

**Ideas and considerations for detailed design and naming for**

**The 'Eastern Cluster' of Schools<sup>1</sup> which includes-**

**Avonside Girls/Shirley Boys**

**A Ngāi Tūāhuriri Perspective**



***An Example of Modern Māori Learning Environments and  
associated***

***Cultural Identifiers***



**Te Whare Maahunui  
Tuahiwi Marae  
Home of Ngāi Tūāhuriri Mana Whenua**

---

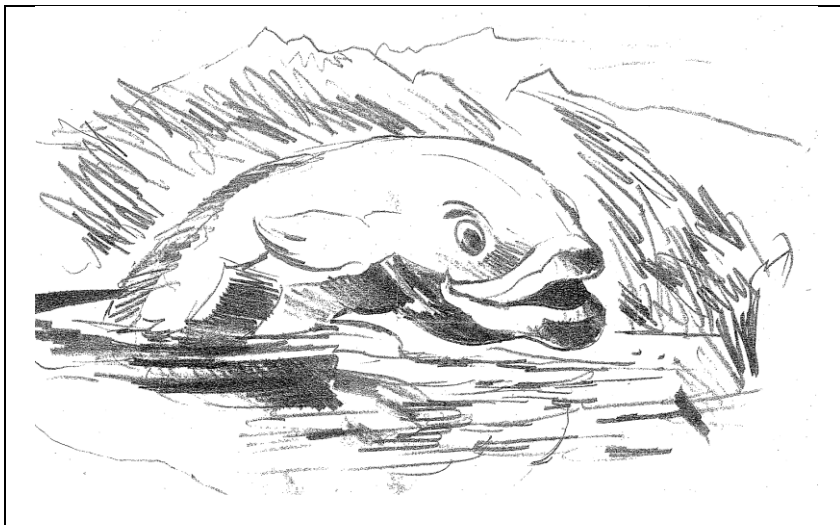
<sup>1</sup> The schools within this 'Eastern Cluster' have differing levels of rebuilds and remediation. Therefore this document is designed to cater for those differing levels and includes information on the wider 'Eastern Frame' of Ōtautahi as it relates to mana whenua. Further input from the Te Ngāi Tūāhuriri 'Education Committee' will be needed to indicate the appropriate naming with relevance to locality of the schools and assistance with other levels of build or remediation input. A template example is given within page 55 of this report to build onto.

## Table of Contents

Rārangi Ūpoko / Contents, Historical evidence and Method utilised.....	4
Mana Whenua / Te Ngāi Tūāhuriri .....	5
Te Ngāi Tūāhuriri/ Mana Whenua.....	5
Ngāi Tahu Whānui and Te Rūnanga o Ngāi Tahu.....	6
Whāinga / Aim.....	7
Kaupapa rapunga whakaaro / Philosophy.....	7
Environmental and Cultural Considerations -.....	8
Historical evidence utilised -.....	9
Kupu tuku iho/Historically.....	9
General background information on Ōtautahi.....	9
"Tautahi" - The Legend behind the Name.....	10
Ngā Tūtohu Whenua - Cultural Landscape Values to the 'Eastern Cluster of Schools' and other significant areas. ....	10
Further accounts which identify associations .....	11
Abundance .....	11
Beauty .....	11
Preservation.....	12
Sustenance .....	12
Provision.....	12
Reflection .....	13
Specific information to the Eastern precinct .....	13
Bottle Lake- Waitikiri.....	13
Travis Wetland Area.....	15
Rāwhiti .....	15
Sand Dunes to Suburb.....	16
Horseshoe lake - Waikākāriki.....	16
Ihutai .....	16
Avon River - Ōtākaro .....	16
Relevant Flora and Fauna: Kai Moana and Mahinga Kai exerts from the literature, .....	17
Mahinga kai names and associated traditional uses - .....	18
Table 1: Mahinga kai and traditional uses of selected plants and animals associated with the area from the literature and informants.....	18
Mahinga Kai further explained -.....	20
Ngā Pākihi Whakatekataka a Waitaha – The Canterbury Plains.....	21

Other storying.....	21
Storying of Tangaroa, and Papatuanuku.....	22
Whakaaro tuatahi / initial ideas.....	22
Te Waipounamu Waka .....	23
Names and theming template - which relate to the Kupu tuku iho/Historically associated kōrero (further engagement with mana whenua is required to assist with input into this process.....	25
Whakaaro anō / other ideas .....	26
Ngā Marohi / Recommendations:.....	26
Bilingual name/signage/branding for Kaiapoi Schools cluster: .....	26
Bilingual signage/Branding: .....	26
Signage could include:.....	26
Entrance way Design / Landscaping .....	27
Landscape Planting and Landscape Design .....	28
Bund Planting .....	28
Boundary Planting.....	29
Large Trees.....	29
Raingardens and Stormwater basins.....	29
Shrubs and tussocks in a wet swale base.....	30
Shrubs and tussocks (dry swale).....	30
Mown swales .....	30
Courtyard/Classrooms, Entrance Way, Sports field and other areas .....	30
Additional information to assist planting/design .....	31
Planting Guideline's .....	31
Web Sites.....	31
Ecosystem Services.....	32
WHAT ARE ECO-SYSTEM SERVICES.....	32
The benefits people obtain from ecosystems .....	32
URBAN ENVIRONMENTS .....	33
THE CAMPUS .....	33
WHAT WOULD WE WANT TO ACHIEVE? .....	33
WHAT THAT MIGHT MEAN “ON THE GROUND” .....	34
HOW TO GET THERE.....	35
DETERMINING “SUCCESS” .....	35
CONCLUDING REMARKS on Ecosystem Services.....	35
Environmental standards: .....	38

Assessment Tool kit.....	39
Whakamutunga / Conclusion.....	41
Disclaimer.....	42
Appendix 1 Taonga species are native plants of special cultural significance and importance to Ngāi Tahu.....	43
Medium to Small Trees.....	44
Shrubs.....	47
Grasses, perennials and small ferns.....	48
Groundcovers.....	50
Climbers.....	50
Appendix 2 Remediation and Rebuild Toolkit.....	52
Supplementary map.....	54
.....	54



*The short-finned eel (Anguilla australis) adopted and adapted by the author*

## **Rārangi Ūpoko / Contents, Historical evidence and Method utilised**

This report was generated through a series of literature searches, external discussions with historian, archival searches, web based searches for relevant information and design based on informants existing in-depth knowledge of environment, mahinga kai and their mana whenua association to the school's vicinity.

This includes information on Te Ngāi Tūāhuriri the mana whenua of the area, Mahinga kai, significant sites and areas, relevant flora and fauna described in-depth with other relevant

storying which reinforces the ties of mana whenua to place. Other ancestral entities and stories are also provided which give genealogical association to place and more generic identifiers..

It must be noted that this is a report which is not intended as an academic exercise. Excerpts are given as evidence and footnote referenced. It serves to inform this narrative and give identifiers to where the evidence can be further explored by the school.

From the excerpts and evidence the associations are then drawn upon to inform the Tāhuhu kōrero (background), Kupu tuku iho (historical), Further Accounts, Mahinga kai names and associated traditional uses, Ngā Whakaaro Tuatahi (initial ideas) onto the Names and theming which relate to the Kupu tuku iho/Historically associated kōrero.

The Whakaaro anō (other ideas) and then onto the in-depth design criteria, environmental standards and toolkits explained are associated bodies of work from the compiler and associates which are referenced to the original sources.

## **Mana Whenua / Te Ngāi Tūāhuriri**

Manawhenua refers to the mana or ‘authority’ held by an iwi, hapū or whanau over the land or territory of a particular area. This authority is passed down through whakapapa (genealogy) and is based on the settlement and occupation of, and continued use and control of natural resources within, an area. Mana whenua is also used to describe the people who hold this authority, and who are also considered the kaitiaki (guardian/ caregiver, steward etc.) of their particular area or takiwā.

### **Te Ngāi Tūāhuriri/ Mana Whenua**

Ngāi Tūāhuriri is one of the primary hapū of Ngāi Tahu whose tribal boundaries (takiwā) centre on Tuahiwi. Tūāhuriri is our ancestor, from whom we all descend and we take our name from him. The following is a traditional Ngāi Tūāhuriri *pepehā*, or tribal statement of identity.

Ko Maungatere te Maunga  
*Our mountain, Maungatere (Mount Grey) stands above us;*  
Ko Waimakariri, ko Rakahuri ngā Awa  
*Our rivers – the Waimakariri and Rakahuri (the Ashley) – flow below;*  
Ko Tūāhuriri te Tangata  
*Tūāhuriri is our ancestor.*

Tuahiwi is the home of Ngāi Tūāhuriri and has played a vital role in Ngāi Tahu history. The takiwā (district) of Te Ngāi Tūāhuriri Rūnanga centres on Tuahiwi and extends from the Hurunui River to the Hakatere River and inland to the Main Divide. Nearby the famous Kaiapoi Pā was established by the first Ngāi Tahu ancestors when they settled Te Waipounamu. Kaiapoi Pā was the major capital, trading centre and point from which further penetration of the South Island occurred making the area a genealogical centre for all Ngāi Tahu Whānui. Kaiapoi Pā was established by Moki’s elder brother Turākautahi who was the second son of Tūāhuriri hence “Ngāi Tūāhuriri” is the name of the hapū of this area.

Ko taku ture ahu mai i tōku tupuna, i a Tūāhuriri  
*My laws stem from my ancestor Tūāhuriri*

While the principal settlement in the district was at Kaiapoi Pā, smaller inland settlements also co-existed at sites along the Cam River and at Tuahiwi (among others). Tuahiwi was attacked by Te Rauparaha enroute to lay siege to Kaiapoi Pā. The eventual destruction of Kaiapoi Pā by Te Rauparaha in 1832 rendered the entire area unsafe and the Ngāi Tūāhuriri people fled to the safety of other Ngāi Tahu settlements at Koukourarata and further South. Tuahiwi and other kāinga in the area lay deserted until the threat of war had passed. Many leading Ngāi Tahu whānau returned to live at Tuahiwi in the 1840s. Māori Reserve lands were later allocated to Ngāi Tūāhuriri whānau at Tuahiwi. From this time Tuahiwi became the principal area of Ngāi Tahu settlement in North Canterbury.

While Ngāi Tūāhuriri have had an association with Tuahiwi and its environs since the earliest days of Ngāi Tahu settlement, their relationship to that land was altered irrevocably with the arrival of European settlers. The Kaiapoi Māori Reserve was set aside as a place of residence by Kaiapoi Ngāi Tahu as a result of the Canterbury Purchase (Kemps Deed) in 1848, which saw the Crown purchase 20,000,000 acres from Ngāi Tahu for 2,000 pounds. In 1859 Tuahiwi or the Kaiapoi Māori Reserve was the first Māori Reserve where land was subdivided and title was individualized so as to encourage the building of a township. The reserve was subdivided into blocks allotted to specific Ngāi Tūāhuriri whānau.

Despite the land at Tuahiwi being the largest of the Māori reserves allocated, it was insufficient for the people to generate a living from. In order to survive financially, the land outside the immediate village area was let to Pākehā farmers – by the 1880s this practice had increase to the point that most of the Kaiapoi Reserve was leased out. Through a series of Native Land Acts that followed, Māori land was quickly alienated to Pākehā. Much of the original Kaiapoi Māori Reserve is no longer in Ngāi Tūāhuriri ownership.

### **Ngāi Tahu Whānui and Te Rūnanga o Ngāi Tahu**

Ngāi Tahu Whānui are the iwi (Māori tribe) who hold manawhenua over a large proportion of Te Waipounamu – the South Island. The modern iwi originates from three main tribal strands; Waitaha, Ngāti Mamoe and Ngāi Tahu. Through intermarriage, warfare and alliances, these tribal groups migrated, settled, occupied and amalgamated and established manawhenua over their tribal area prior to European arrival. Specific hapū or sub-tribes established control over distinct areas of the island and have maintained their mana over these territories to this day.

Te Rūnanga o Ngāi Tahu is the mandated iwi authority established by Ngāi Tahu Whānui under Section 6 of the Te Runanga o Ngāi Tahu Act 1996 to protect the beneficial interests of all members of Ngāi Tahu Whānui, including the beneficial interests of the Papatipu Rūnanga of those members. Te Rūnanga o Ngāi Tahu is governed by elected representatives from each of the 18 Papatipu Rūnanga and has an administrative office as well as a number of commercial companies.

Papatipu Rūnanga are the administrative councils of traditional Ngāi Tahu hapū (sub-tribes) based around their respective kāinga / marae based communities and associated Māori reserves, pā, urupā and mahinga kai areas.

## **Whāinga / Aim**

The aim of this report is to assist in providing options for informing the naming and design of the 'Eastern Cluster of Schools' and their associated environments. It also aims to recognise their relationship of the Mana Whenua 'Te Ngāi Tūāhuriri' while providing relevant information on their historical relationship to the area.

Schools are undergoing significant remediation and rebuild following the Canterbury Earthquakes of 2010-11, some effects left school buildings and sites with minor to extensive damage and caused significant disruption to the school and its community.

The remediation and rebuild of the schools involve the development of modern learning environments which may include interconnected learning centres or 'classrooms', along with new buildings and amenities.

The design of new or remediated schools should take into account environmental sensitive design and reflect cultural values. Therefore ideas for how to do this, including the potential naming of buildings and detailed design criteria are suggested for build factors and landscaping ideals based on cultural identifiers.

This document provides a review of initial ideas, along with background information on natural, cultural and historic considerations and concludes with some recommendations for inclusion in school design and development.

It also provides toolkits which outline the function of indicating the main issues and values from a mana whenua perspective. How those issues and values can be threaded into the process of engagement, preliminary and detailed design phases, through to implementation and the build phases of the school remediation or rebuild are also included where applicable.

Further guidance and consultation with the Te Ngāi Tūāhuriri Education Committee and or school/site specific issues will be required in applying these criteria.

## **Kaupapa rapunga whakaaro / Philosophy**

The early inclusion and desire of Te Ngāi Tūāhuriri to inform and influence the school environment as to the associated relationships and culturally appropriate identifiers to the area is a measure of authentic engagement.

Getting mana whenua involved in co-construction of the implementation of plans with the Ministry of Education (MOE) including helping with new build schools and schools with major remediation or redevelopment functions is a critical component in demonstrating relationships built on partnership and good faith.

Inclusion of those relationships and cultural identifiers<sup>2</sup> will demonstrate clear partnership and responsiveness of the schools to the mana whenua.

---

<sup>2</sup> The visibility of culture throughout the school is an important signal for conveying to students and whānau that their culture is acknowledged and valued by the school. This includes the design of the buildings themselves, the presence of cultural artwork throughout the school, and the incorporation of cultural symbols or patterns in multiple media. The increased visual transparency in

A partnership that is culturally inclusive in school naming, building design, and which includes storying (or narratives) of historical occupation, place, flora and fauna from a mana whenua perspective demonstrates a positive move towards maintaining the partnership principles of the Treaty of Waitangi and in turn reflects authentic new learning and culturally inclusive environments post-earth quake.

The opportunity to influence design and provide cultural input shows partnership through threading the history and storying of the mana whenua into the fabric of the school. 'What is this place and what happened in this place' with regard to their journeying and settlement to the area informs the inquiry of how to best co-partner with the place and its inhabitants.

Benefits will include a developing measure of responsiveness to first a bi-cultural partnership and additionally within a multicultural society. Responsiveness to a bi-cultural partnership within a multicultural society will assist us to become culturally competent and confident.

The storying for the schools lies within place and is endowed within the landscape. Within the landscape there are the key components which are encapsulated within the histories of mana whenua. Some of these histories found in stories are generic such as the creation stories found in Papatūānuku and Ranginui, and are sometimes specific to mana whenua.

Many of these knowledges and stories have evolved within the landscape over long spans of inhabitation by whanau, hapū and iwi-Māori. Some are adopted and adapted over time while some are interconnected through genealogical ties. Many of the place names found within the area are associated with 'tribal' knowledges that were passed down and used by tāngata whenua. By 'storying', the narrative used 'brings to life' the relevant knowledges of the history of tāngata whenua, their place and the relationship they had with the environment.

Within historical evidence, we can indicate certain identifiers to a particular area and develop a conceptual frame of how to design, build and co-exist within our environment.

From the outset of any remediation, rebuild or re-development functions, mana whenua must be included within the initial design as well as the detailed design and implementation phases. This process ensures the correct level of engagement is attained and maintained. This is not seen as add-on, rather mana whenua are able to assist in and appropriately inform and bring together various stakeholders from the outset

### **Environmental and Cultural Considerations<sup>3</sup> -**

Ngāi Tūāhuriri places importance on sustainable building design and redevelopment processes. Recognising that internal and external design teams have expertise in this area, it is recommended that considerations of the following principles are utilised to enhance the environmental and cultural performance standards of new and re developments within schools: They are -

---

modern learning environments causes a reduction in solid wall space for displaying artwork, and so the design process should consider the appropriate balance between the two. Artwork, along with names given to learning spaces and buildings, should link the school to the history of its community and the local environment. These names should be displayed on signage around the school. Other areas should have signs showing their functional name (office, reception, etc) in Māori and Pasifika languages. Photographs of students, tipuna (ancestors), and Māori and Pasifika role models can also be used as visual symbols of culture and identity. [Wall, G. (2014) Modern Learning Environments to support priority learners,, Ministry of Education Wellington]

<sup>3</sup> Parts of this section are adopted and adapted from - Tau,T, R. (2014) Justice Precinct, Cultural and Historical Overview: Christchurch, Ngāi Tahu Research Centre.



- Provision for improved native flora and fauna and mahinga kai values; Reference (symbolic or otherwise) to previous areas of habitation and food gathering (Mahinga Kai) and within the surrounding areas through storying and naming of areas and buildings within the schools precincts
- Utilising Ngāi Tahu names, history and mahinga kai associated with the area; the potential placement of markers and art works (space made available in any consultation with an identified artist and architect for treatments) associated with Ngāi Tahu
- Inclusion of Dual Naming for significant buildings, areas and amenities
- Opening of cultural spaces with indoor and outdoor connectedness utilising naming and identifiers of indigenous flora and fauna
- The application of the Ngāi Tahu cultural sustainability indicators as assessment criteria on any re-development
- Protection and enhancement of any receiving waterway or storm water run-off through upgraded best practice storm water or run off systems
- Treatment and disposal and other low impact urban design requirements to improve water quality, reticulation and utilisation
- Inclusion of gardens (Māra) with native plantings associated to the area in keeping with the geography and landscape as well as use and purpose such as edibles and medicinal qualities (Rongoā) and pa harakeke for weaving
- Inclusion of native plantings for education, amenity, bio control, bio diversity and environmental resilience and protection considering eco system services

**Historical evidence utilised** – This includes Mahinga kai, significant sites and areas, relevant flora and fauna described in-depth with other relevant storying which reinforces the connection of mana whenua to place. Other ancestral entities and stories are also provided which give genealogical association to place and more generic identifiers.

## **Kupu tuku iho/Historically**

### **General background information on Ōtautahi**

Archeological evidence found in a cave at Redcliff's in 1876 has indicated that the Christchurch area was first settled by moa-hunting tribes about 1250 CE. These first inhabitants were thought to have been followed by the Waitaha tribe, who are said to have migrated from the East coast of the North Island in the 16th century.

Following tribal warfare, the Waitaha (made of three peoples) were dispossessed by the Ngati Mamoe tribe. They were in turn subjugated by the Ngāi Tahu tribe, who remained in control until the arrival of European settlers.

Following the purchase of land at Pūtaringamotu (modern Riccarton) by the Weller brothers, whalers of Otago and Sydney, a party of European settlers led by Herriott and McGillivray

established themselves in what is now Christchurch, early in 1840. Their abandoned holdings were taken over by the Deans brothers in 1843 who stayed.

The First Four Ships were chartered by the Canterbury Association and brought the first 792 of the Canterbury Pilgrims to Lyttelton Harbour. These sailing vessels were the Randolph, Charlotte Jane, Sir George Seymour, and Cressy. The Charlotte Jane was the first to arrive on 16 December 1850. The Canterbury Pilgrims had aspirations of building a city around a cathedral and college, on the model of Christ Church in Oxford. <sup>4</sup>

Ōtautahi was originally the name of a specific site in central Christchurch, a kāika situated on present day Kilmore Street near the fire station.

It means the place of Tautahi and was adopted as the general name for Christchurch in the 1930s. Prior to this, Ngāi Tahu generally referred to the Christchurch area as Karaitiana.

Te Potiki Tautahi was one of the original Ngāi Tahu people to settle in the Canterbury region. His settlement was at Koukourarata (Port Levy) on Horomaka (Banks Peninsula). At that time, the swampy flatlands of the present day site of Christchurch city were abundant with food such as ducks, weka, eels and small fish.

Tautahi and his people made frequent forays from Koukourarata around the Peninsula and then up the Ōtākaro (Avon River) to gather kai. They camped on the river banks as they caught eels and snared birds in the harakeke. Tautahi died during one of these visits and is buried in the urupā on the site of what was St Luke's Church vicarage on the corner of Kilmore and Manchester Streets (demolished following the 2010 and 2011 earthquakes).

The area now defined as Christchurch city was named as Tautahi's special territory. The full name is Te Whenua o Te Potiki-Tautahi, this was later shortened to Ō Te Potiki Tautahi and then shortened further to the name we have today, Ōtautahi.

#### **"Tautahi" - The Legend behind the Name**

The name Tautahi can be traced back to ancient Hawaiki and the sailing from there of two chiefs in their great ocean-going waka Te Waka Orurea. The legend says that they landed somewhere on Horomaka (Bank's Peninsula) near the outlet of Wairewa (Lake Forsyth). One of the chiefs Te Potiki-Tautahi (the only child), and his party landed here, while the other chief, Huruhuru Manu (birds feathers) continued on around the coast to Westland.<sup>5</sup>

## **Ngā Tūtohu Whenua - Cultural Landscape Values to the 'Eastern Cluster of Schools' and other significant areas.<sup>6</sup>**

**Areas relevant** –the information provided includes relevant names and identifiers due to the proximity of and relationship to the areas researched

---

<sup>4</sup> See <http://en.wikipedia.org/wiki/Christchurch> for more generic information

<sup>5</sup> See Herries Beattie, Māori Place-names of Canterbury, Cadsonbury Publications, 1995 (First Edition 1945)

Te Maire Tau, Anake Goodall, David Palmer & Rakihia Tau, Te Whakatau Kaupapa: Ngāi Tahu Resource Management Strategy for the Canterbury Region, Aoraki Press, 1990 and Walk Christchurch : 60 short walks that explore your city; edited by Mark Pickering, compiled by Kjesten Nilsson, Karen Theobald and Lesley Symington. Published: [Christchurch, N.Z.] Leisure Unit, Christchurch City Council, 1998, downloaded from <http://my.christchurchcitylibraries.com/ti-kouka-whenua/otautahi/> on 12 May 2015

<sup>6</sup> Also refer to map appendix 3

### **Further accounts which identify associations**

European settlers as the water and soils meant good gardens, even if the swampiness meant suburbanisation would be difficult. Thus just as Māori communities had created settlements on the margins of waterways, so too did Europeans due to the intrinsic value of the waterways, the soils near them, and the flora and fauna they supported.

When Christchurch was founded in 1850, the city blue print that was to be implemented over the top of this space contained clues both about the Canterbury Association's values, and the values of their investors. The church, the university, the industrial area, market square, government buildings and a 'botanical' garden were all included, as well as neatly surveyed parcels of land where families could be raised and working men could gain an 'independency'. These components of the plan express a system of values that were intended to reinforce each other. The values around religion, education, productivity, trade, democracy, horticulture and working with the land, respectability, family life and social mobility were fundamental to how the new settlement was conceptualised.

Cutting across each of these values are the virtues of civilising, improvement and prosperity. Each of these can be understood through the lens provided by the mythological template of Christchurch as a Garden City. Gardening should not simply be understood in this context as growing a lawn, or bedding plants and a vegetable garden, though of course that is what our gardens have often looked like. Rather, gardening is a process that involves and nurtures the whole person, and the whole environment. Gardening connects people to a place, and it sustains them. Christchurch's history as a Garden City, and a city of gardeners, therefore encapsulates those values held in highest regard by the first Pākehā colonists. However, it also speaks to Ngāi Tahu values and to the values of many young people who are eager to see what the next iteration of the Garden City is going to look like.

### **Abundance**

Incredibly, the suburban lifestyle envisaged by the city's founders was within the reach of most working men, and enabled family units to achieve what Trevor Burnard described as a 'limited, co-operative self-sufficiency'. Like Māori, European settlers were attracted to the waterways. Even before the 'first wave' of colonists arrived in Christchurch in 1850, the pioneering Deans brothers had established productive orchards and vegetable gardens at Pūtaringamotu ('A place to catch birds'), close to the Ōtākaro, with the blessing of Ngāi Tū-āhu-riri. The gardens here were the first colonial focal point, because they demonstrated that food could be produced in abundance.

Further downstream, another Ngāi Tahu site, Ōtautahi, was also recreated as an important model garden. It is a significant, though often overlooked, fact that food production was a major plank of the Canterbury Association's plans. They planned a Botanic Gardens in what was later called the Avon Loop and paid for a gardener to maintain it. In fact, this was a nursery garden for the edible crops that were intended to transform the entire region into a land of plenty. The gardener, William 'Cabbage' Wilson, was such a local hero that he became the city's first mayor, in 1868.

### **Beauty**

Another important value with regards to gardening in Christchurch was that of beautification: introducing garden designs that started to de-emphasise productivity or natural abundance in favour of flowers, shrubs and lawns. Public discourse around flower gardening began to take a

firm hold in the 1870s, although there is strong evidence to suggest that for most people orchards remained the most important garden element until after World War One.

The interwar period is where we really need to look to see the sudden ascendancy of concepts such as the Garden City and the City Beautiful (which became the name of the Horticultural Society's publication). Beautification of the home environment, as well as public spaces, certainly became important for many Christchurch householders and is one of the features the city is known best for. A low front fence, a tidy lawn, a concrete path to the front door edged with flowers was (and still is) a common site from the road. Critics have argued that this form has been oppressive or limiting, or simply boring. However, the social significance of this domestic configuration is that it signalled shared values in a street or neighbourhood. Taking care of one's home like this showed respectability, and respectfulness. It was also a welcoming site for visitors.

### **Preservation**

Just as beautification became a focus for ordinary people in Christchurch during the interwar period, so too did an interest in environmental protection and in gardening with native plants. The two ideas were often closely intertwined as gardeners started to learn more about the beauty of the alpine plants they were seeing more of as a result of the opening of the Ōtira Tunnel in 1923, and the increasing availability of motorcars. This experience opened the eyes of many Christchurch people to environmental degradation in the high country and helped people to discover a new affinity with the Southern Alps (and especially the Arthurs Pass area, where some of the more affluent residents had holiday homes), which had always distantly framed the Garden City on the Plains. With this also came an appreciation of native birds and the vital role gardeners could play in enhancing their habitat, viewed as especially pressing given what could now be observed first hand of the deforestation in the hinterland. The sense of connection between people in the city and the wider environment around them deepened during the 1920s and 30s, and Christchurch is often thought of as a place that breeds environmentalists.

### **Sustenance**

World War Two saw a renewed focus on vegetable gardening in the print media, although for many people this simply validated what they already did anyway. The Civic Vegetable Campaign (later rebranded as part of the government's Dig for Victory campaign) emphasised above all else the nutritive qualities of vegetables grown in good soils. Good soils meant soils fed with humic matter, which paved the way for the new composting movement to take a hold. Thus the old values around the home as a place for growing food to feed the family and the neighbours were brought to light once more.

### **Provision**

The Garden City has continued to represent these ideals in various ways. Since the mid-1990s Christchurch has seen a proliferation of community gardens as well. The number of these has tripled in the last ten years. Community gardens serve a wide variety of purposes, but largely exist to meet the needs of people for food that cannot otherwise be met, because of lack of money, available land (as subdivisions have got increasingly smaller) and lack of knowledge about gardening. Community gardens are urban food gathering places that enable communities to come together, share their knowledge freely amongst each other, restore and enhance pockets of urban space with organic gardening practices, grow and share food and also strengthen community connections.

Amidst this sudden growth of these food spaces a new voice, that harks back to older ideas, is asserting itself about the importance of reintroducing food resilience into the city. This is partly to ensure the people of Christchurch can have their food needs provided for in case of any future disasters (such as the recent earthquakes), but also to enhance Christchurch's ability to feed its visitors well. A local food economy that could be a tourist attraction has been touted. Integral to this notion is the rehabilitation of degraded natural ecosystems, starting with Christchurch's waterways (both in-stream and riparian zones), which are severely degraded and cannot currently be easily used for food gathering.

Old gardens right along the Avon-Ōtākaro river margins tell the story of our people as outlined above, and are still abundant with food even where the houses themselves have been demolished. They embody our shared histories and values and could be a tremendous story-telling device and new food provisioning space. Ōtautahi, the site of 'Cabbage' Wilson's garden and thus the launching pad of Christchurch as Garden City, took up a significant piece of the Avon Loop. But before Wilson it was of course Tautahi's place, a place to gather food, and it remained as such at least as late as the 1840s. From here out to the Estuary our history, with its orchards, market gardens, beautiful gardens, and of course native vegetation is written in the land.

### **Reflection**

In thinking about our shared values, we should ask what it means to civilise, to improve and to prosper in the Christchurch context. Again, our garden histories provide a clue. A civilised Christchurch implies one where all people have their basic needs met. This means that all Christchurch residents should have access to good food, a value strongly present in our local traditions but sadly not presently a reality. This could mean a rehabilitation of waterways so they can support mahinga kai, or it could mean the planting of food plants in public spaces, or it could mean the redevelopment of a food growing culture in suburban homes.

Again, an improved Christchurch might refer to the ability of the city's social, economic and ecological systems to recover from disasters or simply to function according to the principles of sustainability as we collectively proceed into an increasingly unpredictable future. Gardening for ecosystem resilience – as we did in the interwar period – would be a useful starting point here.

Finally, a prosperous Christchurch invokes the ideals of co-operative self-sufficiency. The idea of a strong local food economy, involving activity around the production, distribution, marketing, preparing and selling of locally grown food (not to mention education about it). However, there is also a tremendous reputational opportunity for Christchurch to position itself, through its gardens and its Garden City image, as being not just able to take care of its own people, but to also play host to visitors from far and wide because it can feed them. Our values are reflected back to us in our gardens, and our gardens will define who we are as a people in this next stage of Christchurch's story (Tau, R.T. 2014).

## **Specific information to the Eastern precinct**

### **Bottle Lake- Waitikiri**

Before European settlement in the Canterbury area, the site on which Bottle Lake Forest Park is now situated contained **flax swamps**, **coastal bush** and an **eeling lagoon**. This lagoon was a

mahinga kai (food gathering area) for the early Waitaha people. There were **no dunes, just a gentle rising sand plain. Behind this were wetlands that were periodically inundated by high seas.** The area was cleared, drained and farmed by European colonists.<sup>7</sup>

Bottle Lake and Waitikiri: the early years By 1840 Bottle Lake and the Waitikiri swamplands were well recognised as food gathering areas for the local Māori people of Ngāi Tahu. Long before European settlers arrived **the gathering of eels and other fish had been well established. The area was rich in native plants that provided a constant supply of medicines, and also materials for building, making traps, baskets, weaving, footwear, and weapons.**

With the Europeans arriving in increasing numbers there was a need to purchase land. The New Zealand Land Company was established to supervise the legal purchase of land and later became known as The New Zealand Company. The Association responsible for forming the settlement of Canterbury began organising for the new town of Christchurch under the patronage of the New Zealand Company.

The right to purchase 1,000,000 acres over two years was granted to the association by the New Zealand Company. The control the association had over the purchasing of land prevented most squatting situations like those that had occurred in Australia where land was rented cheaply and stock ran unchecked.

In June 1848, Harry Kemp, Governor Grey's agent for land purchase, began negotiations to buy land from the Ngāi Tahu people on behalf of the New Zealand Company. Large areas of land from Kaiapoi to Otago were divided into runs, and this buying of lands became known as the Kemp Purchase.

One of the runs surveyed encompassed Bottle Lake and the Waitikiri swamplands. It extended from the Waimakariri River to the South shore Spit and was named the Sand hills Run.

John McLean was the first European to own the land where the lake was situated, having bought it from the New Zealand Company in 1860.

Edward Reece was the next owner and he purchased the land from McLean only two years later. Reece was a Shropshire farmer's son, and arrived in New Zealand in 1854. He became an astute businessman with a successful ironmongers business, and an interest in local affairs. Reece became a councillor, sitting on the first council meeting that took place on 3 March 1862. It was also Reece who first introduced pinus seedlings into the Bottle Lake area. He built his house over-looking the bottle-shaped lake, and brought in labour to trim the lakes banks and to landscape around the homestead. Cattle were bought with a view to fattening, but this was hampered due to heavy losses with stock being stuck in the bogs. Mr Reece died in 1885 and left his property to his sons William and Charles.

William eventually became Mayor of Christchurch for a short time, and sold the property to Mr Dalgety in 1901. Included in the sale was the fine house that William had built at Bottle Lake called Waitikiri. Research with Māori people suggests several different interpretations of 'Waitikiri' and they are 'muddy water', 'water springs back', 'there it is dug', and 'a lagoon'.

---

<sup>7</sup> See Walk Christchurch: 60 short walks that explore your city; edited by Mark Pickering, compiled by Kjesten Nilsson, Karen Theobald and Lesley Symington. Published:[Christchurch, N.Z.] Leisure Unit, Christchurch City Council, 1998 downloaded from <http://my.christchurchcitylibraries.com/ti-kouka-whenua/bottle-lake-forest/> on the 15/06/2015

In 1920 Dalgety sold the property to Mr J G Armstrong, a farmer and land valuer. Throughout the 1920s, JG, as he was known, continued to drain the land and run cattle. He also lost stock to the bogs. JG employed Mr Aldridge to look after this property as he also had a sheep run near Scargill, and spent much of his time there. It was Aldridge who was responsible for much of the drainage in the area. The Aldridge family lived at Waitikiri in the servants' quarters.

In 1937 Ray Blank and several businessmen formed Waitikiri Links Ltd and purchased the property from Armstrong for £7750. The city has benefitted to this day from the development of two very good golf courses, Windsor and Waitikiri.

Over the years the area surrounding the lake was neglected as the development of the land into productive farmland took precedence, and by the late 1930s the bottle-shaped lake had virtually disappeared.

The name 'Bottle Lake' has been used by various bodies since. When the council acquired land nearby and planted trees, they named it Bottle Lake Forest. In 1975 the area was given protective park status and has since been named Bottle Lake Forest Park.

The council was not the only one to adopt the name. Looking for a remote area in which to set up an infectious diseases hospital, the hospital board developed an area and built a fever hospital on the current Burwood Hospital site. They named the fever hospital Bottle Lake Hospital and the road leading up to the hospital was Bottle Lake Road. The hospital and the road changed their names in the early 1900s and became known as Burwood Hospital and Burwood Road.

The majority of Christchurch people were unaware of the developments at Bottle Lake Forest, and as it was a working forest, the public was barred from using it. However, since gaining park status, the forest is being used by ever increasing numbers and attracts thousands of visitors annually wanting to enjoy the expanse and the tranquillity.<sup>8</sup>

### **Travis Wetland Area**

**Ōruapaeroa<sup>9/10</sup>** - This is near Travis Swamp and at Queen Elizabeth Park. Ngāi Tahu traditions state that **shark** was caught here at certain times of the year. This was possible as an opening in the area extended to the sea, and **the resulting brackish salt water supported marine fish**. This name also applied to the **nearby beach where various types of flounder and sole were taken. Shellfish were also taken from the area.**<sup>11</sup>

**Rāwhiti<sup>12</sup>** - is a relevant name due to the proximity to the schools. Although there is no immediate available information as to the naming and origin of that naming, we would suggest that due to the length of time it has been in place (1870) a level of authenticity is prevailing. In

---

<sup>8</sup> See Mc Kelvey, Peter. Sand Forests: a historical perspective of the stabilisation and afforestation of coastal sands in New Zealand. Canterbury University Press, New Zealand 1999, Surgenor, Ian. Water Wood: the story of Bottle Lake Forest Park. Christchurch City Council, New Zealand 2000. Downloaded from <http://my.christchurchcitylibraries.com/bottle-lake-waitikiri/> on 15/06/2015

<sup>9</sup> Also used by Mairehau school

<sup>10</sup> The sandy waste between the Okataro river and the surf-line on Pegasus Bay was known by the Maoris as O-rua-paeroa ; and the name was aptly bestowed, its literal meaning being- "An east wind blowing-along the shore." ( O-RUA-PAEROA. REMINISCENCES OF NEW BRIGHTON. ITS EARLY HISTORY. [By Te Koiwi Kurapa.] (Specially written for the " Star") . see <http://paperspast.natlib.govt.nz/cgi-bin/paperspast?a=d&cl=search&d=TS18960427.2.14>

<sup>11</sup> Tau, T.R., [et, al]. (1991) Te Whakatauranga Kaupapa, Ngāi tahu Resource management Strategy for the Canterbury region, Aoraki Press, Wellington, ISBN 0-9908925-06-9. Page 5-23/24

<sup>12</sup> Rāwhiti. (noun) east, eastern.

(see <http://www.maoridictionary.co.nz/search?idiom=&phrase=&proverb=&loan=&keywords=rāwhiti&search=>)

Tales of the Port Hills by James Cowan accounts of the far travelled names where noted, possibly this is one of them. This was also alluded to in a discussion with Mr Trevor Howse on the 2<sup>nd</sup> July 2014 where he mentioned that the names of this area were sometimes pre Ngāi Tahu. Rāwhiti means one of the four principal compass points, specifically 90°, conventionally directed to the right on maps or the direction of the rising sun.<sup>13</sup> Rāwhiti is also a small beachfront town about 27 km from Russell in the Bay of Islands of New Zealand, and is a holiday haven with beautiful beaches, spectacular views, sailing, fishing and water sports. Most of the land in the area is owned by Māori. There are two marae — Kaingahoa and Te Rāwhiti. =... Rāwhiti being a prominent name within Muriwhenua (End Lands) may have an association through Waitaha to Ngāti Kuri to that area.<sup>14</sup>

**Sand Dunes to Suburb<sup>15</sup>**, - gives a fair account of the areas from both a historical and contemporised view. What is relevant are the relationships explained within the sections 'Māori Habitation' and 'Māori Coastal Settlement'? These give a relative and in-depth account of the settlement pattern within the associated areas. Of note is 'The Coastline section' which refers to the area adjacent to the City of Christchurch as an area **of significance for its place in time and occupation of the multitude of seasonal inhabitants who lived, fished and traded along the coastline.**

".....*The names of the coastal areas were generally known as te Tai o Mahanui (Tide of the Canoe of Maui) to the south, and Te Tai o Marokura (the tide of Marokura) to the north.....*"p. 17

### **Horseshoe lake - Waikākāriki**

In pre-European times Waikākāriki was the site of a significant Māori settlement called Te Oranga. The lake was called Waikākāriki (wai means water and kākāriki has various meanings including green, **a type of green lizard or a green parakeet or parrot**).<sup>16</sup>

Traditional wetland species predominate at Horseshoe Lake. **Eels, perch and trout inhabit the water whilst pukeko, ducks of all descriptions, kingfishers and numerous woodland birds can all be seen at various times.**<sup>17</sup>

### **Ihutai**

Te Ihutai<sup>18</sup> - Māori reserve 900, block xii Christchurch SD, Area: 4.0468 hectares, *Description-te Ihutai* is sited in the Christchurch District on the Sumner-New Brighton coastline. Traditionally Te Ihutai was part of a larger fishery used by Ngāi Tahu. There are a number of hapū and whanau who have used Te Ihutai. The owners were those of Kaiapoi Māori reserve and their Uri.<sup>19</sup>

### **Avon River - Ōtākaro**

Ōtākaro meanders its way from a spring source in Avonhead through the city and out to sea via the estuary. It was highly regarded as a mahinga kai by Waitaha, Ngāti Māmoe and Ngāi Tahu.

---

<sup>13</sup> See <http://glosbe.com/mi/en/rāwhiti>

<sup>14</sup> Found on <http://en.wikipedia.org/wiki/Rāwhiti>

<sup>15</sup> Rowlands, D., Moore, P., Osborn, L. (2006) Sand Dunes to Suburb, Ihutai (The Nose of the Tides) *The History, Environment and People of South shore, Christchurch*, Digital print, Christchurch.

<sup>16</sup> Sources - Walk Christchurch: 60 short walks that explore your city; edited by Mark Pickering, compiled by Kjesten Nilsson, Karen Theobald and Lesley Symington. Leisure Unit, Christchurch City Council, Christchurch: N.Z., 1998 from

<http://my.christchurchcitylibraries.com/ti-kouka-whenua/waikakariki/> downloaded on 15/06/2015

<sup>17</sup> Source <http://www.ccc.govt.nz/cityleisure/parkswalkways/popularparks/horseshoelakereserve.aspx>

<sup>18</sup> Means nose of the tides

<sup>19</sup> Tau, T.R., [et, al]. (1991) Te Whakatau Kaupapa, *Ngāi tahu Resource management Strategy for the Canterbury region*, Aoraki Press, Wellington, ISBN 0-9908925-06-9. Page 5-21.



The Waitaha pā of Puari once nestled on its banks. In later years, Tautahi (the chief after whom our city takes its name) made kai gathering forays down Ōtākaro from Koukourarata on Horomaka (Banks Peninsula) to take advantage of the abundant **bounty offered up by its waters. Pātiki (flounder) were speared, eels (tuna), ducks, whitebait (inaka) and native trout were also caught.** Ōtākaro, meaning the place of a game, is so named after the children who played on the river's banks as the food gathering work was being done. In Tautahi's time few Māori would have lived in the Ōtākaro area itself. Those that did were known to Māori living outside the region as Ō Roto Repo (swamp dwellers). Most people were seasonal visitors to Ōtākaro. Fish and birds were preserved for use over the winter months when fresh kai was in short supply. Springs feeding into the river were used by tohunga for healing purposes. These were sited in the Ōrakipaoa (Fendalton) area in the Wairarapa and Waiwhetū streams. The Canterbury Museum holds some important Māori taonga (treasured possessions) that have been recovered from Ōtākaro, including **a canoe paddle made of mānuka.**<sup>20</sup>

### **Relevant Flora and Fauna: Kai Moana and Mahinga Kai exerts from the literature,**

*:...\*On Ōruapaeroa (New Brighton Beach) in Sumner the Māori used to go swimming, and catching horihori (the sole is another name which he had forgot). The sole is patotara, the dark flounder is mohoa. The dotted one, raututu, is almost the same as the patotara while another kind is whawhai. The people would wade out with kaka nets one going as deep as he could, and they would catch many fish. The mahoa was only found at Lake Ellesmere (as its home)...”(Beattie, 1994, p. 308).*

*“...Here in Canterbury after being split and dried the shark flesh was eaten without cooking. Mangō is the general name for sharks and mangō-maroke = dried shark....” (Beattie,J.H., 1994;p. 332)*

*“.....The taiwhatiwhati is found plentifully on Ōruapaeroa (New Brighton) beach and is boiled. \*It once used to be roasted in embers, as well as all other shellfish. Mataitai is the salty taste of fish or shellfish when from the sea and the ancient Māori always tried to get rid of this hence the soaking in fresh water....” (Beattie,J.H., 1994; p. 326) <sup>21</sup>*

*“.....The estuary was rich with tuna (eels), kanakana (lamprey), inaka (adult whitebait), pātiki (flounder) and pipi. Kōmara and aruhe (edible fern root) were grown in the sandy soils at the mouth of the Ōtākaro. Mānuka weirs were built around the mouth of the river during the eel migrations and pātiki were abundant in the mudflats across the middle of the estuary, an area called Waipātiki (flounder water).....”<sup>22</sup>*

---

<sup>20</sup> See Robert C. Lamb, From the Banks of the Avon: The Story of a River, AW Reed Ltd. 1981, p2, Te Maire Tau, Anake Goodall, David Palmer & Rakihia Tau. Te Whakatau Kaupapa: Ngāi Tahu Resource Management Strategy for the Canterbury Region, Aoraki Press, 1990, W.A. Taylor, Lore and History of the South Island Māori, Bascands, Christchurch, NZ, 1952. Downloaded from <http://my.christchurchcitylibraries.com/ti-kouka-whenua/otakaro/> on the 15/06/\*2015

<sup>21</sup> Beattie, J. H. (1994). Traditional lifeways of the southern Māori. University of Otago, Dunedin, New Zealand.

<sup>22</sup> See Walk Christchurch : 60 short walks that explore your city edited by Mark Pickering, compiled by Kjesten Nilsson, Karen Theobald and Lesley Symington. Published: [Christchurch, N.Z.] Leisure Unit, Christchurch City Council, 1998 and Harry Evison and Mark Adams. Land of Memories: a contemporary view of places of historical significance in the South Island, Tandem Press, Auckland, NZ, 1993.

**Mahinga kai names and associated traditional uses** – These are further identified in Table 1 below where applicable. Notwithstanding if species are not identified it does not mean they have no association or relevance to mana whenua and the wider ecological system of Kaiapoi. For this purpose we have focused on what the historical evidence states was utilised and with some further obvious inclusions.

**Table 1: Mahinga kai and traditional uses of selected plants and animals associated with the area from the literature and informants<sup>23</sup>**

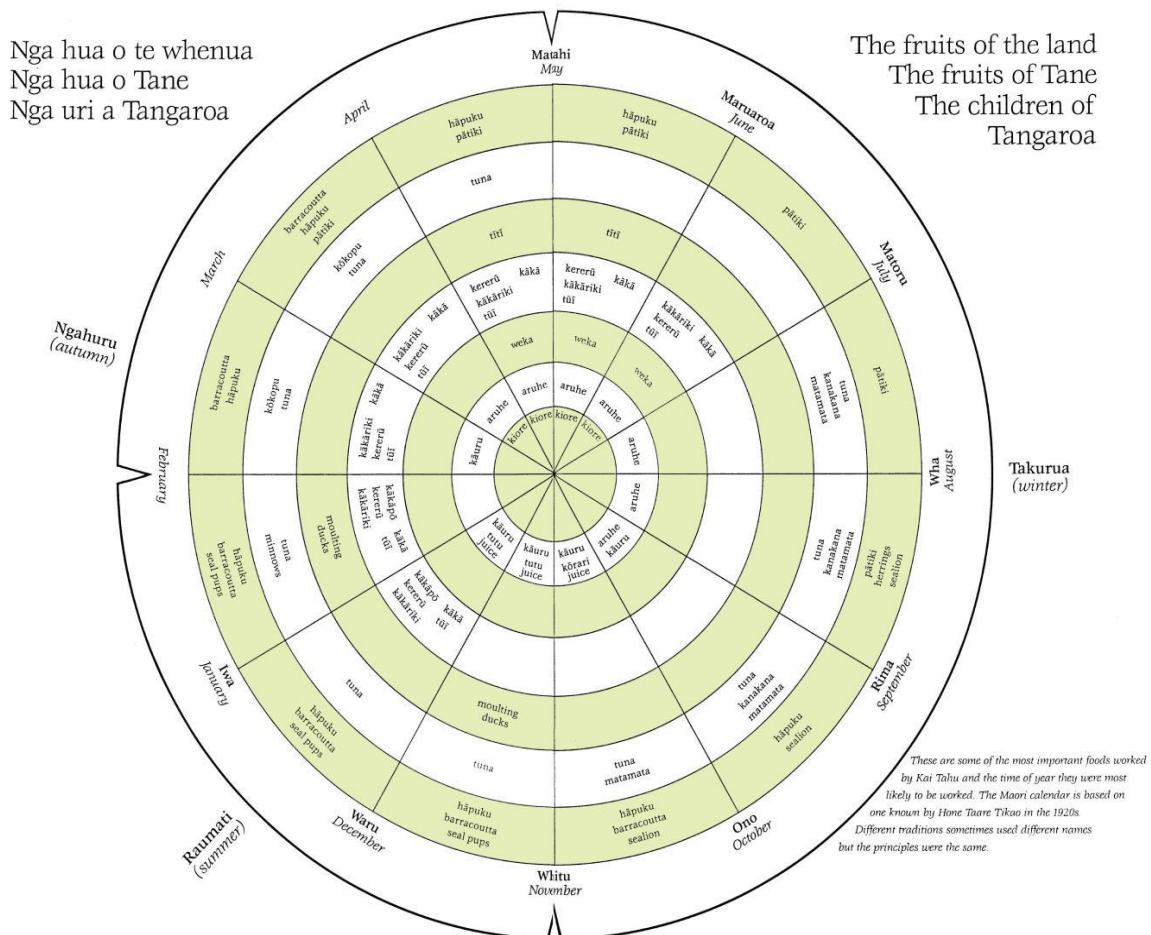
Name	Traditional Uses
<b>Plants</b>	
<b>Trees and Large Shrubs</b>	
ti kōuka/cabbage tree – <i>Cordyline australis</i>	used for cloths, food, medicinal and weaving
matagouri – <i>Discaria toumatou</i>	unknown
mānuka/tee tree – <i>Leptospermum scorparium</i>	used for building, kai preparation and weapons
<b>Shrubs</b>	
makaka/NZ broom – <i>Carmichaelia appressa</i> /"robusta"	used for building
mikimiki & mingimingi/coprosma – <i>Coprosma crassifolia/propinqua</i>	poisonous and a favoured food for weka
pohuehue/muehlenbeckia – <i>Muehlenbeckia complexa</i>	unknown
tauhinu/cottonwood – <i>Ozothamnus leptophyllus (Cassinia)</i>	used for fishing, cooking
makaka or manatū/marsh and lowland ribbonwood, - <i>Plagianthus divaricatus</i>	unknown
<b>Groundcovers and others</b>	
sand fescue – <i>Austrofestuca littoralis</i>	unknown
pohue/clematis – <i>Clematis afoliata</i>	possibly used for cooking treaded around tuna
toetoe – <i>Cortaderia richardii</i>	stem used for kai baskets, cooking, darts, arrows, kites, foretelling (weather, fishing), building, medicinal, torches, tapu (chewing), bedding, History jottings of Puketapu.
sand sedge – <i>Carex pumila</i>	unknown
sand daphne – <i>Pimelia arenaria</i>	unknown
harakeke/NZ flax – <i>Phormium tanex</i>	used for beliefs, clothing, fishing, medicine and boats
<b>Niche Plants for Damp or Wet Areas</b>	
rautahi-purei/cutty grass – <i>Bolboschoenus caldwellii</i>	unknown
upoko-tangata/umbrella sedge – <i>Cyperus ustulatus</i>	unknown
kāretu/holy grass – <i>Hierochloa redolens</i>	unknown
wiwi/rush – <i>Juncus pallidus</i>	thatching, bedding, fishing/bobbing, birding/hides, spiritism,
remu remu/a mat plant – <i>Selliera radicans</i>	unknown
<b>Animals</b>	
<b>Birds</b>	
<i>(weka and swamp hen were also taken within the area)</i>	
kuaka/godwit	foretelling
makomako/bellbird	kai/feathers
ruru/owl	foretelling
piwakawaka/fantail	foretelling
pāreera/grey duck	kai
pūtangitangi /paradise duck	Kai
Kererū/wood pigeon	Kai and feathers
Kotare/kingfisher	foretelling
<b>Lizards</b>	
mokomoko /skink or gheko	foretelling
<b>Spiders</b>	
katipo	waahi taonga
<b>Fish</b>	
mangō/shark	kai

<sup>23</sup> This is an initial list and more plants may be identified by Tūāhuriri specialists

mangō-maroke/dried shark	
taiwhatiwhati/Shellfish	kai
horihori/sole	kai
patotara/flounder	kai
<b>Shellfish</b>	
taiwhatiwhati/shellfish	kai

Mahinga kai, and the associated custom of kai hau kai (exchange of food/resources), is of central importance to Ngāi Tahu culture and identity. Literally meaning ‘to work the food’, it refers to the gathering of food and resources, the places where they are gathered and the practices used in doing so. Traditional mahinga kai practice involved the seasonal migration of people to key food gathering areas to gather and prepare food and resources to sustain them throughout the year. These hīkoi also provided opportunities to reinforce relationships with the landscape and other whanaunga (relations), develop and share knowledge and provide the resources that could be used for trade.

The mahinga kai chart shown below, based on one known by Hone Taare Tikao in the 1920s and developed by Bill Daker (1990), outlines the major foods worked by Ngāi Tahu, including tuna (eels), matamata (whitebait), tītī (muttonbirds), kererū (wood pigeon), aruhe (fernroot) and kāuru (cabbage tree root), and the time of the year they most were likely to be gathered.



**Whakaahua 5. Mahinga kai chart.**

From their settlements in and around 'Eastern Cluster Area' mana whenua gathered and utilised natural resources from the network of sites across their takiwā that provided food as well as material for housing, garments, adornments and tools.<sup>24</sup>

**Mahinga Kai further explained** - In 1879 at Kaiapoi, Wiremu Te Uki, stood before the Smith-Nairn Commission and declared: "We used to get food from all over our Island; it was all mahinga kai. And we considered our island as in a far superior position to any other, because it is called Waipounamu, the greenstone island; the fame thereof reaches all lands" (W Te Uki NA /MA/ 67/4: 295).

Te Uki had an obvious pride in his mahinga kai which was more than economic. Mahinga kai identified who he was and where he was from. There is a cultural connection here associated with mahinga kai that needs consideration. Usually mahinga kai has been discussed in functional terms represented in phrases such as "the seasonal round", used to describe the migratory habits of Ngāi Tahu. Rarely, if ever, has a cultural connection been made to mahinga kai.

As stated earlier mahinga kai is a reference to a phrase taken out of the 1848 Canterbury Purchase. One of the conditions of sale was that the document promised Ngāi Tahu that all its "mahinga kai" would be reserved for them. The relevant part of the text stated: "Ko ō mātou kāinga nohonga, ko ā matou mahinga kai, me waiho mārie mō mātou tamariki, mo muri ihi ia mātou, ā mā te kāwana e whakarite mai hoki tētahi wāhi mō mātou a mua ake nei, ā te wāhi a ata rūritia te whenua e ngākai ruru".

The Crown interpreted the above text thus "... our places of residence and cultivations must still be left to us, for ourselves and our children after us. And the Governor must appoint a quantity of land for us hereafter when the land is surveyed". (ibid)

The shape of the problem was the interpretation of that word "mahinga kai". Mahinga kai is given different interpretations by the Crown and by Ngāi Tahu. The Crown's interpretation confines mahinga kai to its minimal definition which is cultivations. In 1868, at a Native Land Court hearing in Christchurch, Fenton ruled that he was bound to accept the Crown's interpretation of Mahinga kai. Fenton declared: The court is of the opinion that Mahinga kai does not include Weka preserves or any hunting rights, but local and fixed works and operations. (minutes of the Native Land Court 1868) Fixed works were to mean gardens and fixed eel weirs. On the other hand Ngāi Tahu has given mahinga kai several definitions. In 1879 at the Smith Nairn Commission Wiremu Te Uki defined mahinga kai as: "Places where we use to obtain food, the natural products of the soil".

Later Te Uki added that mahinga kai meant: "Places where we used to catch birds. The places where we use to catch ducks – paradise ducks ... we used to get food from all over our island; it was all mahinga kai". Under further questioning Te Uki added that mahinga kai also referred to "eel weirs". Other Ngāi Tahu witnesses continued to

---

<sup>24</sup> Adopted and Adapted by Pauling, C., & Robilliard, B. (2015) *He Puna Kōrero mo ngā Kura*, Educational hub, Cultural narrative.

confirm and enlarge upon what Te Uki had stated. In a petition in 1891 by the Ngāi Tūāhuriri Rūnanga, the Rūnanga interpreted the original passage of Kemps Deed as follows: “Our food producing places or places where we might expect to obtain future supplies of food and all fisheries are to be reserved for us and our children after us, and it shall be for the Governor hereafter to set apart some portion for us” (R T M Tau: Wai 27 H6).

The contrast in interpretations is obvious. One party, the Crown, takes a limited approach. The other (Ngāi Tahu) has a wider, more general interpretation to mahinga kai. However, much of this dispute, which lasted right through to the 1998 Ngāi Tahu Claims Settlement rested on the narrow and limited view that the judiciary took on this matter (Tau, R.T. 2014)

## Ngā Pākihi Whakatekateka a Waitaha – The Canterbury Plains

Another name which surfaces in Cowan’s accounts of the wider Canterbury plains area of interest is **Ngā Pākihi Whakatekateka a Waitaha** from Waitaha (the for-runners to Ngāti Māmoe) which refers to the pakahi a water carrying vessel which was important for the trails from the Waimakariri to the Ashburton Rivers.<sup>25</sup>



Kā Pākihi Whakatekateka o Waitaha – The Canterbury Plains (Edmund Norman, ca1855, D-001-032, Alexander Turnbull Library).

Pākihi is an area where no trees grow and **‘whakatekateka’** is an archaic term meaning ‘to create pride or to exhibit pleasure’. Another view is that whakatekateka has a different meaning of ‘seedbed’ which offers the translation, “The treeless seedbed of Waitaha”, referring to the region where the tribe first settled and multiplied.<sup>26</sup>

**Other storying** such as the utilisation of the genealogical chart following, which shows how different species of tree were created through the marriage of Tāne Mahuta, god of the forest, with various deities can also be drawn upon. It shows how they all originate from the marriage

<sup>25</sup> Cowan, J. (1923). Māori Folk-tales of the Port Hills, Canterbury, New Zealand: Canterbury, New Zealand. Whitcomb & Tombs.

<sup>26</sup> See [http://ngaitahu.iwi.nz/our\\_stories/ancient-paths/](http://ngaitahu.iwi.nz/our_stories/ancient-paths/)

of Ranginui (the sky) and Papatūānuku (the earth) and potentially match to the identified lists given. The illustration following is an updated version of information provided in Johannes C. Andersen's Māori life in Ao-tea (1922) and available at - <http://www.teara.govt.nz/en/document/2442/the-creation-of-trees>.



## Storying of Tangaroa, and Papatuanuku

'Topaka' - is another concept which could be identified through the utilisation of celestial identifiers such 'Topaka' = (the different parts of the sky). Some names which could be relevant are 'Autahi' = (red star at the end of "te ika o te raki" [milky-way]), 'Puaka' was his wife then went to 'Takarua' after 'Autahi' journeyed afar. 'Autahi' then became "te ariki o te ika o raki" (king of the milky-way). 'Mirimiri' is Jupiter or the evening star, 'Kopuparapara' is the morning star, 'Rehua' is the healing, while 'Matakōkiri' are the meteors. In sky lore 'Puaka' follows 'Matariki' by 2-3 weeks, where 'Ngakapa' shows the approach of 'Puaka' by 2-3 days. 'Takarua' comes in winter which is 'Makariri', 'Mirimiri' then rises and becomes 'Aotahi mā Rehua'. 'Awhiaorangi' or 'Āniwaniwa' is the rainbow and 'Matakōkiri' are the shooting stars. The board could look at this conceptually as naming quadrants or precincts or could look at seasons while threading through the previous identifiers outlined. This information was drawn from Beattie, J.H. (1994), Skylore.

## Whakaaro tuatahi / initial ideas

There are certainly relational concepts which can be used when considering the naming of buildings, outdoor areas and associated spaces. The relational concepts could be based on the premise of mana whenua relationships to place and historical use of natural resources (Mahinga Kai) listed in Table 1, Associated Traditional Uses, and a number of modern day ecosystem identifiers based on the geography of the area and are predominantly identified by S-Map Online.<sup>27</sup> These become helpful for plants to be keyed to landform units which associate soils,

<sup>27</sup> See <http://www.landcareresearch.co.nz/resources/data/s-maponline>



plants and animals to selected areas and which schools can draw upon to decide which plants to include within landscaping design.<sup>28</sup>

There are also key natural landscape features in the area that can be considered to inform school naming, and theming for example, existing local names or iconic or landscape names within the area, or others identified through consultation, or other traditional narratives available which can also be considered.

Principals, teachers, community and mana whenua should get together to undertake an initial hui/wananga on issues relating to ways to theme the schools. Ideas can be canvassed through the many ideas provided such as significant sites, landscapes, plants and animals associated to the location of the schools.

Along with this, the staff could develop ideas utilising the names of the waka or canoes of the 'great fleet', that could be used to unite people and provide for underlying cultural values, noting that waka are important symbols of Māori heritage and identity. These include: Aotea (Taranaki), Kurahaupō (Taranaki/Whanganui/Te Tau Ihu), Mātaatua (Whakatane/Tai Tokerau), Tainui (Waikato/Tauranga), Takitimu (Tai Rāwhiti/Te Waipounamu), Te Arawa (Rotorua) and Tokomaru (Taranaki). This could also include the potential of using waka names associated with Te Waipounamu and taking inspiration for entrance way design from the different parts of waka including the tauihu (prow), taurapa (stern), rauawa (gunwales) and hiwi or takere (hull).<sup>29</sup>

### **Te Waipounamu Waka**

As well as the waka of the great fleet, there are more specific waka that are known in Ngāi Tahu tradition that provide a better link to the local landscape and history, as well as still providing a link to the great fleet and linking to all the regions of Te Waipounamu/the South Island, as well as to Te Ika a Maui/the North Island. These include:

1. **Aoraki** (Te Waka o Aoraki/ the canoe of Aoraki) – this is an old name for the South Island and comes from some of the earliest traditions relating to the creation of the island and also associated with the creation of Aoraki/Mount Cook.
2. **Mahuunui** (Te Waka a Maui/the canoe of Maui) – another name for the South Island, from a later, northern tradition of the creation of both the South Island and the North Island – Te Ika a Maui. This is also the name of the wharenuī at Tuahiwi.
3. **Uruao** – the waka of Rākaihautū, leading ancestor of the Waitaha people and first explorer of Te Waipounamu. Rākaihautū is celebrated in a number of names in the area including Te Kete Ika a Rākaihautū (early name for Te Waihora/Lake Ellesmere) and Te Pātaka a Rākaihautū (Banks Peninsula).
4. **Arai-te-uru** – an early waka tradition associated with the central and southern South Island, particularly around Otago. The hills of South Canterbury and Otago are all named after crew members of this waka who turned to stone after failing to return to their waka before sunrise, along with their cargo of kumara and hue (gourds), immortalised as the Moeraki Boulders.

---

<sup>28</sup> Further advice can be requested through the Education Committee

<sup>29</sup> Adopted from Pauling, C. (2014) Te Kura o Ōtūmatua / Halswell School, Ideas and considerations for detailed design and naming.

5. **Takitimu** – a canoe of the great fleet, providing a link to the Pacific, and the tribes of the East Coast of the North Island. The Takitimu traditions are also linked to the traditions associated with the people of Rapaki in Whakaraupō/Lyttelton Harbour as well as the Murihiku region, where the waka ran aground and still lays as the Takitimu Range flanking the Waiau River Valley running into Te Waewae Bay, Southland.

6. **Tairea** – a canoe associated with the Tai Poutini / West Coast and the origins of pounamu, being the canoe of Tama ki te Raki, an early explorer.

7. **Makawhiu** – the canoe of Maka, son of Tūāhuriri who along with his brothers of Ngāi Tūhaitara lead the migration of Ngāi Tahu into Canterbury. It is noted in many stories associated with the migration and occupation around Banks Peninsula and provides a link to Ngāi Tūāhuriri at Tuahiwi and Ngāti Huikai at Koukourarata/Port Levy.

Again, these names could be considered as part of a naming and/or theming strategy as part of the detailed design process.



**Names and theming template - which relate to the Kupu tuku iho/Historically associated kōrero (further engagement with mana whenua is required to assist with input into this process)**

<p>School identified i.e. Aranui etc</p>	<p>Colour From existing brandings and incorporation of mana whenua branding colours and cultural identifiers</p>	<p>Naming options are based on parts of the narrative With consideration of Rational and Locality</p>	<p>Associated themes or creation stories or icon species can be utilised for buildings, breakout areas and key structures i.e.</p> <ul style="list-style-type: none"> <li>• Waka or canoes of the 'great</li> <li>• Topaka</li> <li>• Kai manu</li> <li>• Te Waipounamu Waka)</li> <li>• Awa kai/ika</li> <li>• Tāne Mahuta, god of the forest, with various deities,</li> <li>• Plants and māra kai</li> </ul>	<p>Other names which can be associated to the schools</p> <p><b>'whakatekataka'</b> is an archaic term meaning 'to create pride or to exhibit pleasure'</p> <p><b>'pakahi'</b> a water carrying vessel</p> <p>Other extracted identifiers indicated and in conjunction with mana whenua</p>
--	--	---	---	---

## Whakaaro anō / other ideas

To develop a coherent theme for the naming and detailed design of the schools it is important to think about the natural, cultural and historical significance of the area, as well as the design of the classrooms and school.

## Ngā Marohi / Recommendations:

The following section provides recommendations to assist further naming, theming, landscaping and final detailed design of Schools. It begins with a few general recommendations about the use of Te Reo Māori or bilingualism within the school. It also provides guidance on landscaping that reflects natural, cultural and historic values associated with the schools and the wider landscape.

### Bilingual name/signage/branding for Kaiapoi Schools cluster:

To encourage and increase the use of Te Reo Māori within the school and its community and to acknowledge the importance of both official languages of New Zealand as well as shared Māori and Pākehā heritage the rebuilt school should consider adopting a dual name (as well as bilingual signage throughout the school).

### Bilingual signage/Branding:

Generic bilingual signage and other branding would be important additions to the new school, to raise the profile and normalise the use of Te Reo Māori and the importance of New Zealand's bi-cultural heritage.

### Signage could include:

English	Te Reo Māori
Welcome to .....School	<i>Nau mai, haere mai ki Te Kura o .....</i>
Hall	<i>Whare-hui (plus specific name)</i>
Library	<i>Whare-pukapuka (could also have specific name)</i>
Office	<i>Tari (plus specific name for building/see below)</i>
Staff room	<i>Ruma-kaiako / Kāuta-kaiako /</i>
Learning centre	<i>Akomanga (generic) or Give each a specific name</i>
Carpark	<i>Tauranga-waka</i>
- Visitor (park)	<i>- Manuhiri</i>
- Courier (park)	<i>- Karere</i>
- Special needs (park)	<i>- Pararūtiki</i>
- Principal / Deputy Principal	<i>- Tumuaki / Tumuaki tuarua</i>
- Staff/Teacher	<i>- Kaimahi/Kaiako</i>
- Family	<i>- Whānau</i>
Playground	<i>Papa-tākaro</i>
Field/oval	<i>Ātea-purei or papa-purei</i>
Court (basketball/netball)	<i>Papa-utoka or papatau-pōro</i>
Courtyard	<i>Tahua / Ātea</i>
Toilet	<i>Wharepaku or Heketua</i>
- Male/Boys	<i>Tāne / Tama</i>
- Female/Girls	<i>Wāhine / Kōtiro</i>
Drinking fountains / taps	<i>Puna-wai</i>
Entrance/Gateway/Fence	<i>Waharoa (for main gate/entrance) / Kūwaha (for other gates/entrances) / Taiapa (fence)</i>
Path/Pathway	<i>Ara / huarahi</i>
Garden (vege)	<i>Māra-kai</i>
Raingarden	<i>Riu-uaua</i>
Stormwater basin	<i>Hāpua-āwhā</i>
Directions	
- North / East / South / West	<i>- Raki / Rāwhiti / Toka / Uru</i>

## Entrance way Design / Landscaping <sup>30</sup>

The detailed design of the entrance ways, incorporating any new Hall, Office and Car park area, will be an important feature of rebuild or remediation. There are a number of options for the inclusion of theming as well as naming and landscaping that can be considered. This includes:

- ✓ Te Aratika / Main Pathway - Consider specific treatment of the paving, to include a culturally inspired pattern, such as poutama (stairway – signifying the ascent to attaining knowledge).
- ✓ Consider the use of locally sourced materials within paving.
- ✓ Consider how the pathway area can be used for pōwhiri/welcoming and other significant events at the school (including senior graduation / procession etc) as both the Hall, internal courtyards offer appropriate spaces for pōwhiri, gathering and events.
- ✓ Te Waharoa / Main Gateway - Consider the development of a carved gateway that can depict local history.
- ✓ Consider other treatment of fencing at the main entrance and other entrance ways with appropriate symbolism drawn from local history.
- ✓ Ngā Pouwhenua /Carved Posts (or other vertical elements) - Consider the development of pouwhenua/carved posts or other vertical elements to depict, reflect and reinforce local history as well as representing the present and future make-up of the school and community. - Vertical elements can vary and carving can be very subtle, depicting not only Māori and European culture, but also including wider Polynesian, Asian as well as African culture/peoples – an important part of the modern school and community. Creating a pou or vertical element for each culture/region represented at the school as well as having uncarved posts (representing the future) could be considered.
- ✓ Ngā Tūtohu / Signage - Consider the development of signage for the entrance way that includes bilingual names as well as the potential for interpretation about the reasoning behind school designs etc
- ✓ Te Wharehui / School Hall and Te Tari / Office - Consider the use of window treatments – such as frosted stickers/etching, wall treatment/colouring/murals and other design features to incorporate symbolism into the School Hall and Office as they apply to the entrance and the formal use of the entrance area.
- ✓ Consider the retention and/or moving and reinstatement of existing flora within areas to provide a link to the ecotype and celebrating cultural values and local biodiversity.
- ✓ Tauranga Waka / Car Park - Consider the use of bilingual signage for parking spaces such as ‘MANUHIRI / VISITOR’ as well as dedicated spaces for staff etc.
- ✓ Whakaaro anō / Other - Consider the use of other elements including lighting, seating and artwork (as well as water features) that incorporate cultural symbols and celebrate local history, biodiversity and values. Playground design is another area for utilising cultural symbols and artwork.

---

<sup>30</sup> Also adopted from Pauling, C. (2014) Te Kura o Ōtūmatua / Halswell School, Ideas and considerations for detailed design and naming.

## Landscape Planting and Landscape Design <sup>31</sup>

Landscape planting and design is a key way to incorporate and celebrate cultural (as well as natural heritage and biodiversity) values within the schools. This can be achieved through the use of native plants, particularly those that are natural to the area and/or grew there in the past, as well as those that were gathered or have particular uses.

Plants with traditional uses provide an educational element to landscaping through potential for interpretation, and experiential learning. Plants with edible berries provide a further unique aspect to planting, while also providing food for native birds such as kererū (wood pigeon), tūi and kōparapara (bellbird) and encouraging these species back to the school and community.

### Bund Planting

Local native plants that would thrive on the bund and add to cultural and biodiversity values include:

Māori Name	Common Name	Scientific Name	Height/Colour/Uses
<b>Grass like</b>			
harakeke	flax	<i>Phormium tenax</i>	2-3m / Green with brown flower heads (korari) / Used for fibre / food / medicine
toetoe		<i>Cortaderia richardii</i>	1-2m / light green with light brown / white flower heads / Used for a variety of domestic uses (including in houses)
<b>Shrubs</b>			
kokomuka	hebe	<i>Hebe strictissima</i>	2m / bright green with white flowers / Generally used for medicine
mikimiki	coprosma	<i>Coprosma rubra</i>	2-4m / reddish brown colour with white berries / Berries eaten / good for birds
		<i>C. crassifolia</i>	2-4m / dark green with yellow berries / Berries eaten / good for birds
		<i>C. intertexta</i>	2m / Green with pale blue fruit / Berries eaten / good for birds
		<i>C. virescens</i>	pale green colour, 3m
kōwhai riki	dwarf kōwhai	<i>Sophora prostrata</i>	2m / Dark green/brown with orange- yellow flowers / unique to Canterbury
makaka	native broom	<i>Carmichaelia australis</i>	3-4 m / Light green with purple and white flowers / unique to Canterbury
manakura	shrubby mahoe	<i>Melicytus micranthus</i>	2 m / light green with dark purple berries
raukawa		<i>Raukawa anomalus</i>	3m / dark green with dark brown berries
<b>Medium Trees</b>			
kōwhai		<i>Sophora microphylla</i>	6-9m / Green with yellow flowers / seasonal marker / food of kererū
kānuka		<i>Kunzea reicoides</i>	9-15m / Green with white flowers / various domestic and medicinal uses
tī kouka	cabbage tree	<i>Cordyline australis</i>	4-12m / Green with white flower/seed bushels / Used for food (kauru)
kaikomako		<i>Pennantia corymbosa</i>	4-6m / dark green with white flowers & fruit / Used in firemaking / good for birds
whauwhaupaku	five finger	<i>Pseudopanax arboreus</i>	4-8m / glossy green with small brown fruit / attractive to birds
horoeka	lancewood	<i>Pseudopanax crassifolius</i>	3-5m / distinctive juvenile and adult forms / green with brown fruit / attractive to birds

<sup>31</sup> Also adopted from Pauling, C. (2014) Te Kura o Ōtūmatua / Halswell School, Ideas and considerations for detailed design and naming.

## Boundary Planting

Local native plants that would work well around the school boundary include those listed below, as well as those shown above for the bund planting:

### Large Trees

Māori Name	Common Name	Scientific Name	Height/Colour/Uses
kahikatea	white pine	<i>Dacrycarpus dacrydiodes</i>	24-48m / Green with red-orange berries / berries eaten, bark and wood used for medicine and dying / good for birds
mataī	black pine	<i>Prumnopitys taxifolia</i>	24m / brown with red berries / berries eaten and timber used / good for birds
pōkākā		<i>Elaeocarpus hookerianus</i>	6-12m / Green with white flowers and purple fruit / bark used for dying
tōtara		<i>Podocarpus totara</i>	24-30m / bright green with red berries / berries eaten and timber used for whare and waka / good for native birds
<b>Medium Trees/Shrubs</b>			
houhi	lacebark	<i>Hoheria angustifolia</i>	6-9m / Green with white flowers / Bark-fibre used for weaving
koromiko	hebe	<i>Hebe salicifolia</i>	5m / green with white flowers / used for medicine
manatū	ribbonwood	<i>Plagiathus regius</i>	6-9m / / Green with white flowers / Bark-fibre used for weaving
Ngāio		<i>Myoporum laetum</i>	3-9m / bright green with white flowers / used for medicine
porokaiwhiri	pigeonwood	<i>Hedycarya arborea</i>	6m / dark green with large orange-red fruit / popular food of kererū
tarata	lemonwood	<i>Pittosporum eugeniodes</i>	3-6m / light green with fragrant flowers / tree gum used as chewing gum/medicine

### Raingardens and Stormwater basins

The following native plants are suggested by Ignatieva, Meurk, van Roon, Simcock and Stewart 2008 for both raingardens and thin soiled (50-150mm) green roofs in Christchurch:

Pūrei / *Carex virgata*, *C. flagellifera*, *C. comans*, *C. testacea*, other short tussock sedges, mīkoikoi/NZ iris, tūrutu/inkberry, wiwi/rushes, oioi/*Apodasmia similis*, dwarf toetoe/*Chionochloa flavicans*, knobby clubbrush/*Ficinia nodosa*, wind grass/*Anemanthele lessoniana*, waiū/sea spurge/*Euphorbia glauca*, ninihi/sand convolvulus/*Calystegia soldanella*, mikimiki / *Coprosma propinqua*, sand coprosma, korokio/*Corokia cotoneaster*, shrub pōhuehue, scrambling pohuehue, mat pohuehue and tauhinu/*Ozothamnus leptophyllus*. *Crassula sieberiana*, *Zoysia minima*\*, *Oxalis exilis*\*, NZ St John's wort\*, *Acaena buchananii*\*, *A. microphylla*\*, *Cotula australis*, *Carex breviculmis*, *C. resectans*\*, *Geranium sessiliflorum*\*, *Gnaphalium audax*, Horokaka/NZ iceplant\*, onion-leaved orchid, sun orchid, sand convolvulus\*, *Convolvulus verecundus*, *Epilobium cinereum*, *E. nummulariifolium*, *E. rostratum*, sea spurge, *Haloragis erectus*, *Lachnagrostis spp.*\*, *Leptinella minor*\*, *L. serrulata*\*, NZ linen flax, blue tussock, *Deyeuxia avenoides*, plume grass\*, blue wheat grass, rice grass, *Poa lindsayi*, *P. imbecilla*\*, *danthonias*\*, *Dichondra brevifolia*\*, *D. repens*, adders tongue fern, *Gonocarpus aggregatus*, knobby clubbrush, *Stackhousia minima*, *Stellaria gracilentia*, mīkoikoi/NZ iris, scabweeds (*Raoulia australis*, *R. monroi*, *R. tenuicaulis*)\*, *Pyrrosia eleagnifolia*, *Einadia spp.*, *Helichrysum filicaule*, holy grass, NZ groundsels, pātiti/silver tussock, *Festuca actae*\*, *F. novae-zelandiae*, *F. coxii*, mat pohuehue\*, leafless pohuehue\*, *Coprosma atropurpurea*, *C. petriei* and *Leucopogon fraseri*.

Planting in and around storm water basins could also be considered using native wetland species as well as the following plants suggested by Ignatieva et al 2008:

### Shrubs and tussocks in a wet swale base

Oioi, NZ flax, toetoe, *Carex virgata*, umbrella sedge, *Juncus edgarae*, *J. sarophorus*, *Baumea* spp., *Coprosma propinqua*, marsh ribbonwood, karamu, weeping mapau and raupo (where bulk doesn't matter).

### Tress in dip and slope

Cabbage tree, ribbonwood, manuka, lacebark, kohuhu, broadleaf, karamu, kaikomako, kowhai, akeake and totara.

### Shrubs and tussocks (dry swale)

Wind grass, rushes (*Juncus distegus*, *J. australis*, *J. pallidus*), oioi, knobby clubrush, hunangamoho, koromiko, *Coprosma propinqua*, *C. crassifolia*, *C. virescens*, *C. rubra*, *Olearia bullata*, korokio, weeping mapou, kakaha/bush lily (*Astelia*), shrub pohuehue, NZ iris, inkberry and mountain flax.

### Mown swales

Cotulas including *Leptinella maniototo*, biddibid, pennywort, *Pratia* spp., *Plantago triandra*, *Gnaphalium* spp., NZ dock, mat coprosma species, mat pohuehue, *Oxalis exilis*, *Dichondra brevifolia*, *D. repens* and *Selliera radicans*.

### Courtyard/Classrooms, Entrance Way, Sports field and other areas

Considering the planting of particular native specimen trees (and/or retaining some of the existing native trees, including a number of medium sized tōtara) to sit alongside/with other exotic trees (both planned and existing) provides another opportunity to express bi-culturalism and even multiculturalism within the school. Good native specimen trees include:

Māori Name	Common Name	Scientific Name	Height/Colour/Uses etc
<b>Medium Trees/Shrubs</b>			
horoeaka	lancewood	<i>Pseudopanax crassifolius</i>	3-5m / distinctive juvenile and adult forms / green with brown fruit / attractive to birds
houhi	lacebark	<i>Hoheria angustifolia</i>	6-9m / Green with white flowers / Bark-fibre used for weaving
kōwhai	<i>Sophora microphylla</i>		6-9m / Green with yellow flowers / seasonal marker / food of kereru
porokaiwhiri	pigeonwood	<i>Hedycarya arborea</i>	6m / dark green with large orange-red fruit / popular food of kererū
raukawa		<i>Raukawa edgerleyi</i>	6m / Green scented flowers / Used traditionally as an aromatic
tītoki	NZ Ash	<i>Alectryon excelsus</i>	4-6m / distinctive green leaves with red and black fruit with seed / seeds used to make an oil for food and medicine
<b>Large Trees</b>			
karaka	NZ Laurel	<i>Corynocarpus laevigatus</i>	6-15m / dark green with large orange fruit / traditional seasonal marker
pāhautea	NZ Cedar	<i>Libocedrus bidwillii</i>	20m / cone shaped / cold hardy
pōkākā		<i>Elaeocarpus hookerianus</i>	6-12m / Green with white flowers and purple fruit / bark used for dyeing
tōtara		<i>Podocarpus totara</i>	24-30m / bright green with red berries / berries eaten and timber used for whare and waka / good for native birds
rimu	red pine	<i>Dacrydium cupressinum</i>	20-40m / distinctive dropping bronze branches/leaves with red fruit / Berries eaten/ timber and bark used for medicine and dyeing

A further more in-depth list is provided within Appendix 1 and details: species, anticipated mature size, characteristics, urban use, mahinga kai and rongoā values, other cultural values and customary uses and ecological values based on Taonga species. These are native plants of special cultural significance and importance to Ngāi Tahu.<sup>32</sup>

### **Additional information to assist planting/design**

The following links, references and organisation can provide further information to support to decisions around landscaping as well as sourcing plants and getting them in the ground:

#### **Planting Guideline's**

Insight Report: Streamside Planting in New Zealand Prepared for Rachel Barker, Greenspace 8 July 2005, This document contains: Links to relevant websites, Details of books and pamphlets on streamside planting and NZ native plants, Article abstracts and Full text articles

<http://resources.ccc.govt.nz/files/InsiteReportStreamsidePlanting-streamsideplanting.pdf>

To find out more about the plant species that existed in Christchurch before humans arrived see Christchurch Ecosystems and Planting Guides Indigenous ecosystems of Otautahi Christchurch, Sets 1- 4. Lucas Associates (available from Christchurch City Libraries) which is a good guide to Eco typing of differing landscape areas. <http://www.lucas-associates.co.nz/christchurch-banks-peninsula/christchurch-ecosystems/>

#### **Web Sites**

Christchurch City Council (2008) Biodiversity Strategy,

<http://www.ccc.govt.nz/thecouncil/policiesreportsstrategies/strategies/healthyenvironmentstrategies/biodiversity.aspx>

Christchurch City Council (2010) Ecological heritage sites,

<http://www.ccc.govt.nz/learning/educationforsustainability/naturalenvironment/ecologicalheritagesites.aspx>

Christchurch City Council, (Circa 2000), Nga Taonga O Nga Iwi,

<http://resources.ccc.govt.nz/files/TreasuredPlantsOfThePeople-naturalenvironment.pdf>

Christchurch City Council, (2005) Christchurch City and Lowland Canterbury, Streamside

Planting, <http://resources.ccc.govt.nz/files/StreamsidePlantingGuide-streamsideplanting.pdf>

University of Canterbury and Lincoln University Waterways Centre for Freshwater Management, All Resources > Waterway Restoration,

[http://waterways.ac.nz/Research\\_database/Database\\_operation/search.php?sub=55](http://waterways.ac.nz/Research_database/Database_operation/search.php?sub=55)

Environment Canterbury, Putting Biodiversity into our backyard,

<http://ecan.govt.nz/advice/biodiversity/pages/backyard-biodiversity.aspx>

- **Plants should be sourced locally at all times if practical**

---

<sup>32</sup> Adopted from Harris, N.K., et al, (2014) Planting Guidelines and in development.

## Ecosystem Services

This section includes Information on detailed landscape design and introduces the concept of Ecosystem Services (ES) and begins to explore what this concept might mean within the context of the detailed landscape design for any school rebuild or remediation.

### WHAT ARE ECO-SYSTEM SERVICES

Ecosystem Services = Nature's function + Value to Humans<sup>33</sup>

Ecosystem services are components of nature, directly enjoyed, consumed, or used to yield human well-being.<sup>34</sup>

Even though humanity is increasingly urban (e.g. 86% of New Zealanders live in urban areas<sup>35</sup>), people continue to depend on nature for our survival (e.g. oxygen, water, food) and well-being (e.g. green exercise<sup>36</sup>) which relates to the relational concepts of hauora (Māori health).

The concept of Ecosystems Services has emerged as a model for linking the functions in nature (e.g. pollination or pest management strategies) to human welfare (e.g. oxygen production, reductions in the use of carcinogenic (cancer causing) sprays. Given the increasing loss of biodiversity, it is critical that this relationship is recognised, understood and provided for within a wide-range of regional, national and international decisions.<sup>37</sup>

### The benefits people obtain from ecosystems include:<sup>38</sup>

PROVISIONING SERVICES – the products obtained from ecosystems, including, for example, genetic resources, food and fiber, and fresh water.

REGULATING SERVICES – the benefits obtained from the regulation of ecosystem processes, including, for example, the regulation of climate, water, and some human diseases.

CULTURAL SERVICES – the non-material benefits people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, recreation, and aesthetic experience, including, e.g., knowledge systems, social relations, and aesthetic values.

SUPPORTING SERVICES – Ecosystem services that are necessary for the production of all other ecosystem services. Some examples include biomass production, production of atmospheric oxygen, soil formation and retention, nutrient cycling, water cycling, and provisioning of habitat.

---

<sup>33</sup> Wratten, S., pers comms, 2015

<sup>34</sup> Boyd, J., & Banzhaf, S. (2007). What are ecosystem services? The need for standardized environmental accounting units. *Ecological Economics*, 63(2), 616-626.

<sup>35</sup> Source: stats.govt.nz (2006 Census).

<sup>36</sup> "Green exercise" refers to physical exercise (walking, cycling) undertaken in natural environments, and is now well recognised for providing physical and psychological health benefits. There is also good evidence that viewing, being in, and interacting with natural environments has positive effects: reducing stress, increasing the ability to cope with stress, reducing mental fatigue, and improving concentration and cognitive function. For more information see, for example, <http://www.greenexercise.org/>

<sup>37</sup> Fisher, B., Turner, R. K., & Morling, P. (2009). Defining and classifying ecosystem services for decision making. *Ecological economics*, 68(3), 643-653.

<sup>38</sup> source <http://www.greenfacts.org/glossary/def/ecosystem-services.htm>



## **URBAN ENVIRONMENTS**

Cities are dependent on the ecosystems beyond the city limits (e.g. watersheds for potable water), but also benefit from internal urban ecosystems<sup>39</sup> (c.f. green corridors/ecological 'stepping stones'<sup>40</sup>) as well as corridor connections and enhancing greening spaces with native bio diversity in mind.

Globally, there is growing concern that the exploitation of ecosystems and land use intensification is causing widespread declines in ecosystem condition. Nationally, there is an urgent need to develop evidence-based policy that takes ecosystem services and limits into account.<sup>41</sup>

## **THE CAMPUS**

To encourage greater awareness of the essential value that ecosystems provide humans, the notion of Ecosystem Services should be promoted as a primary design element of campus Landscape Design.

## **WHAT WOULD WE WANT TO ACHIEVE?**

The outcomes we seek are:

- a) HAUORA – Improved health & wellbeing (e.g. options for green exercise)
- b) MĀTAURANGA MAORI – Greater understanding and awareness of cultural & natural heritage values (eg interactive landscape design, innovative interpretation that speak to the benefits of appropriate native ecosystems and education)
- c) KAITIAKITANGA – More resilient environments (e.g. greater biodiversity; return of taonga/native species – plants, birds, bugs, bees etc.)
- d) MAHINGA KAI – increased availability of seasonal foods and natural resources (e.g. lacebark for weaving; rongoā / natural medicines) not restricted to traditional wild foods, but encompassing suitable introduced species too. The key consideration is “do they add value to our well-being”?
- e) TURANGAWAEWAE – a genuine and real presence of our culture within the landscape such that our children can see themselves and feel their culture “in their own school yard”.

NB: We do not seek or promote an exclusive 'indigenous' planting palette. We simply want to return our own natives to this landscape in a meaningful way.

---

<sup>39</sup> Bolund, P., & Hunhammar, S. (1999). Ecosystem services in urban areas. *Ecological economics*, 29(2), 293-301.

<sup>40</sup> “Green Corridors” refer to areas of habitat connecting wildlife populations separated by human activities or structures (e.g. roads, subdivisions, towns). Human activities and structures can split up and reduce natural habitat areas, causing animals to lose all of the resources they need to survive. Indeed, habitat fragmentation due to human development is an ever-increasing threat to biodiversity, and green corridors / ecological stepping stones are a possible mitigation. They allow for an exchange of individuals between populations, and can help facilitate the re-establishment of populations that have been reduced (eg kereru/native wood pigeon). For more information see, for example, <http://www.thenatureofcities.com/2014/10/05/do-urban-green-corridors-work>

<sup>41</sup> <http://www.landcareresearch.co.nz/science/portfolios/ecosystem-services>

## **WHAT THAT MIGHT MEAN “ON THE GROUND”**

We could view the landscape design as one of many exemplars by:

1. Promoting the adoption of the concept of "eco-system services" within the ecological fabric of the new built and green environment
2. Greater densities and higher percentages of native trees within the total campus area i.e. 80% native and 20% exotic
3. The feature trees around campus should be predominantly smaller forest trees within their plant community companionship's which have properties that attract and support native bio diversity
4. Rain gardens and swales should have plant community focuses (don't just plant for the sake of plantings sake think about their function and the story behind the function then becomes educational)
5. Inclusion of areas of gardens (mara) for sustenance and education within the grounds passive recreational areas and or adjacent to classrooms and or within dedicated areas
6. Inclusion of Pa harakeke which could best be located within the schools passive recreation areas and or close to the connections to any Reserve or park areas.
7. Returning indigenous biodiversity to this area:
  - That draws from plant and insect communities that used to be here and which can be attracted back into the area (e.g. korimako/bellbirds, tui, kereru/wood pigeon, etc.).
  - That utilises planting and landscape strategies that attract good insects which provide a service to humanity (e.g. butterfly gardens concept; bubble-bee hotels, gecko hotels etc.).
  - Providing learners, teachers and visitors with an opportunity for "green exercise".
  - Offering learners, teachers and visitors – particularly children and their whanau – a unique "outdoor classroom" experience that;
    - Focusses on our natural and cultural heritage.
    - Employs visual, aural, reading and kinaesthetic (VARK) means and mechanisms.<sup>42</sup>
    - Encourages children and their families to explore and learn more about ecosystems services.

---

<sup>42</sup> See, for example, the “Beginners Puzzle” from the Pegasus Bay Biodiversity Trail (attached at Appendix A).

## HOW TO GET THERE?

To facilitate these objectives, we encourage:

- a) Reference to other local, national & international examples like “Greening the Waipara”.<sup>43</sup>
- b) The in-depth categorisation of flora and fauna – including microclimate analysis – to consider the right plants to utilise within the spaces available and associated conditions (e.g. soil & shading). This should be done in conjunction with local experts.
- c) Consideration of new technologies and mediums like QR codes.<sup>44</sup>
- d) Developing a robust set of key performance indicators (KPIs) to help guide and track performance.

## DETERMINING “SUCCESS”

The benefits and outcomes of ES are multi-dimensional. To track the success of our endeavours, therefore, we suggest the development and utilisation of an appropriate range of indicators within the detailed design and implementation phases of the project. Cultural indicators, for example, will be informed by core Ngāi Tūāhuriri values, such as:

- ❖ manaakitanga [“care for a person's mana / holistic well-being],
- ❖ rangatiratanga [leadership],
- ❖ whanaungatanga [family ties, connecting with each other],
- ❖ tohungatanga [professionalism], and
- ❖ kaitiakitanga [stewardship],

## CONCLUDING REMARKS on Ecosystem Services

This section has looked to provide an insight into the notion of Ecosystem Services as it relates to landscape design and begin to explore what that might mean within the overall design.

We have identified the outcomes Tūāhuriri wishes to be realised through this project, and trust that they help inform and guide the design of the landscape areas so that it delivers a unique and exciting identity to the this project.

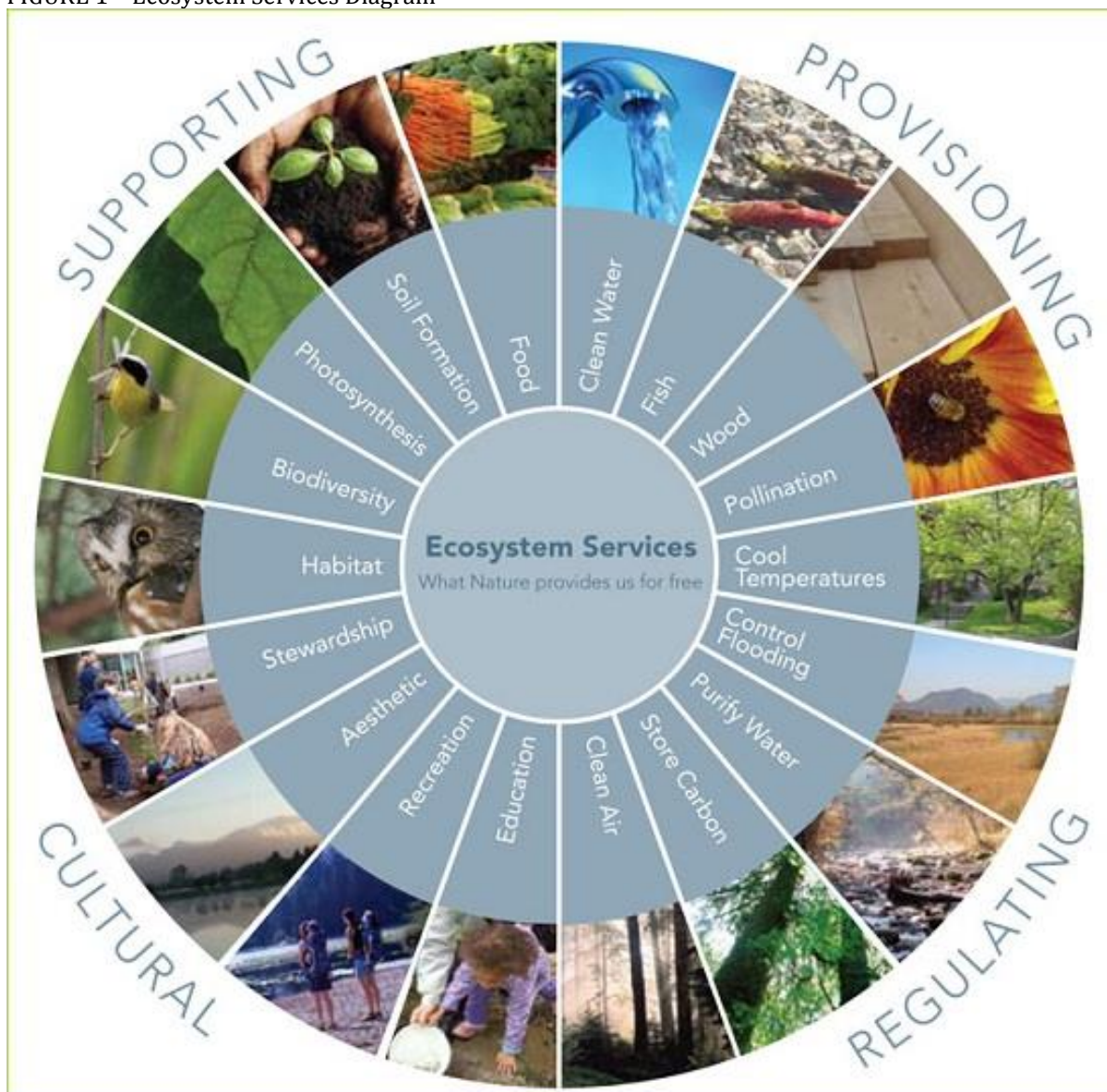
Local experts in Ecosystem Services and Ecology are more than happy to discuss these aspects of the design in greater depth. We hope this discussion provides a platform for further input if required.

---

<sup>43</sup> See <http://bioprotection.org.nz/research/programme/greening-waipara> for an example of industry innovation and uptake

<sup>44</sup> QR codes were originally designed for industrial uses, but have now become common in consumer advertising. Typically, a smartphone is used to scan the QR code and thereby access information that is stored on the web. They remove the need for a user to type search words into a web browser, and reduce the level of static storyboarding ‘in the campus grounds’.

FIGURE 1 – Ecosystem Services Diagram



Source: [www.metrovancouver.org](http://www.metrovancouver.org)

FIGURE 2 – Engaging Children: an example.

# GREENING WAIPARA Pegasus Bay Biodiversity Trail

## Beginner Puzzle

Discover animal homes and plants along the trail. Then, use the clues in each of the boxes to answer the question below.

### Question

This biodiversity trail shows how parts of the Waipara

\_\_\_\_\_ used to look in the past.

### Your answer

9 4 5 3 8 2 4 6 1 4 7

Take this sheet with your answer to the restaurant. If you are correct you will receive a prize. Now that you have done this puzzle, why not try the advanced one over the page?

#### CLUE 1

Grows rapidly so is good for re-vegetation. Has purple-black berries. (English name required.)



1

#### CLUE 2

Is food for native birds. Scented deep-purple flowers.



2

#### CLUE 3

You can make these for lizards to live in.



3

5

#### CLUE 4

Māori used their stems for spears and birds eat their fruit. (English name required.)



4

Use this letter in your answer above

#### CLUE 5

These insects live in rotten logs. They are deaf and nocturnal. (English name required.)



5

#### CLUE 6

Fast growing tree that slows down the spread of fires.



6

INFORMATION ONLY - PEGASUS

#### CLUE 7

Has lots of thorns. Honey is made from its flowers. (Māori name required.)



7

#### CLUE 8

Was used to make fishing lines, ropes and mats. Grows easily and is a nectar source for birds and bees. (Māori name required.)



8

#### CLUE 9

Silver coloured grass, found in dry and coastal places. Grasshoppers live in it. (English name required.)



9

McGregor's

There is also a biodiversity trail at Torlesse Wines that is well worth a visit.



Landcare Research  
Manaaki Whenua



Lincoln University



PEGASUS BAY  
BIOLOGICAL RESERVE



## **Environmental standards:**

These standards are developed to inform the building services approach which sets precedents for sustainable buildings and provides recommendations on building performance approaches that reflect Ngāi Tahu environmental values.

Practical interpretations of Ngāi Tahu environmental values are relevant to building performance standards and green space/public realm design.

The Mauri Model Decision Making Framework – A Tikanga Māori Framework for Sustainable Design provides us with an assessment guide to better understand the degree to which design proposals might align with Ngāi Tahu values and aspirations. As demonstrated by the House of Tahu project and Te Hononga (Christchurch Civic Building), Ngāi Tahu wants to support and promote sustainable developments.

Whilst in the past, there has been a dearth of culturally based methods for assessing sustainability; the Mauri Model assessment tool (and those similar) provides a potential option to better measure design proposals against Ngāi Tahu environmental and cultural values. Awatere (2008) has adapted the Mauri Model framework to create a broad evaluation tool to assist the assessor of any proposal to evaluate a development or activity against values framed within a Mātauranga Māori environmental context.<sup>45</sup> The tool demonstrates in a practical sense how mātauranga Māori, and in this case – mātauranga Ngāi Tahu - can inform environmental design standards for the new school.

House of Tahu – Cultural Sustainability/Assessment criteria is a Cultural Sustainability Assessment undertaken In 2006, by Te Rūnanga o Ngāi Tahu in relation to the development of a proposed tribal headquarters building to be built within the Christchurch City centre (Pauling & Morgan, 2006)<sup>46</sup>.

This development is known as the House of Tahu and the proposed site was the site of the former King Edward Barracks (on the block bounded by Durham Street, Hereford Street, Cashel Street and Montreal Street). The site proposed for House of Tahu has some proximity to the site for the Precinct and, we would posit, raises some similar environmental and cultural issues in terms of design (less so for function). The House of Tahu assessment involved a review of relevant tribal policy, planning, design, interview and survey information. As well as the facilitation of a cultural design assessment workshop, using the Mauri Model. Issues identified by Ngāi Tahu as critical for the development of House of Tahu, included those relating to:

- manawhenua inclusion
- water management
- waterway, mahinga kai and wāhi tapu protection and enhancement, and
- the restoration of cultural landscapes.

---

<sup>45</sup>See Awatere, S., 2012. Building Mana Whenua Partnerships for Urban Design. Lincoln: Landcare Research , Awatere S, Pauling C, Hoskins R, Rolleston S 2008. Tū Whare Ora: an assessment tool for papakāinga. Hamilton: Landcare Research & Awatere, S., Harmsworth, G., Rolleston, S., Pauling, C., Morgan, T. K. K. B., & Hoskins, R. 2011. Kaitiakitanga o ngā ngahere pōhātu: Kaitiakitanga of urban settlements. Lincoln: Landcare Research.

<sup>46</sup>Pauling, C. & Morgan, K. 2006. Te Kaupapa o Te Whare - House of Tahu Cultural Sustainability Assessment. Christchurch: Ngāi Tahu Property Ltd



Current Ngāi Tahu policy positions also support an aspiration for urban developments to decrease the overall impact on existing infrastructure, and to find and implement alternative, low impact and self-sufficient solutions for water, waste, energy and biodiversity issues. Solutions specifically mentioned within Ngāi Tahu environmental policy (Te Rūnanga o Ngāi Tahu, 2007), as well as at the House of Tahu assessment workshop included:

- the use of composting or waterless toilet/sewage systems
- rainwater collection and grey water recycling
- land or wetland based storm water and sewage treatment and disposal systems
- solar or wind based energy generation, and
- the protection and enhancement of native flora, fauna and habitats, with a focus on potential mahinga kai and cultural use.

The issue of restoring cultural landscapes through native restoration, enhancing views and connections to landscape features, historical interpretation and the use and incorporation of traditional materials, design elements and artwork within developments were also outlined. The Cultural Sustainability Review for the House of Tahu (2006) identified a list of Ngāi Tahu cultural sustainability indicators that provide a checklist for guiding future urban design, including remediation and anchor projects. These indicators, like Awatere's, include:

- Ngā Wai Tūpuna (ancestral waters): Protection of natural waterways and the appropriate use/reuse, treatment & disposal of water (particularly onsite and/or land based systems for storm water, grey water and wastewater).
- Ngā Otaota Māori (indigenous habitats): Protection & enhancement of native flora, fauna, habitats and ecosystems, particularly waterways & wetlands).
- Wāhi Tapu/Taonga (sites of significance): Acknowledgement, protection, interpretation and enhancement of culturally significant sites.

## **Assessment Tool kit**

A toolkit was developed from "*An Example of Modern Māori Learning Environments, A Ngāi Tūāhuriri Perspective, New Brighton Schools Merger, Cultural Identifiers*" to provide a strategic overview and to assist schools within the Ngāi Tūāhuriri Takiwā to identify with and provide for the relationship of mana whenua within the remediation and rebuild process. It builds on the environmental standards discussed within the previous section.

It must be noted that the New Brighton School merger is an exemplar and specific to the general location of the school, mana whenua and localised environments.

The toolkit has been designed so it can be adopted and adapted by further Hapū of Ngāi Tahu to utilise and who may be faced with school remediation's and rebuilds within their Takiwā.

Reference to relevant Iwi Management Planning Documents have also been included within the toolkit. This provides a further layer of considerations to the relevant Government, Governance Boards and Design Teams when considering planning for remediation and rebuilds.

The toolkit has been developed into a matrix format see Appendix 2 and builds on and includes content and excerpts from the original exemplar. References to the identified hapū and takiwā from the exemplar are excluded for the specific purpose of developing a generalised template for use by other hapū specific to their own area.

The toolkit has the function of indicating the main issues and values from a mana whenua perspective. How those issues and values can be threaded into the process of engagement, preliminary and detailed design phases, through to implementation and the build phases of the school remediation or rebuild are also included where applicable. Place specifics, issues and values are for the mana whenua of their particular takiwā to indicate. Further reference to whom and how to engage with are also provided.

The toolkit matrix includes:

Considerations to identify	Key steps to take	Identifiers to consider	Potential themes to include
They are designed to indicate why the school should engage	They are designed to indicate how the process can be undertaken	They are designed to give the details of what to consider and include in the preliminary and detailed design phases	They are designed as a list of potential topics which can be drawn upon to include within the overall design
<b>Evaluation and assessment criteria</b> <b>Designed as a checklist against mana whenua values and issues</b>			

To summarise getting mana whenua involved in co-construction of the implementation of plans with the Ministry of Education (MOE) including helping with new build schools and schools with major remediation or redevelopment is a critical component in demonstrating relationships built on partnership and good faith. A partnership that is culturally inclusive in building design, and around storying (or narratives) of flora and fauna from a mana whenua perspective demonstrates a positive move towards and maintaining the partnership principles of the Treaty of Waitangi and in turn reflects authentic new learning environments post-earth quake.

The opportunity to influence the design also shows partnership through threading the history and storying of the mana whenua into the fabric of the school. ‘What is this place and what happened in this place’ with regard to their journeying and settlement to the area informs the inquiry of how to best co-partner with the place and its inhabitants.<sup>47</sup>

---

<sup>47</sup> Harris, N.K. (2014) Assessment toolkit from “An Example of Modern Māori Learning Environments, A Ngāi Tūāhuriri Perspective, New Brighton Schools Merger, Cultural Identifiers”



## **Whakamutunga / Conclusion**

This document provides a range of ideas to assist with incorporating cultural values, and specifically Te Ngāi Tūāhuriri / Ngāi Tahu values into the detailed design and ongoing development of the Kaiapoi Schools.

These ideas include suggestions for the:

- Naming, theming and bilingual signage for the School;
- Appropriate suggestions for Māori names for the schools and any new buildings;
- Cultural design ideas of entrance way area; and
- Native landscape planting for the bund, boundary, rain gardens and other areas around the school.

The document also includes links and references for further reading and support for the ideas provided.

A key next step would be to discuss these ideas, refine and/or decide on those that may be taken forward and engage with Te Ngāi Tūāhuriri Rūnanga to get their further feedback and support for development/implementation.

Considering this is an initial scoping exercise it will be necessary for the schools to further engage with the Te Ngāi Tūāhuriri Education Committee who will provide guidance, education and support. They will also identify mana whenua experts who can be engaged with to provide further Māori language, environmental, architecture, landscape and cultural advice into any detailed designs.

## **Disclaimer**

*Prepared for the Board of Trustees by Nigel Harris*

*On Behalf of Ngāi Tūāhuriri Education Committee©*

**Disclaimer and Limitations:** Limitations are based on the scope of the report and multiple layers available and regionally specific interpretations. Although the author has made every effort to ensure that the information in this report was correct at this time, the author does not assume and hereby disclaim any liability to any party for any loss, damage, or disruption caused by errors or omissions, whether such errors or omissions result from negligence, accident, or any other cause.

This report is also for the internal use only and is subject to copyright with permission of the author and the Ngāi Tūāhuriri Education Committee and DK Lodge Holdings Limited required for any re-use of its content.

This report was generated through a series of literature searches, external discussions with historian, archival searches, web based searches for relevant information and use of design ideas based on existing in-depth knowledge of environment, mahinga kai and mana whenua association to the area.

## Appendix 1 Taonga species are native plants of special cultural significance and importance to Ngāi Tahu.

In depth native species for Schools						
NOTE: Taonga species are native plants of special cultural significance and importance to Ngāi Tahu.						
SPECIES	ANTICIPATED MATURE SIZE	CHARACTERISTICS	URBAN USE	MAHINGA KAI and RONGOĀ VALUES	OTHER CULTURAL VALUES and CUSTOMARY USES	ECOLOGICAL VALUES
<b>Large Trees</b>						
Hinau <i>Elaeocarpus dentatus</i>	H-5m-10m (in cultivation) w-3m-5m	-Lowland forest tree -Attractive tidy canopy tree -Slow growing -Can be temperamental	-Sheltered wet low lying areas. - Ecological restoration such as pockets of forest or naturalised areas within an urban environment.	-Rongoa: bark steeped in a hot bath for skin illnesses. Fruit was made into a gruel through boiling for general recovery from illness. -Kai: edible berries. -Craft uses: mordant to make black dye.	-Ngāi Tahu taonga species. <sup>48</sup>	-Flowers and berries provide kai for native manu -Tall forest canopy tree for bird life and movement -High ability to sequester carbon
Kahikatea White pine <i>Dacrydium dacrydioides</i>	H-9m-12m (in cultivation) W-4m	-Attractive large canopy tree with straight trunk -Does not reach full forest size in cultivation -Must grow in damp soil -Slow growing	-Low-lying damp areas. - Ecological restoration such as pockets of forest or naturalised areas within an urban environment.	- Kai: edible summer berries. Fleshy aril or koroī is edible. -Rongoa: leaves used to treat kidney and other urinary problems. Boiled leaves can be applied to bruises. -Craft uses: wood used for bird spears	-Soot obtained from burning the heartwood supplied pigment for ta moko. -Considered rākau rangatira (chiefly tree) -Ngāi Tahu taonga species	-High ability to sequester carbon -Flowers and berries provide kai for native manu -Tall forest canopy tree for bird life and movement
Matai Black pine <i>Prumnopitys taxifolia</i>	H-10-20m (in cultivation) W-6m	-large lowland forest tree Slow growing	-ecological restoration such as pockets of forest or naturalised areas within an urban environment.	-Kai: edible summer berries. Sap was drunk...Matai beer. -Rongoa: sap of the tree used as a disinfectant of consumption. -Craft and building uses: fine grained timber used for carving, building, musical instruments, cooking vessels and hunting spears.	-Sometimes acted as markers of mahinga kai sites -Considered rākau rangatira (chiefly tree) -Ngāi Tahu taonga species	-Flowers and berries provide kai for native manu -Tall forest canopy tree for bird life and movement -high ability to sequester carbon
Totara <i>Podocarpus totara</i>	H-10m (in cultivation)	-Attractive large canopy tree with straight trunk	-Attractive formal street tree	-Kai: edible berries -Rongoa: leaves boiled with	-Considered rākau rangatira (chiefly tree).	-Flowers and berries provide kai for native manu

<sup>48</sup> Ngāi Tahu Claims Settlement Act 1998, Section 288 Special association with taonga species acknowledged. The Crown acknowledges the cultural, spiritual, historic, and traditional association of Ngāi Tahu with the taonga species. See appendix 1 from s 287, Schedule 97, Taonga species,.

	W-6m	-Does not reach full forest size in cultivation -Slow growing	-Feature tree in open reserve areas. -Ecological restoration.	mānuka to treat scurvy and reduce fever. -Building uses: Highly valued for timber-straight strong but soft timber was carved for waka and carving.	- Ngāi Tahu taonga species	-Tall forest canopy tree for bird life and movement -High ability to sequester carbon. -Can grow in damp or dry soils
<b>Medium to Small Trees</b>						
Horoeke Lancewood <i>Pseudopanax crassifolius</i>	H-5m W-3m	-Architectural juvenile form which lasts for 10 plus years. -Adult form is a small canopies tree	-Planted in clusters within a street garden setting or street tree. -Planted in clusters with other natives in a naturalised setting.			-Flowers provide kai for native manu and bees.
Houhi puruhi Narrow leaved lacebark <i>Hoheria angustifolia</i>	H-5-6m W-2m	-Open delicate appearance -Narrow upright elongated form -Very hardy	-Small spaces such as narrow berms. -Grouped informally with other natives - Delicate dappled texture -A good screening tree	-Craft uses: inner bark had lace like qualities, used to make purses, kete. -Rongoa: infusion of bark taken for colds, or jelly for sore eyes.	-Ngāi Tahu taonga species	-Flowers provide kai for native manu. -Shading to waterways.
Kapuka Broadleaf <i>Griselinia littoralis</i>	H-3-5m W-3-4m	Large shrub, small tree -shrubby neat compact form -Attractive large glossy green leaves	-Screening, hedging -Backdrop species against a wall. -Planted with other natives in a naturalised setting. -Can be clipped to desired shape.	-Rongoa: inner bark used on scrofula and venereal disease. -Building uses: Timber was known for its durability. -Kai: edible fruit although very bitter.	-Ngāi Tahu taonga species	
Kanuka <i>Kunzea ericoides</i>	H-5-8m W-3-4m	-Tall, open formed tree -Attractive trunk and branch system	-Best within an ecological setting with other natives. -Planted in clusters to create an urban forest aesthetic -Attractive floral display around Christmas time.	-Rongoa: leaves infused to make a tea to treat kidney and bladder complaints and reduce fever in children. The seeds were chewed for stomach complaints. Extract of the oil has antibiotic / anti-viral qualities. Also used for breathing difficulties such as asthma, hay fever and sinuses; and an effective remedy against intestinal parasites. -Kai: tea -Craft uses: hard timber was used for weapons, digging tools, waka paddles and many more items. -Building uses: Inner bark	-Highly valued taonga species due to its multiple uses	-Flowers provide kai for native manu and bees -Colonising species -Can grow in dry conditions

				used for weather proofing dwellings.		
Kohutu / rautawhiri <i>Pittosporum tenuifolium</i>	H-4m-5m W-3m	-Large shrub, small tree -Shrubby compact form. -Attractive light green colour. delicate texture -Fast growing.	-Screening, hedging -Backdrop species against a wall -Planted with other natives in a naturalised setting. -Can be clipped to desired shape	-Rongoa: gum used in making scents. Resin mixed with puha and chewed for bad breath and saw gums. Also used for skin diseases.	-Branches used by tohanga in ceremonial proceedings such as birth or lifting of tapu. Also used to beckon manuhiri onto the marae. -Ngāi Tahu taonga species	-Flowers and berries provide kai for native manu and bees
Kotukutuku Tree fuschia <i>Fuchsia excorticata</i>	H-3-6m (up to 15m in the bush) W-3-4m	-Deciduous -Canopy tree. -Attractive flowers.	-Plant with other natives -Stream and river banks -Perching islands within green corridors.	-Kai: edible purple berries, taste like tamarillo.	-Ngāi Tahu Taonga species	-Honey like nectar and berries are very attractive to native manu.
Kowhai <i>Sophora microphylla</i>	H-6-7m W-3-4m	-Attractive open canopy tree. -Massive display of yellow flowers during Spring.	-Small open canopy street tree. -Raingardens -Biofiltration swales (along the higher edges) -looks attractive planted in informal clusters. Stream / river edge. Ecological enhancement planting. -Can establish in confined growing conditions such as tree pits.	-Rongoa: used for itch and other skin diseases. Most of the tree can be used for rongoa practices. -Craft uses: yellow dye from the leaves. Wood is very durable, used for fencing.	-Flowers mark the time for planting kūmara. -Ngāi Tahu taonga species	-Flowers provide kai for native manu. -Shading of waterways. -Con handle damp or dry conditions
Mānuka <i>Leptospermum scoparium</i>	H-3-4m W-2-3m	-Bushy large shrub small tree. -Fast growing. -Suffers from sooty mould / mānuka blight.	-Planted in clusters with other natives in ecological restoration or enhancement areas. -Raingardens -Not suitable where clear sightlines are required.	-Rongoa: leaves infused to make a tea to treat kidney and bladder complaints and reduce fever in children. The seeds were chewed for stomach complaints. Extract of the oil has antibiotic / anti-viral qualities. Also used for breathing difficulties such as asthma, hay fever and sinuses; and an effective remedy against intestinal parasites. -Kai: tea -Craft uses: building such as fencing. Inner bark used for weather proofing dwellings.	-Highly valued Ngāi Tahu taonga species due to its multiple uses	-Flowers and provide kai for native manu and bees. -Fast growing colonising species.
Manutu Ribbonwood <i>Plagianthus regius</i>	H-5-6m W-2-3m	-Airy open delicate appearance. -Upright form.	-Raingardens -Biofiltration swales -Confined spaces such as			-Flowers and provide kai for native manu and bees -Fast to establish.

		<ul style="list-style-type: none"> <li>-Very hardy.</li> <li>-semi deciduous</li> <li>-fast growing</li> </ul>	<ul style="list-style-type: none"> <li>tree pits</li> <li>-Grouped informally with other natives</li> <li>- Delicate dappled texture</li> <li>-Can grow in confined conditions</li> </ul>			<ul style="list-style-type: none"> <li>-Shading to waterways.</li> <li>-Can grow in damp conditions</li> </ul>
Mapou <i>Myrsine australis</i>	H-3-5m W-2m	<ul style="list-style-type: none"> <li>-Small tree large shrub.</li> <li>-Fresh green leaves, red tinges with wavy edges</li> </ul>	<ul style="list-style-type: none"> <li>-Grouped informally with other natives.</li> <li>-Used in restoration plantings.</li> </ul>	<ul style="list-style-type: none"> <li>-Rongoā: boiled leaves to make tea for toothache and cleaning teeth.</li> <li>-Craft: The branch wood was used for digging sticks and adze handle sockets.</li> </ul>	-Ngāi Tahu taonga species	<ul style="list-style-type: none"> <li>-Berries highly attractive to native manu.</li> <li>-Native restoration planting.</li> </ul>
Ngāio <i>Myoporum laetum</i>	H-3-6m W-3-4m	<ul style="list-style-type: none"> <li>-Small rounded tree.</li> <li>-Poisonous to farm animals.</li> </ul>	<ul style="list-style-type: none"> <li>-Grouped informally with other natives.</li> <li>-Used in restoration plantings.</li> <li>-Can tolerate dry exposed conditions.</li> <li>-Provides shelter.</li> <li>-Fast growing.</li> <li>-Not suitable where clear sightlines are required unless pruned.</li> </ul>	<ul style="list-style-type: none"> <li>-Rongoā: Inner bark rubbed on gums and chewed for dental problems. Inner bark applied to skin disease, juice extracted and applied to sores.</li> <li>-Kai: berries are edible.</li> <li>-Other: Juice from leaves used as insect repellent for sand flies and mosquitoes</li> </ul>	-Ngāi Tahu taonga species	<ul style="list-style-type: none"> <li>-Flowers and provide kai for native manu and bees.</li> <li>-Berries provide kai for manu.</li> <li>-Native restoration planting.</li> </ul>
Ponga Silver tree fern <i>Cyathea dealbata</i>	H-10m W-5-8m	<ul style="list-style-type: none"> <li>-Tree fern</li> <li>-Highly attractive iconic tree.</li> <li>-Provides soft dappled light and texture.</li> </ul>	<ul style="list-style-type: none"> <li>-Plant amongst other natives for protection from wind and frost.</li> <li>-Stream and river margins.</li> </ul>	<ul style="list-style-type: none"> <li>-Rongoā: Pith used to make poultice, skin disease.</li> <li>-Craft: trunks used in building whare.</li> </ul>	-Ngāi Tahu taonga species	<ul style="list-style-type: none"> <li>-Native restoration planting.</li> </ul>
Tarata Lemonwood <i>Pittosporum eugenoides</i>	H-6m W-4m	<ul style="list-style-type: none"> <li>-Bushy tree</li> <li>-Requires canopy lifting to create canopy form.</li> </ul>	<ul style="list-style-type: none"> <li>-Street tree (if canopy lifted)</li> <li>-Attractive when used in informal setting with other natives.</li> </ul>	<ul style="list-style-type: none"> <li>-Rongoa: leaf infused in hot water for drinking. Good for rheumatism, sore throat and can be used as an antiseptic.</li> <li>-Kai: young tap root (kauru) was highly prized as a sugary food source. Growing tip is also edible.</li> <li>-Rongoa: eating of the shoots helped to prevent scurvy.</li> <li>-Craft uses: The fibrous leaves were used in weaving.</li> <li>-Timber was fireproof, so was used by settlers to line fireplaces.</li> </ul>	-Ngāi Tahu taonga species	<ul style="list-style-type: none"> <li>-Flowers and provide kai for native manu and bees</li> <li>-Native restoration planting</li> </ul>
Ti kouka Cabbage tree <i>Cordyline australis</i>	H-6m-10m W-2m -3m	<ul style="list-style-type: none"> <li>-Distinctive form</li> <li>-Very hardy</li> <li>-Deep tap root-stable</li> <li>-Drops large leaves.</li> </ul>	<ul style="list-style-type: none"> <li>-Formal medium to small street tree</li> <li>-Feature tree</li> <li>-Planted in clusters with other natives in ecological restoration or enhancement areas</li> <li>-Raingardens</li> <li>-Biofiltration swales.</li> <li>-Wetland restoration / stormwater ponds.</li> </ul>	<ul style="list-style-type: none"> <li>-Kai: young tap root (kauru) was highly prized as a sugary food source. Growing tip is also edible.</li> <li>-Rongoa: eating of the shoots helped to prevent scurvy.</li> <li>-Craft uses: The fibrous leaves were used in weaving.</li> <li>-Timber was fireproof, so was used by settlers to line fireplaces.</li> </ul>	<ul style="list-style-type: none"> <li>-Highly valued by āTahu as a taonga species.</li> <li>-Planted as landscape markers</li> <li>-To locate sites of significance and give direction.</li> <li>-The flowers of Ti would signal how the summer was going to be for kaura harvesting.</li> </ul>	<ul style="list-style-type: none"> <li>-Flowers and berries provide kai for native manu and bees.</li> <li>-Erosion control</li> </ul>
Whauwhaupaku Fivefinger <i>Pseudopanax</i>	H-4-5m W-2m	<ul style="list-style-type: none"> <li>-Small tree, large shrub.</li> <li>-Fast growing, hardy.</li> <li>-Glossy large leaves.</li> </ul>	<ul style="list-style-type: none"> <li>-With other natives in ecological restoration planting or amenity</li> </ul>	<ul style="list-style-type: none"> <li>-Craft uses: Khaki dye, The gum, pia houhou, used in join of water vessel to prevent</li> </ul>		<ul style="list-style-type: none"> <li>-Fast growing species, ideal for native restoration planting.</li> <li>-Berries provide kai for native</li> </ul>

<i>arboreus</i>			planting against a wall where busy growth habit will not cause sightline issues.	leakage. Small logs stripped of their bark made slippery skids to move heavy canoes.		manu.
<b>Shrubs</b>						
Akeake <i>Dodonaea viscosa</i>	H-3-6m W-2m	-Large bushy shrub	-With other natives in ecological restoration planting or amenity planting against a wall where busy growth habit will not cause sightline issues. -shelter, screening	-Rongoā: externally for burns and scalds, internally to reduce fever. Leaves chewed for toothache. -Craft uses: Durable timber, used for rods and handles.		-Coastal and hill side species. -Fast growing species, ideal for native restoration planting. -Very drought tolerant.
Horopito <i>Pseudowintera colorate</i>	H-2m W-1-2m	-Large bushy shrub -Distinctive red mottled leaves. -Provides colour	-Planted in clusters with other natives in ecological restoration or enhancement areas. -Will need to be pruned where clear sightlines are required.	-Rongoā: leaf is chewed then, applied to wounds, which heal rapidly. Leaves also were chewed to relieve toothache	-Small branches were sometimes used by the tohunga to lift tapu.	-Native restoration planting.
Karamu <i>Coprosma robusta</i>	H-2-4m W-2m	-Large bushy shrub or small tree. -Fast growing	-Planted in clusters with other natives in ecological restoration or enhancement areas. -Not suitable where clear sightlines are required.	-Rongoa: leaves compressed can be applied to relieve pain and aches. Sap applied to treat scabies.	-Branches used in traditional ceremonies. -Ngāi Tahu taonga species	-Colonising species -Enriches soil with nitrogen -Flowers and berries provide food for native manu
Karamu Shining karamu <i>Coprosma lucida</i>	H-3-4m W-2-3m	-Large bushy shrub or small tree. -Fast growing -Glossy green leaves, attractive orange berries	-Hedging -Shelter -Planted in clusters with other natives in ecological restoration or enhancement areas. -Not suitable where clear sightlines are required.	-Rongoa: leaves compressed can be applied to relieve pain and aches. Sap applied to treat scabies.	-Ngāi Tahu taonga species	-Colonising species -Enriches soil with nitrogen -Flowers and berries provide food for native
Koromiko <i>Hebe salicifolia</i>	H-1.5m -2m W-2m	-Large shrub with white attractive flowers.	-Ecological enhancement plantings. -Use smaller growing cultivars such as 'Snow Caps' for a more compact and tidy form.	-Rongoa: vapour baths; leaves used as a poultice for ulcers; liquid from boiled leaves used as a gargle; cure for diarrhoea and dysentery.	-Ngāi Tahu taonga species	-Colonising species -enriches soil with nitrogen -Flowers provide food for native manu and bees
Mikimiki <i>Coprosma propinqua</i>	H-1-2m W-1m	-Divaricating shrub.	-Amenity shrub gardens. -Stream / river edges planted in clusters with other natives in ecological restoration or			

			enhancement areas.			
Pale green coprosma <i>Coprosma virescens</i>	H2-3m W-1-2m	-Divaricating shrub. -Attractive orange coppery coloured branches.	-Amenity shrub gardens. -Hedging - Planted in clusters with other natives in ecological restoration or enhancement areas.			-Tolerant of poor / dry conditions.
Pikopiko Shield fern <i>Polystichum richardii</i>	H-1-2m W-1-2m	-Small to medium fern.	-amenity planting. -can be difficult to establish, requires shelter.	-Kai: young fond shoots are eaten.		
Pohuehue <i>Muehlenbeckia astonii</i>	H-1-2m W-1m	-Divaricating attractive shrub.	-very hardy, can tolerate dry soils. -amenity shrub gardens. -informal hedging - planted in clusters with other natives, provides texture.	-Kai: edible small berries.		
<b>Grasses, perennials and small ferns</b>						
Aruhe bracken <i>Pteridium esculentum</i>	H-1-2m W-1-2m	-Medium sized fern.	-this is an aggressive species so is best suited to large ecological restoration areas where it has room to develop.	-Rongoā: The root was boiled or baked to cure diarrhoea. Tender shoot eaten to cure dysentery. -Kai: the root was a very important source of carbohydrate for Ngāi Tahu pre European arrival. The root was sometimes sweetened with tutu juice -Craft and building uses: Fronds used to line floor of storage pits.	-Highly valued Ngāi Tahu taonga species. -Aruhe was cultivated on mass in pre European times.	-Fast growing colonising species. -Very hardy to a range of conditions.
Harakeke <i>Phormium tenax</i>	H-2m W-2m	-Tall shrub with sward like leaves. -Attractive bronze flower spikes.	-Stream / river edge. -ecological restoration areas. -Rain gardens, bio-filtration swales and wetlands.	-Craft uses: contain one of the strongest natural fibres known. Leaves and fibres (moka) are used for weaving kete, clothes, rope and fishing nets. -Rongoa: juices from the root were used for skin problems such as boils. Gum from flax used to stuff into a hole in the tooth for toothache. -Kai: nectar from the flower is edible and was used as a	-Ōtautahi was once a rich source of harakeke which enabled the flax trade. -Highly valued Ngāi Tahu taonga species	-Flowers provide food for native manu and bees.



				sweetener. -Building uses: Travelling parties carried flax to tie the sticks and bind the thatching for pahuri, rough shelters.		
Kakaha <i>Astelia fragrans</i>	H-1m-1.5m W-1m	Sward like leaves.	-planted in clusters as an ecological enhancement species. -raingardens and bio-filtration swales	-Craft uses: incorporated into weaving to give different hues.		-Hardy species -Wet or dry habitats -Produces a fruit which is enjoyed by birds
Makau Hen and chicken fern <i>Asplenium gracillimum</i>	H-1m W-1m	Small to medium sized fern with attractive foliage.	-Amenity planting. -Ecological enhancement planting. -Requires some shelter and shade.	-Kai: young fond shoots are eaten (known also as NZ asparagus).		
Mikoikoi NZ Iris <i>Libertia ixioides</i>	H-.4m W-.4m	Low growing ornamental perennial with sward like golden / green leaves and attractive flowers	-Amenity planting. -Mass ground cover planting. - Ecological enhancement planting. -Stream / river edges. -Tolerant of a range of conditions.			-Provides habitat for native invertebrate and lizards.
Purei <i>Carex secta</i>	H-1m W-1m	-Green grass shrub.	-Stream / river edge. -Amenity planting. -Rain gardens, bio-filtration swales and wetlands. -very attractive, provides a soft natural aesthetic. Can grow in wet or dry conditions.	-Building uses: thatch for huts.		-Excellent along stream / river banks. -Provides habitat and sheltered areas for fish. -Helps absorb toxins from waterways. -Helps stabilise stream / river banks.
Sedge <i>Carex solandari</i>	H-.5m W-.5m	-Small grass shrub.	-Stream / river edge. -Rain gardens, bio-filtration swales. -very attractive, provides a soft natural aesthetic.			-Excellent along stream / river banks. -Provides habitat and sheltered areas for fish.
Toitoi <i>Cortaderia richardii</i>	H-2m W-2m	-Large grass with drooping leaves. -attractive arching flower plumes	-Stream / river edge. -ecological restoration planting. -Provides a soft natural aesthetic.	-Rongoa: flower plume applied to wounds to stop the flow of blood; ashes made a poultice for burns; sap from steam could treat thrush in babies; sap of young steam for diarrhoea. -Building uses: flower stems (kakaho) used to line whare	- Ngāi Tahu taonga species	-Excellent along stream / river banks. -Provides habitat and sheltered areas for fish.

				walls and ceilings (there was a preference for deep yellow stems).		
Turutu Blue berry <i>Dianella nigra</i>	H-.6m W-.6m	-Small tufted, flax like plant. -Distinctive purple berries which are poisonous.	-Amenity planting. -Mass ground cover planting. -Tolerant of a range of conditions.			-Provides habitat for native invertebrate and lizards.
Upoko-tangata Umbrella sedge <i>Cyperus ustulatus</i>	H-.6m -1m W-1m	-Wetland grass	-Wetland species, used in ecological restoration. -very vigorous. -Stormwater ponds.	-Craft uses: Leaves, stripped of outside edges, used for mats and baskets -Building uses: Used for outer thatch of houses		-Good wetland species, quick to establish. -Cleanses water. -Provides habitat and sheltered areas for fish.
Wind grass <i>Anemanthele lessoniana</i>	H-1m -1.5m W-1m-1.5m	-Grass with bright green leaves with arching steams. -Flower plumes have an attractive pinkish hue.	-Amenity planting. -Mass planting. -Tolerant of a range of conditions.			
Wiwi <i>Juncus gregiflorus</i> / <i>Juncus pallidus</i>	H-1-2m W-1m	-Wetland / swamp land rush.	-Wetland species, used in ecological restoration. -very vigorous. -Stormwater ponds. -Damp areas.	-Craft uses: Used in making nets to catch whitebait. -Building uses: outer thatching of whare.	-Ngāi Tahu taonga species	-Good wetland and swamp species, quick to establish. -Cleanses water. -Provides habitat and sheltered areas for fish
<b>Groundcovers</b>						
Bidibid, piripiri <i>Acaena nova-zealandiae</i>	Groundcover Spreading	-Spreading ground cover. -Bright green leaves with spiny read seed heads.	-Mass groundcover planting. -Vigorous growth habit.	-Rongoā: leaves boiled and taken as a tonic for kidney and bladder problems and venereal disease.		
Kiokio Small hard fern <i>Blechnum penna-marina</i>	H-.15 -3m W-spreading	-Groundcover fern with red tinge to leaves.	-Amenity planting. -Mass planting. -Prefers semi shaded position.			
Panakeke Creeping pratia <i>Pratia angulate</i>	Groundcover Spreading	-Groundcover with delicate white flowers followed by reddish purple berries.	-Amenity planting. -Mass planting.	-Kai: Leaves can be cooked and eaten as greens		
<b>Climbers</b>						
Kohia Native passionvine <i>Passiflora</i>	Climber	-Climber with glossy dark green leaves and scented small white flowers in Spring,	-Climber on structures or growing up trees.	-Rongoā: Oil from seeds used as salve for wounds and sore breasts.	-Ngāi Tahu taonga species	

<i>tetrandra</i>		followed by bright orange fruit.		-Craft uses: lashing handles to adzes. -Building uses: travelling parties sometimes carried aka-tororaro to tie the sticks and bind the thatching for rough shelters. -Other: oil from seeds and flowers are scented.		
Pua whānanga Bush clematis <i>Clematis paniculata</i>	Climber up to 9m	-Climber with a stunning display of white flowers during Spring.	-Climber on structures or growing up trees. -Roots need to be shaded.	-Rongoā: A decoction of the bark and stems inhaled for head colds. -Kai: honey from flowers can be eaten.		

## Appendix 2 Remediation and Rebuild Toolkit

Key steps	Considerations	Identifiers	Potential themes to include
Recognition of the relationships of Mana Whenua to the area	Identify who the local mana whenua are <sup>49</sup>	<p>Providing narrative on their historical relationship to the area.</p> <ul style="list-style-type: none"> <li>➢ Historical evidence <ul style="list-style-type: none"> <li>○ mahinga Kai</li> <li>○ places of significance</li> <li>○ people</li> <li>○ landscapes</li> <li>○ natural resources</li> <li>○ historical narratives <ul style="list-style-type: none"> <li>▪ Ngāi Tahu tradition's and legends</li> </ul> </li> </ul> </li> <li>➢ Modern ecosystem identifiers <ul style="list-style-type: none"> <li>○ associated land forms</li> <li>○ species of flora and fauna</li> </ul> </li> <li>➢ Associated traditional uses of flora and fauna</li> <li>➢ Environmental standards <ul style="list-style-type: none"> <li>○ the use of composting or waterless toilet/sewage systems</li> <li>○ rainwater collection and grey water recycling</li> <li>○ land or wetland based storm water and sewage treatment and disposal systems</li> <li>○ solar or wind based energy generation, and</li> <li>○ the protection and enhancement of native flora, fauna and habitats, with a focus on potential mahinga kai and cultural use.</li> </ul> </li> </ul>	<p>Environmental and cultural performance</p> <ul style="list-style-type: none"> <li>➢ Provide for improved native flora and fauna and mahinga kai values; Reference (symbolic or otherwise) to previous areas of habitation through storying and naming of areas and buildings within the new school precinct</li> <li>➢ Utilising Ngāi Tahu names, history and Mahinga kai associated with the area; the placement of markers and art works (space made available in consultation with an identified artist and architect) associated with Ngāi Tahu</li> <li>➢ Opening of cultural spaces with indoor and outdoor connectedness utilising naming and identifiers of indigenous flora and fauna</li> <li>➢ The application of the Ngāi Tahu cultural sustainability indicators as assessment criteria on the design and development</li> <li>➢ Protection and enhancement of any receiving waterway or storm water run-off through upgraded best practice storm water or run off</li> <li>➢ Treatment and disposal and other low impact urban design requirements to improve water quality, reticulation and utilisation</li> <li>➢ Inclusion of gardens (Māra) with native plantings associated to the area in keeping with the geography and landscape as well as use and purpose such as edibles and medicinal qualities (Rongoā).</li> </ul>
Provision of a suite of 'Cultural Identifiers' relevant to for input and informing the Preliminary Design Phase	Identify early in the preliminary design phase who to engage with and how that relationship will be developed	<p>Providing options for informing the naming's and design of the new school and its associated environments.</p> <ul style="list-style-type: none"> <li>➢ Relational concepts for naming <ul style="list-style-type: none"> <li>○ Consideration of <ul style="list-style-type: none"> <li>▪ Buildings</li> <li>▪ Outdoor areas</li> <li>▪ Associated spaces</li> </ul> </li> </ul> </li> </ul>	
Inclusion of those relationships and identifiers into the Detailed Design Stage <sup>50</sup>	Include the suite of relevant narratives and information gained from the preliminary design phase into the detailed design phase	Inform and influence the school environment as to the associated relationships and culturally appropriate identifiers to the area as a measure of authentic engagement.	
Evaluation and assessment criteria designed as a checklist against mana whenua values and issues Values are scored between 0 and 5, where 0 does not address any Māori values, 3 addresses some values, and 5 address all values.			SCORE
Does the proposal protect and/or enhance natural waterways, and consider the appropriate use/reuse, treatment and disposal of water?	5: Protects and enhances natural waterways, i.e. sustainable water use and there is no discharge into waterways. 0: Waterways are befouled and/or unsustainable water use		
Does the proposal protect and/or enhance native flora, fauna, habitats, ecosystems, and biodiversity (particularly waterways and wetlands)?	5: Ecosystems are protected and enhanced, biodiversity is enhanced and landscaping and riparian zones use native plants. 0: Ecosystems are destroyed, biodiversity loss occurs, landscaping and riparian zone use non-native plants		
Does the proposal consider the reduction of waste and pollution (to air, land, water and coastal environments) as well as minimise the reliance on and/or improve existing infrastructure (e.g. sewage, storm-water and energy systems)?	5: Low impact urban design solutions are used, sustainable transport options are utilised, and kaitiaki have access to mahinga kai. 0: Urban design is unsustainable and access to mahinga kai is prohibited.		
Does the proposal consider investment in technology, knowledge, products, and systems that are energy, water and resource efficient, and involve on-going monitoring and reporting?	5: Most buildings have a greenstar rating of 5 or a homestar rating of 10, recycled timber is used, renewable energy is utilised, and raw materials are sourced locally. 0: The majority of buildings have poor, if any, greenstar or homestar ratings, non-renewable energy is utilised, and raw materials are sourced externally.		
Does the proposal implement management systems that encourage clients, employees and suppliers to identify, and act upon opportunities to protect biodiversity, prevent pollution, and continually improve environmental performance?	5: Clients, employees and suppliers are to empowered to protect biodiversity, prevent pollution, and continually improve environmental performance. 0: Clients, employees and suppliers are not empowered to protect biodiversity, prevent pollution, and continually improve environmental performance. <sup>51</sup>		
Further assessment criteria	Checklist against rebuild activities	Self-assessment answers	
➢ Manawhenua (customary authority): Acknowledgement, recognition and provision for tangata whenua kawa, tikanga, history	➢ Manawhenua: How does the design proposal (the proposal) acknowledge, recognise & provide for Ngāi Tūāhuriri kawa, tikanga, history, identity &	1	

<sup>49</sup> Most contacts are generally through the local Papatipu Rūnanga and the contacts can be found on - <http://ngaitahu.iwi.nz/te-runanga-o-ngai-tahu/papatipu-runanga/>

<sup>50</sup> The visibility of culture throughout the school is an important signal for conveying to students and whānau that their culture is acknowledged and valued by the school. This includes the design of the buildings themselves, the presence of cultural artwork throughout the school, and the incorporation of cultural symbols or patterns in multiple media. The increased visual transparency in modern learning environments causes a reduction in solid wall space for displaying artwork, and so the design process should consider the appropriate balance between the two. Artwork, along with names given to learning spaces and buildings, should link the school to the history of its community and the local environment. These names should be displayed on signage around the school. Other areas should have signs showing their functional name (office, reception, etc) in Māori and Pasifika languages. Photographs of students, tipuna (ancestors), and Māori and Pasifika role models can also be used as visual symbols of culture and identity. [Wall, G. (2014) Modern Learning Environments to support priority learners., Ministry of Education Wellington]

<sup>51</sup> Unique to this table is the framing of Māori concepts within a Māori environmental paradigm. It can be used to balance environmental, social, cultural, and economic aspirations while meeting Mana Whenua expectations. Given the challenge of applying mātauranga Māori to the financial and construction criteria for a project such as the remediation or rebuild process, a Mātauranga Māori values evaluation tool provides an information source to complement standard or "orthodox" project assessments as a cost-benefit analysis. Self assessment is the main criteria of how to view responsiveness.

and ongoing mana.	ongoing mana & ensure the appropriate expression & interpretation of te reo Māori, kawa, tikanga, history, cultural symbols & artwork through?	2
➤ Tikanga (best practice): Sustainable buildings that are energy efficient and have ongoing monitoring and reporting in design, construction and operation.	➤ Tikanga (best practice): How does the proposal include Sustainable buildings that are energy efficient and have ongoing monitoring and reporting in design, construction and operation?	1 2
➤ Ngā Wai Tūpuna/ Waimāori: Waterways and waters of importance are protected from discharges.	➤ Ngā Wai Tūpuna/ Waimāori: How does the proposal protect &/or enhance waterways, particularly Te Ihutai, & consider the appropriate use/reuse, treatment & disposal of water?	1 2
➤ Ngā Otaota Māori/ Mahinga Kai: Places where food is produced and procured are not compromised.	➤ Ngā Otaota Māori/ Mahinga Kai: How does the proposal protect &/or enhance native flora, fauna, habitats ecosystems, & biodiversity & promote enhanced mahinga kai outcomes?	1 2
➤ Wāhi Tapu/Taonga: Culturally significant sites are protected and treated with respect and dignity.	➤ Wāhi Tapu/Taonga: How does the proposal acknowledge, protect, enhance &/or appropriately interpret culturally significant sites?	1 2
➤ Kaitiakitanga (stewardship): Reduction of pollution emissions (air, land, water, coast) and reliance on existing infrastructure (sewage, storm water, energy).	➤ Kaitiakitanga: How does the proposal consider the reduction of waste & pollution (to air, land, water & coastal environments) as well as minimising the reliance on &/or improving existing infrastructure (such as sewage, storm-water & energy systems)?	1 2
➤ Tohungatanga (expertise): Cost effective and efficient construction and operation and the ability to provide a return on investment – balancing economic, social, cultural and environmental wellbeing.	➤ Tohungatanga: How does the proposal consider investment in technology, knowledge, products & systems that are energy, water & resource efficient, & involve ongoing monitoring & reporting of results?	1 2
➤ Whakapapa/Mātauranga (traditional knowledge): Use of native, local, recycled and/or renewable resources that provide a connection to and protect/enhance the local landscape and Ngāi Tahu identity/integrity.	➤ Whakapapa/ Mātauranga: How does the proposal encourage the use of native, local, recycled &/or renewable resources & products that provide a connection to, &/or protect and enhance the Te Waipounamu landscape and Ngāi Tahu identity & integrity?	1 2
➤ Whānaungatanga/Tūrangawaewae (sense of belonging): Providing a place where Ngāi Tahu are welcome, encouraged and proud to visit. ➤ Manaaki (hospitality): The ability of the built environment to manaaki (care for) manuhiri (guests) and provide a healthy, inspiring environment for all people	➤ Whānaungatanga/Tūrangawaewae/Manaaki: How does the proposal provide places where Ngāi Tahu & manuhiri alike are welcome, encouraged & proud to be involved?	1 2
➤ Rangatiratanga (leadership): The expression of te reo, kawa, tikanga, history, identity, cultural symbols and artwork of Ngāi Tahu whānau, hapū and iwi.	➤ Rangatiratanga/Tikanga: How does the proposal implement management systems that encourage clients, employees & suppliers to identify, & act upon opportunities to protect biodiversity, prevent pollution, & continually improve environmental performance?	1 2



Supplementary map

