed wood storage area. There is a garden area growing jasmine, a few succulents, grass and “weeds” beside the path up to the house.

There is a ~ 1 m wide by 5 m long brick walled garden on the north side of the house. This currently has a miniature rose & mint in one section; an avocado (experiment!) Canna lilies, sunflowers, basil and Heartsease (Viola tri-colour) grow in the other section – it also grows volunteer potatoes very well.

As can be seen on the base map the majority of the property is behind the house – it is mostly grassy banks. Part of the reason for leaving the front part of the back area in grass is

for the two dogs' toileting needs. There is a children's play house, now used mainly for storage. There is another flat patio area which has a garden area containing a lemon and mandarin, various trees, an *Albéric Barbier* rambler rose. There is also a strawberry bed, as well as another broken-concrete walled garden which has a few flowers in it.

There is a short set of steps leading to the back part of the backyard, with a small archway above the steps. There is a *Compassion* rose beside the archway and the *Albéric Barbier* rose rambles over the archway. There is a fence running from either side of the archway to the north and south boundaries of the property. This served the purpose of containing chickens who could free range in the back section of the backyard.

"Up the back", as we generally refer to the area there, is a greenhouse - behind it grows some comfrey - 7 terraced garden beds, a compost bin, deck, steps, paths, a trampoline and the "wilderness" area. There are many trees - karaka, a camellia, three feijoas, a peach, kawa kawa, a couple of privet, hebe, a Pohutukawa, two matai, 3 manuka and various other trees, quite a few of them volunteers. Others were planted or gifted to us.

#### Zone 4/5 – The "Wilderness"

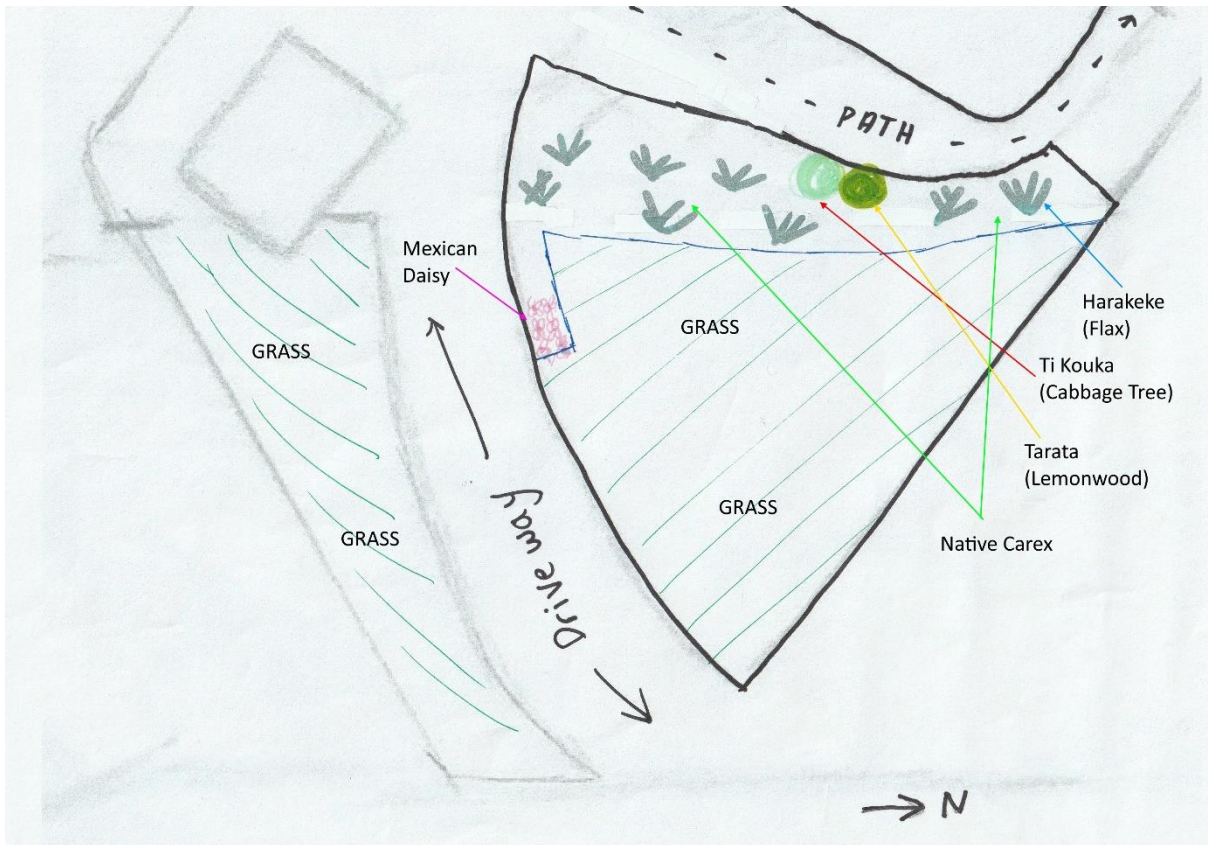
Right at the back of the property is an area of around 5 metres deep running across the property that I call the "wilderness" area. It is managed in that the grass is weed whacked when needed to keep it a bit under control. There is pittosporum, a karo (volunteer), harakeke, karaka, hebe and various other trees and plants as well as emerging gorse and blackberry.

There are many fixed structures on the property therefore I propose to work around and with those structures.

### 3. Concept Designs

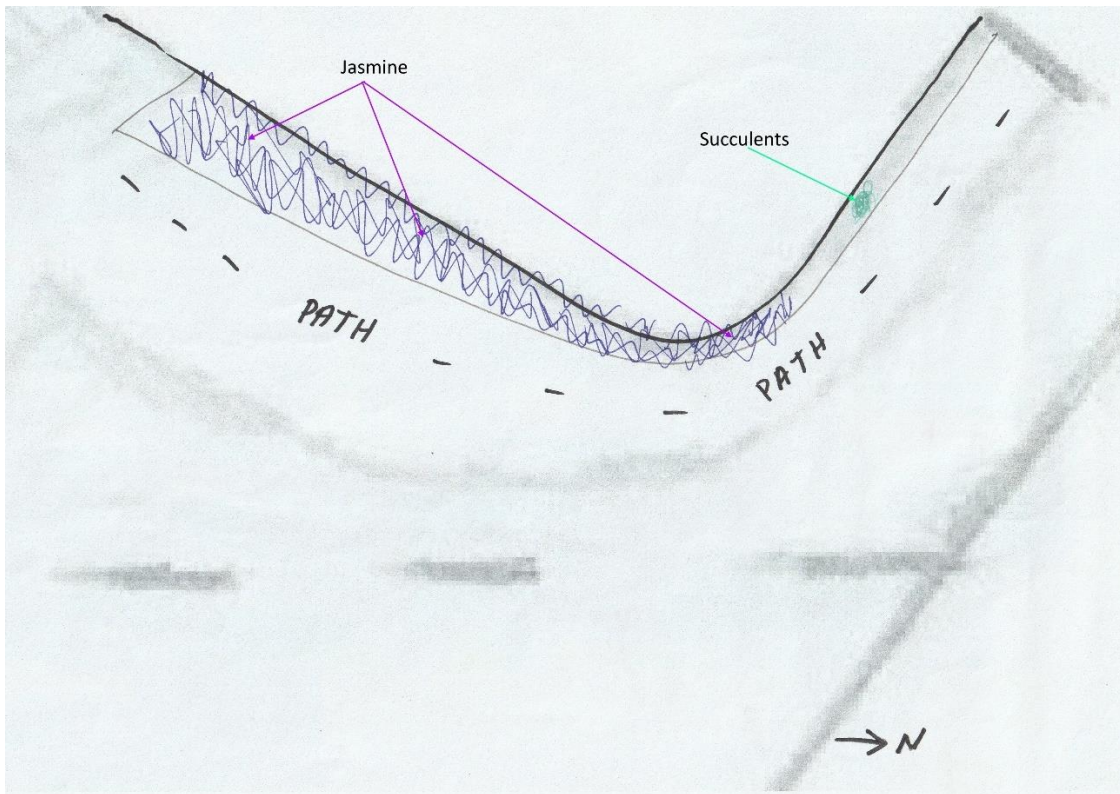
As noted above I intend to work with and around the structures already in place in our suburban setting.

I have used my initial base map and have sectioned this off into various areas. The first area is the eastern boundary, part of which is council frontage which we maintain. This area could be used by the council to widen the road. It is mainly grass with a low broken concrete wall garden which we have planted in native grasses and harakeke. There are a couple of volunteer trees and flowers. It also grows volunteer potatoes in one section. All that is really needed in this whole section is maintenance.

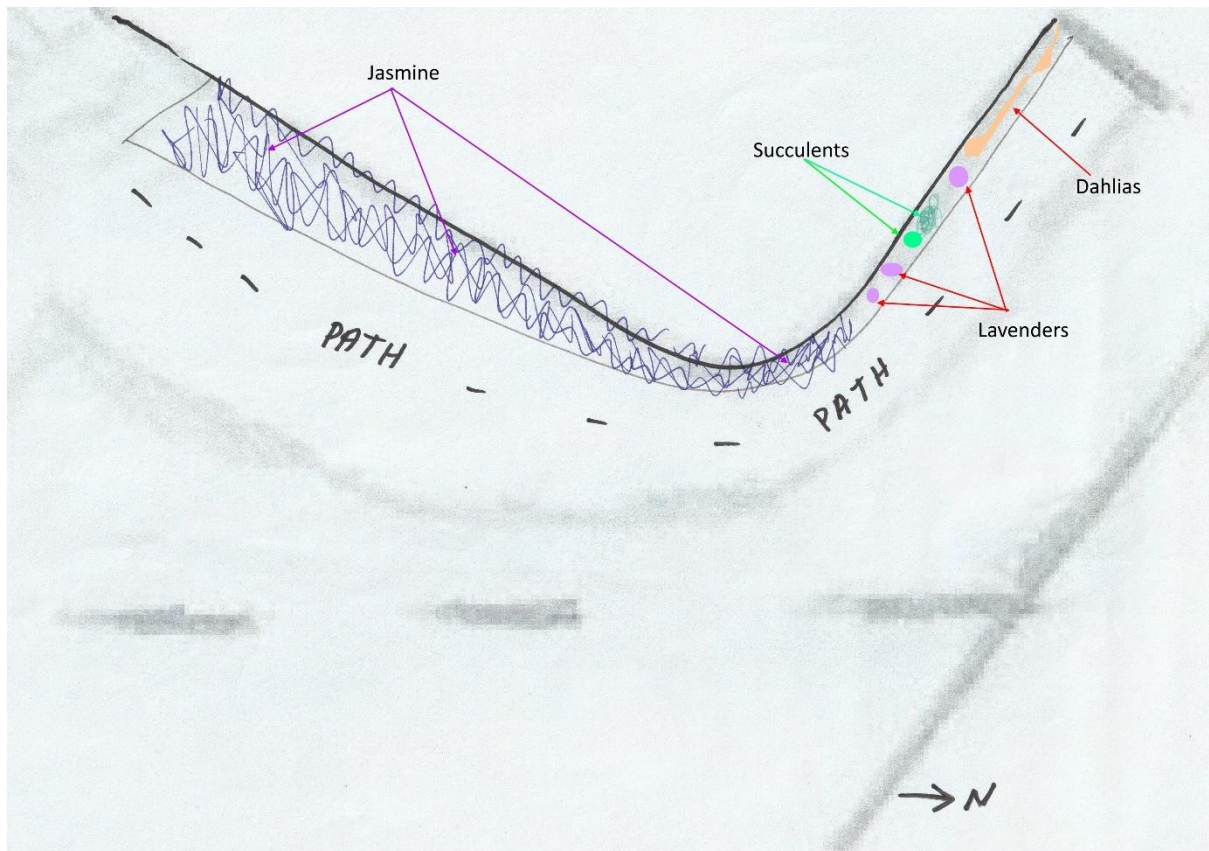


View from the East of the lowest section of the property.

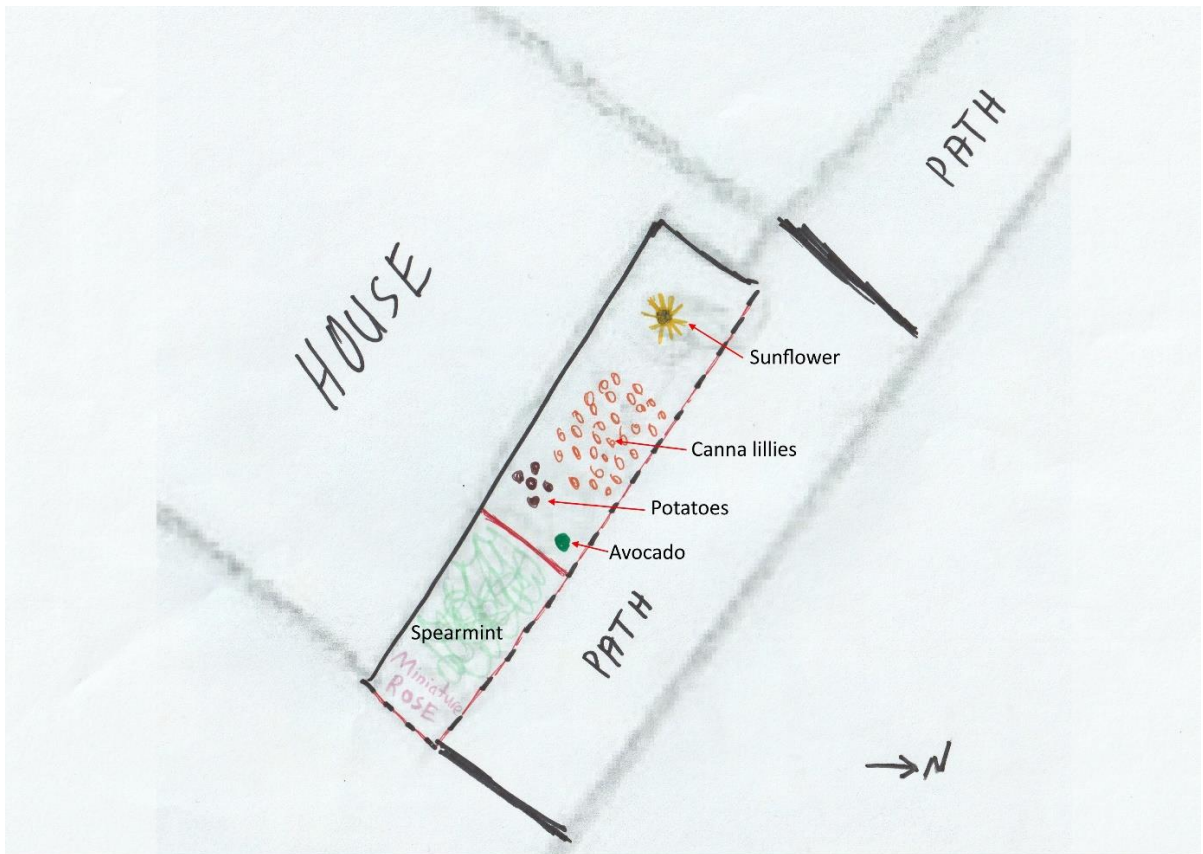
Just behind this front area is a path leading up to the house and a flat patio. Against the retaining wall is a roofed wood storage area, then a garden patch mostly full of Jasmine and a few succulents.



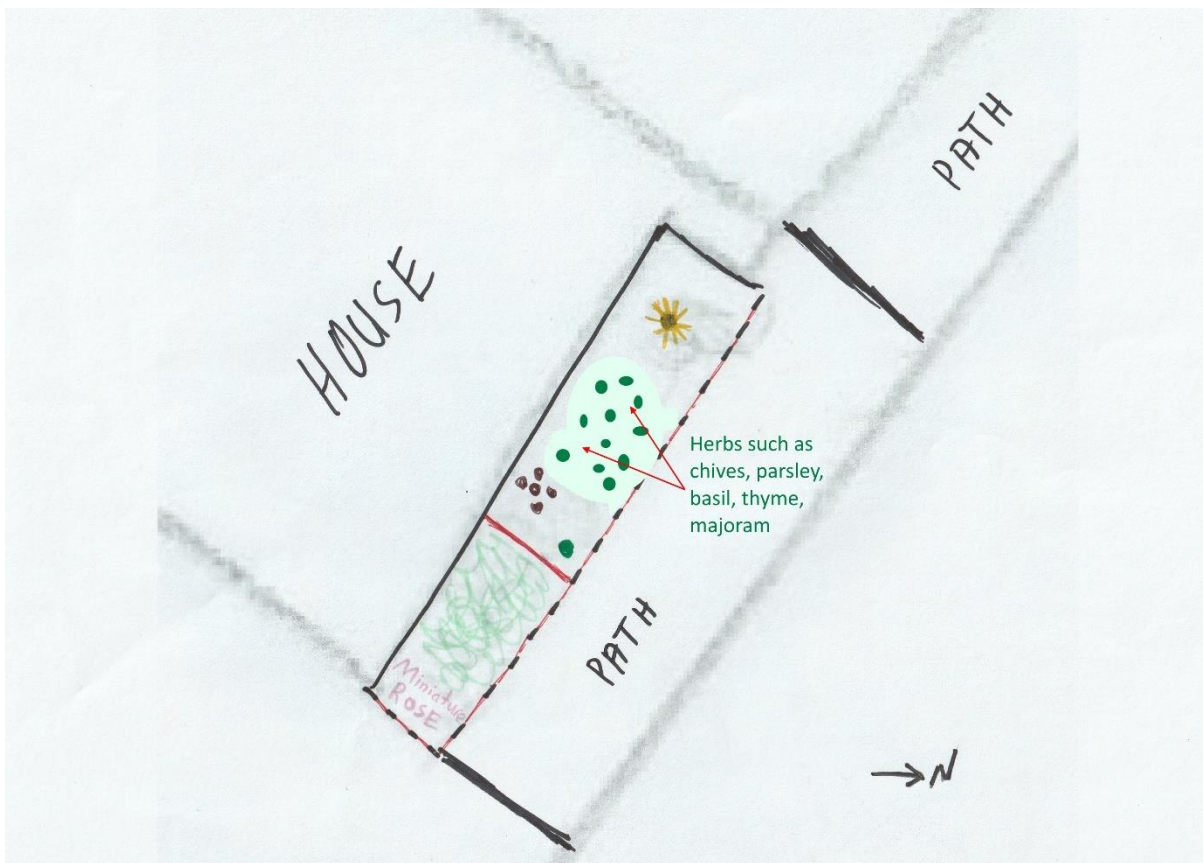
Maintenance of the Jasmine and succulents are tasks needed here. It will also be great to add some more plants, such as miniature lavender and dahlias, as listed on the map.



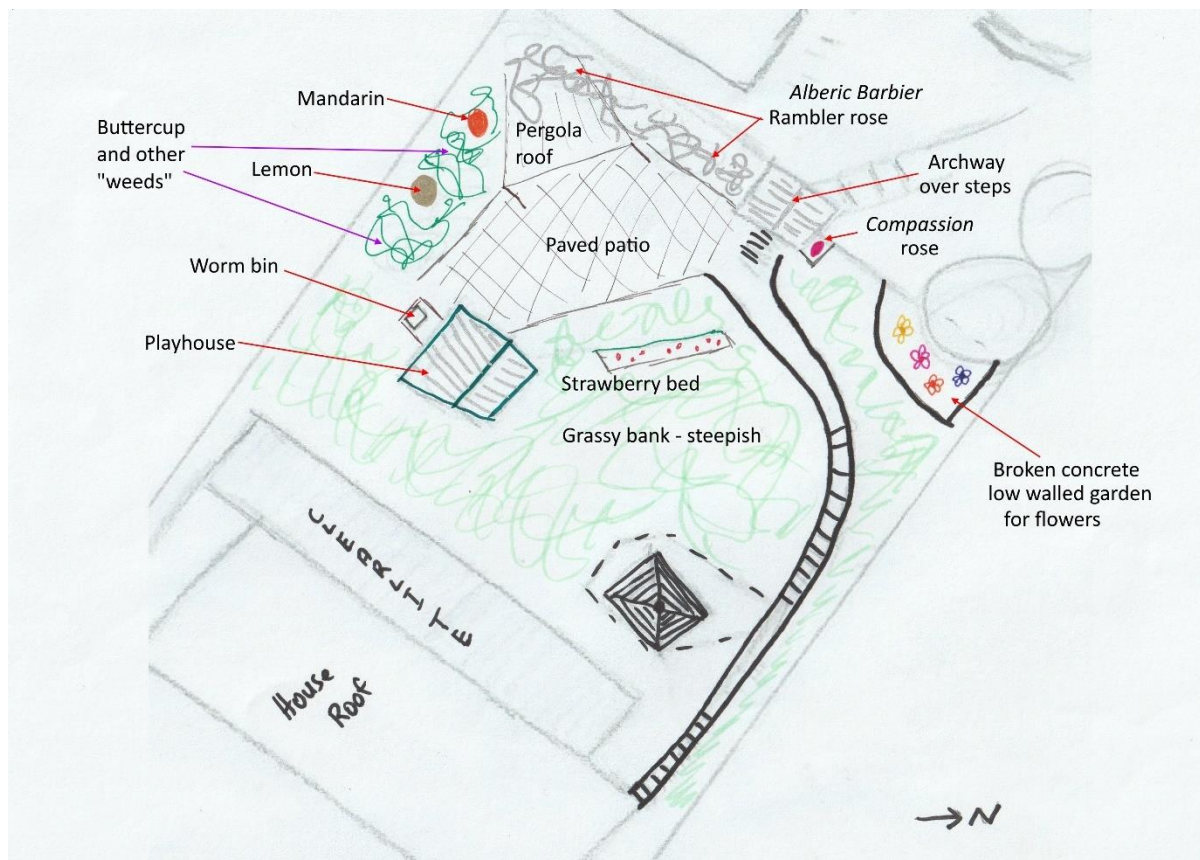
The next area is beside the house, a small brick-walled garden, North facing. It has a miniature rose and spearmint in one section, an avocado volunteer that sprouted from a discarded pit 'up the back' - as we refer to the back most area of the property - Canna lilies, volunteer potatoes and this year sunflowers. I also planted basil this summer as it is lovely and sunny and retains the warmth in this garden.



Plans here are to remove the Canna lilies and replace with more herbs. This garden area is the closest and most easily accessible to the house. Possible herbs are on the map below.



At the back of the house and property, moving west begins the climb – a set of steps, a path and another set of steps up to a patio area. The current layout is in the map below.



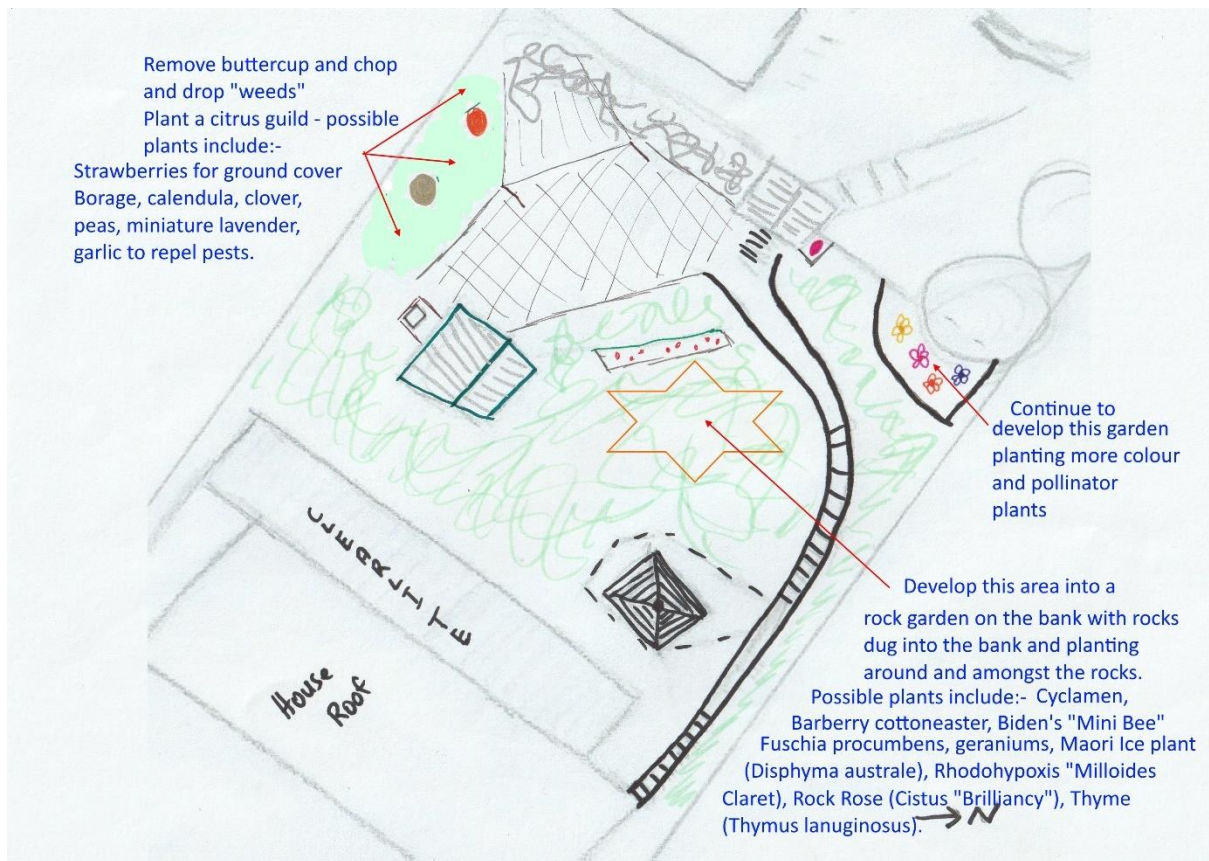
There is mulch in the beds around the citrus trees, strawberry bed and flower bed. Karaka seedlings sprout in the flower bed readily although I pick up as many as I can. They add to the mulch! This flower bed was developed some years ago but not utilised till this summer. It is very dry towards the back due, I think, to the Karaka trees behind it.

The concept plan for this area is to continue to develop the flower garden using bee and butterfly attracting or pollinator plants. To remove the buttercup and replace with a guild beneficial to citrus. As the strawberry bed needs runners replanted some of these can go in the citrus guild. Maintenance of both the *Alberic Barbier* rambler rose and *Compassion* rose is needed. Not added to the plan below is to plant some flowers or low growing Thyme around the *Compassion* rose.

I have long had the idea to develop the steepish bank below the strawberry bed into a rock garden, setting large rocks into the bank and planting around them.

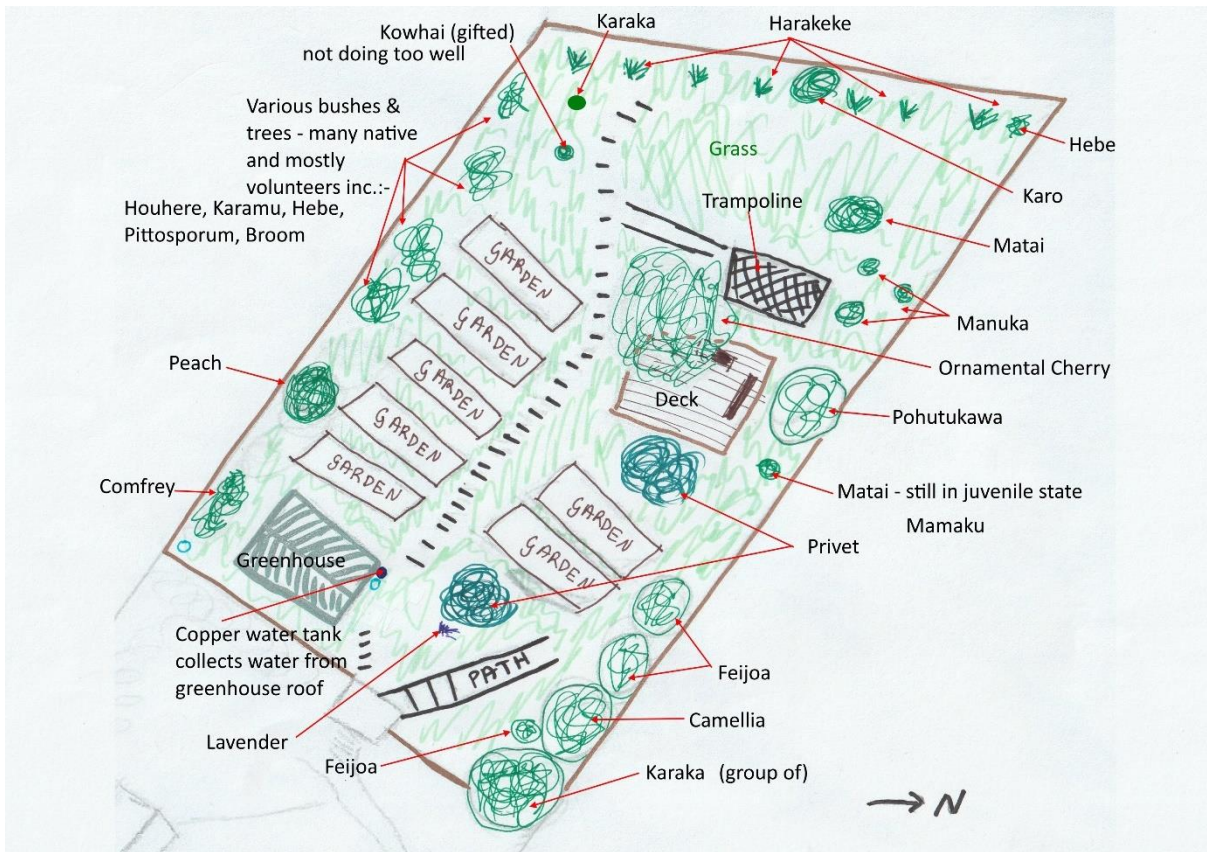
Some of this area is left in grass as it is an area we let the two dogs out into for their toileting needs.





From the patio there is a short set of wooden steps that lead below an archway and through gates to 'up the back'. There is a fence that runs either side of the archway to the North and South boundaries. This was put in place many years ago to keep the chickens we had at the time in an enclosed area – but a large area they could free range in.

In this area there is a greenhouse with an old copper header tank as a water catchment from the greenhouse roof. There is a tap from the tank inside the greenhouse which makes watering plant in there easy. There are seven garden beds, steps and a path, a few fruit trees, native trees, a trampoline a wilderness area and a deck with some seats on it.



One of the main issues here is a plant called *Arum maculatum* which I would call invasive. It grows from the smallest tubers and also from seeds. I once counted ~ ninety seeds on one seed head! Since I prefer not to use sprays the only solution I have found upon doing research is to keep pulling the leaves out as they appear. Apparently over time this starves the tubers/bulbs. I have noticed a slower return when I consistently pull the leaves, or they are weed whacked down.



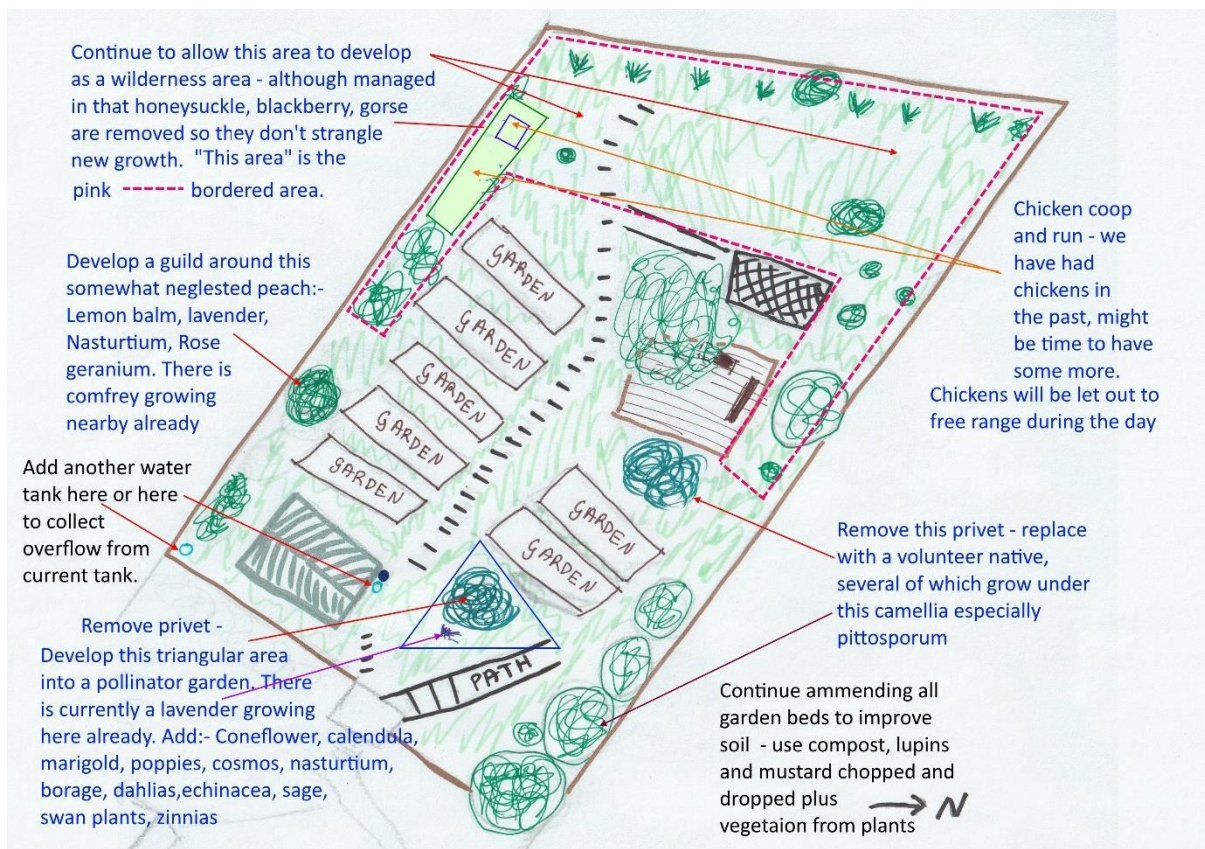
*Arum maculatum*



Arum maculatum seed head.

The other main issue is the grass that takes off in spring and can be knee high or higher quite quickly. Due to the slope of the property the only ways to deal with this are weed whacking it or using a Niwashi small scythe to hand cut it. On the positive side it made great 'hay' for the chickens nesting boxes! We would cut it and store it in bags in the greenhouse, let it dry out then utilise it.

On the map below are concepts for this area.



Where possible I utilise the permaculture principle of *“Produce no waste”* in that I pull what “weeds” I can such as wild turnip, dandelion, dock, plantain and use them as mulch. I find after rain is the best time to pull out wild turnips especially if they’ve grown well and have a deep tap root! Weeds such as “The wanderer” as I call it (aka wandering willie), convolvulus, ivy are put in a bag to go to the green waste disposal. The same with arum maculatum tubers plus any other not wanted weeds.

Bushes that are trimmed go through our small shredder for mulch. Compost goes into the compost bin, worm bin or garden. I have the equipment and ingredients for the Bokashi system of composting and am in the process of making bokashi bran.

I have harvested comfrey to make comfrey fertiliser, as well as using worm castings and worm tea to nourish plants.

There are other areas of the property that could be better utilised too but I have chosen to focus on those in the concept maps for now.

At this point in time there is no intention to use any areas of the property for a business venture. Any surplus will be gifted and shared with whanau and neighbours.

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I have really enjoyed this Permaculture Design Certificate and adding to my knowledge base. There are some areas that are not as pertinent to me living in suburbia, such as rotational grazing – they are, however, interesting to learn about. One module I didn’t think I would be interested in was Aquaponics – I really enjoyed it and thought it would be fun to experiment on a small scale in the future.

Doing the course has helped me see some areas through new eyes. As well as gaining knowledge a large part of the reason for completing the PDC course was to help me know how to plan and work with any property we purchase in the future. Whilst looking at property listings I have had more awareness of things to look for – such as where the sun angles are, where do the winds come from, what is the topography like.

I have a better understanding of where to go to find information should I need it. Whilst viewing a listing of a potential property recently we discovered it has a stream running through it. I was able to locate flood plain maps on the local district council website and ascertain the area was not in danger of flooding – something I may not have thought to do prior to doing this course.

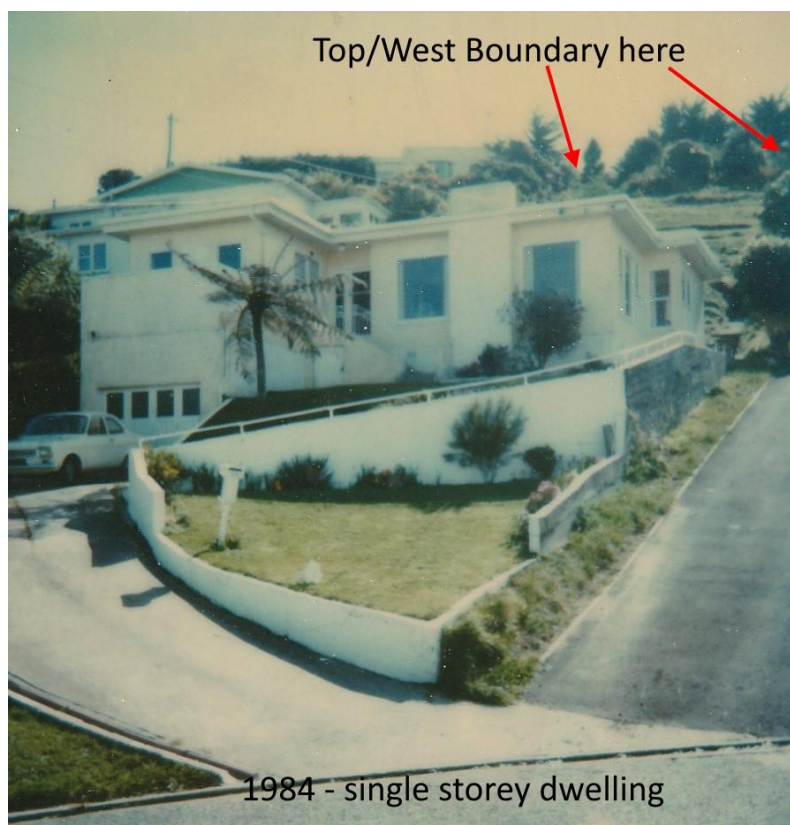
## Appendix I

### Historical Information

Since this portfolio is more about a design plan for how the property currently is I didn't want to add too much extra information about the house and grounds.

I do however think it might give an interesting view point from then to now so decided to add this appendix with some historical information of the property.

We bought this property in 1984 – at that time it was a single story, flat roofed dwelling built in 1952.



There was insulation in the outside wall and ceiling space of one room, the small middle bedroom on the south side of the house. Over the next few winters we noticed a pattern of dwangs and studs on the walls – slight mould would form on the “spaces” whilst where the studs/dwangs were would have no mould. Room by room we set about insulating. We also discovered how much heat was lost through the eaves – which were the aeration for the roof. The eaves were slats and when placing insulation in the ceiling space the breeze could be felt! Good for aeration – not so much for retaining heat.

There was a wood burner in the chimney space, which was reasonably effective however a lot of heat was lost to the outside due to the chimney being on the outside of the house. There was a second fire in the dining room that had wetback pipes attached. This did an efficient job of heating the water although it was a bit concerning hearing it boil over out of the header tank overflow pipe on the roof.

The house was single glazed. Even with the fire going in the winter it was difficult to keep the house warm in a Wellington southerly.

In 1999 we added a second storey, completing the work mostly ourselves as my husband is a carpenter. Due to light planes the second storey is essentially a pitched roof space – which contains 2 bedrooms, a rumpus area and a small office space. The chimney tops were removed, eaves covered in, a wood burner with wetback installed on the opposite side of the lounge with the flue going through the two storeys, and the second fireplace de-commissioned. Over time insulation was also added under the floors on the lower storey.

The wood burner with wetback does a very efficient job of heating the house, heats the hot water when going which cuts down on electricity bills, and it can be used for cooking as well. The wood burner is our sole source of heating, although guests are provided with a small heater for their comfort. I also use a small oil column heater when I am working/sewing upstairs in winter.

Over the last 5 to 10 years the majority of the windows on both storeys have been double glazed which has made a big difference, I especially notice the house is a lot warmer and retains the heat better. There is a small laundry window and glass pane in the back door which are not double glazed.

On the grounds of the property we have done quite a bit in the 38 ½ years we have owned it. The section was essentially one slope with a flat area for the house and a couple of small flat areas behind the house. There was hedging on the South boundary, trees to the West at the top of the boundary, some trees on the North boundary and at the back of the section an empty gorse filled property to the North. The backyard was essentially a grassy bank and reminded me of a farm paddock. Quite possibly this was also because a sheep was listed as a chattel of the property!

Over the years a wooden retaining wall was built out the front to create a flat area for small children to ride trikes, draw on the concrete etc. Eventually a roof was attached to this for wood storage. The area between the back of the house and the concrete retaining wall already there was roofed over with Clearlite to create a dry area. A green house was built, gardens constructed using either wood or for quite a few of them the long run iron from the original roof. These were designed for my first foray into permaculture in early 2000's – the size of the beds fit the size of the chicken coop and small run we built. An idea based on Linda Woodrow's *The Permaculture Home Garden* chicken mandala – however our section was not at all flat so I adapted it to fit our property.

A greenhouse was built using re-purposed windows and a screen door that had been destined for the tip till hubby asked if he could have them. The old copper header tank from the flat roof was re-purposed for water collection from the greenhouse roof. The deck was another "throwaway" that hubby cut in half, brought home and we dragged up the back! It's a nice place to sit and have a hot or cold drink.

Many of the trees are volunteers but there are some I planted in the early 1990s which I have watched grow from small seedlings. Most of them are natives – five manuka, three of which have survived, two Matai one of which is doing a lot better than the other, and a

Pohutukawa. A non-native and one of the first trees I planted as a small seedling was a Camellia tree. It had no label so I have never known what variety it is – except pink.

Several walled gardens have been constructed, as well as a playhouse which was well utilised by our children when they were little.

Here is a photo of what the property currently looks like.



## Appendix II

As noted earlier in this submission our property has a fairly steep gradient. It also gets strong Southerly and Northerly winds. Due to this there are a few ideas we use that over the years we have discovered work well.

- The fences bordering the North and South boundaries are wooden with palings, between each paling is a 15 -20 cm gap. This allows the winds to dissipate through the fence rather than come over the top and flatten plants on the other side. See photos below. It also means less pressure against the fences as the wind can go through the gaps between the palings.
- The garden beds are all terraced or raised, depending on the on the gradient of where they are on the property. Some have ~ 1 m high retaining walls, some ~ 500 mm high. There is a mix of bricks, broken concrete, wooden half rounds or boards and long run roofing iron re-purposed from the old roof on the house. See photos below.
- After having various plants wind burnt and pummelled by the wind we came up with a solution which has worked well. Frames with windbreak surrounding them, purpose built for the size of the garden beds. They are light enough to move reasonably easily, but heavy enough that they stay put in the wind. The ends are pointed and slightly longer than the bottom rail so can dig into the earth a bit. The wind break gives young plants some protection until they establish a good root system and gain some height. They keep the dog off the gardens, and when we had chickens we could throw bird netting over the top to keep the chickens out too!





On the following pages are some photos of the property. I have blanked out windows of neighbouring houses. Our dog, Paddy, is in quite a few photos as he likes to be out in the backyard with me.

**\*Disclaimer** - You will be seeing our garden as it is, these photos are from May 2023. From time-to-time life takes over and less maintenance is done. The last few months has been one of those times. We are going into winter so less is happening in the garden. It is a rustic look rather than “Home and Garden” so if you have an aversion to long grass, “weeds” and a wilderness look proceed no further. You have been warned! 😊





The easiest way to get compost around property



Brick walled garden and trellis - miniature rose ~ 35+ years old



Low brick walled garden



Garden art :) I intend to paint this in bright colours



View up to the first section of the back yard. Corner of the house is here.

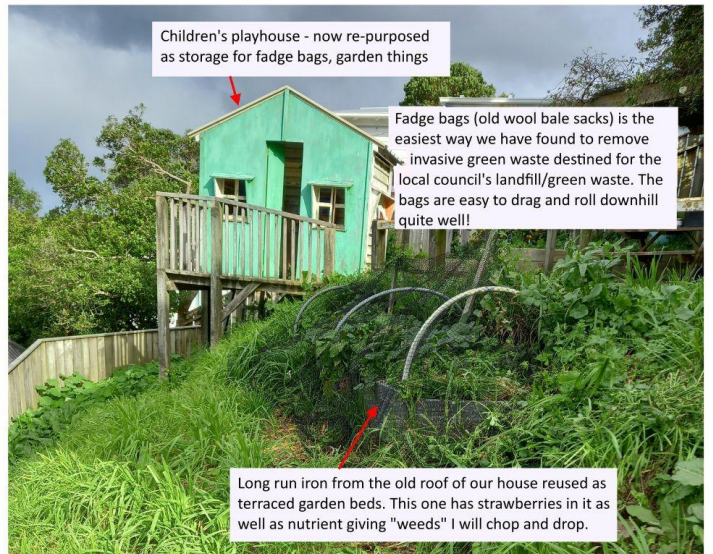


Rock wall garden planned here - steepish in places

Another low brick wall and paved area



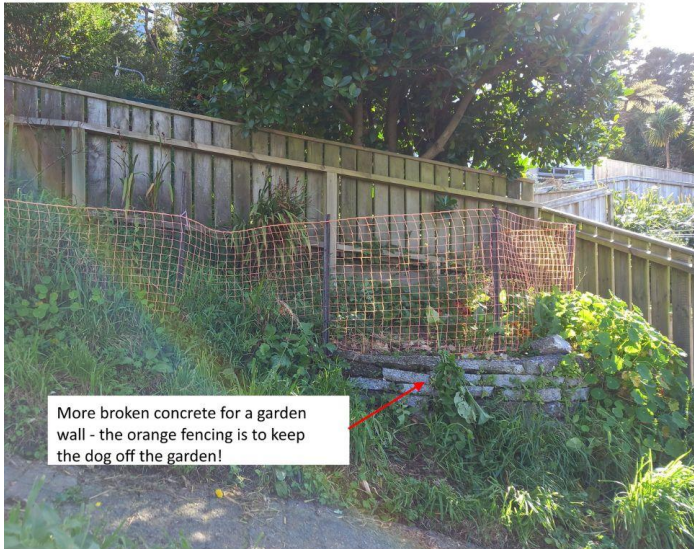
Looking down on planned rock garden area from in front of strawberry garden



Children's playhouse - now re-purposed as storage for fadge bags, garden things

Fadge bags (old wool bale sacks) is the easiest way we have found to remove invasive green waste destined for the local council's landfill/green waste. The bags are easy to drag and roll downhill quite well!

Long run iron from the old roof of our house reused as terraced garden beds. This one has strawberries in it as well as nutrient giving "weeds" I will chop and drop.



More broken concrete for a garden wall - the orange fencing is to keep the dog off the garden!



Wooden steps up to the archway and gates. Rose Compassion to right of arch



Paved patio area so we have a flat space, with a pergola, a rustic picnic table, wooden raised garden areas



Worm bin on deck, need plants here



Pollinator garden planned here

Brick steps and path



Looking up to the back fence

There are steps all the way up to the back fence - time to weed whack again!



Greenhouse with re-purposed screen door. Old copper header tank collects water from roof.



Timber walled terraced garden with purpose built frame covered with windbreak



More old long run iron re-purposed for garden terrace beds



Our North and South boundary fences have gaps between the boards which allows the wind to be dissipated through them

These half round were re-used for this retained wall garden - it was originally built in 1990s, re-done 2023



Ornamental cherry - planted in 1996 as a seedling gift by a friend

Looking toward the deck



Deck and seating, liquid fertiliser bin



Kawakawa hiding under the deck



Looking towards the Zone 4/5 wilderness!

Small variety Lavender



House roof

Greenhouse roof

The view when I'm standing at west/back boundary



Pohutukawa

Matai

Manuka

These native trees were planted in early 1990s to try and begin establishing a "wilderness" area, attract birds and encourage growth of more native trees/shrubs.



From a hillside with a few hedges on the western boundary in 1984 today, 2023, the property looks quite different. It is always changing and each day there is something new to notice.