# CARBON POSITIVE PROJECT DESCRIPTION FOR THE PAPAKURA STREAM PROJECT

Stage 1: Donalds Farm,

Located Within The Papakura Stream Project

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# The Papakura Stream Project Description

**Project Type:** Tree Planting: Nature Based Removal

**Project ID:** NZCO23

**Carbon Standard:** Ministry for the Environment (MfE) Standard For Voluntary Offsetting

**Vintage:** 2023-Current

**Additionality:** Without the sale of carbon offsets the land could not be replanted with the variety and attention to species required for re-forestation.

**Permanence:** 30% of project credits have been set aside in a buffer pool to account for any reversals. The project areas have been legally set-aside for long-term carbon sequestration with Carbon Covenants for each property for 100 years.

**About:** The Papakura Stream is a 63 km long stretch of water that winds its way across South Auckland from Whitford in the east to the Manakau Harbour in the west.
The stream has a catchment area of 4,100 hectares that was once covered in indigenous forest – including kahikatea swamp but most of this habitat has been lost as farming, industry and settlements spread. Tree cover is now extremely low in the catchment.
Without vegetation to help filter water before it enters the waterway, the quality of the upper Papakura Stream has deteriorated significantly.

Through the Papakura Stream Restoration Project, we're improving the water quality of the stream, increasing tree cover in the catchment and creating a green corridor that runs across South Auckland. Planting native trees provides food and habitat for kākā, korimako, kereru, tūī and our only native mammal, the pekapeka (long-tailed bat), a rarely seen species which is known to reside in the upper reaches of the catchment.

The Papakura Stream Restoration Project aims to achieve this through:

- Fencing sections of unprotected stream to keep livestock out and to protect plantings
- Removing invasive weeds which are choking the waterways and threatening biodiversity in the area
- Restoring riparian margins, hills and wetlands to link native forest remnants with the stream
- Water quality testing
- Landowner and community education
- Building a native plant nursery to supply eco-sourced native trees to the project

By supporting the Papakura Stream Restoration with your native tree offsets, you help bring back native forests, protect treasured wildlife, restore the native ecosystem, and strengthen the bond between people and place.

# Carbon Positive Voluntary Native Tree Offset Program

To have the greatest positive impact on our environment and to achieve high quality voluntary carbon offsets our native tree offsets follow the Ministry for the Environment's guidelines for voluntary carbon offsetting. The guidelines include that:

1. Information on the mitigation should be transparent, clearly stated, and publicly available;
2. Mitigation should be real, measurable and verified;
3. Mitigation should be additional to business-as-usual activity;
4. Mitigation should not be double used;
5. Mitigation should not result in leakage of emissions elsewhere;
6. Mitigation should be permanent.

## 1. Transparent

On our website we clearly define our process & how we measure carbon offsets from native trees.

## 2. Real, Measured, & Verified

We use verified third party partners to ensure actual purchases and planting occur. An annual independent audit is commissioned by Carbon Positive shows that the native trees that have been purchased have actually been planted. Access to the landowner's site is required for the preparation, planting & maintenance by the nursery. Access to the landowner's site is required for post planting audit and any annual follow up audits commissioned by Carbon Positive. The Nursery is to supply fit & healthy tree stock with a low rate of failure.

Research from New Zealand studies (See Appendix 1: Tanes Trees), show that 2.3 native trees can sequester a Tonne of CO2e emissions over the first 50 years. Growth rates then slow after 50 years with trees that breakdown being replaced by the regrowth in the same forest. Tree growth rates vary across regional sites according to temperature, soil, site quality, rainfall, types of trees planted, and the management of the planting process. With so many variables, it is not possible to achieve an exact measurement for each tree or site, however we have allowed for a 30% margin for these variables and any unexpected losses.

Our calculation is based on 100% native trees that must be able to reach a minimum height of 5m, with sequestration measured for the first 50 years of growth.

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*Our Calculation: 100% native trees over 50 year stand = 2.3 trees to offset 1 tonne of CO2*

*Our Margin: 100% native trees over 60 year stand = 1.61 trees to offset 1 tonne of CO2 so 2.3-1.61 = 0.69 (0.69/2.3*100) = 30% margin for losses.*

Our 30% margin occurs from year 50 through to year 60. The native trees continue to grow past year 60 so our margin for losses increases every 10 years past year 50. This is because native trees do not stop growing at year 60.

## Native Trees Only

We can only fund the supply of native trees that are able to reach a height of larger than 5m tall, however this does not prevent the landowner from purchasing & planting additional plants & shrubs that are outside of the below species – they just cannot be claimed for our tree discount.

Suitable native trees include: Black beech (Fuscospora solandri) Broadleaf (Griselinia littoralis) Kahikatea (Dacrycarpus dacrydioides) Kanuka (Kunzea spp.) Karaka (Corynocarpus laevigatus) Kauri (Agathis australis) Kawaka (Librocedrus plumosa) Kohekohe (Dysoxylum spectabile) Kotukutuku, Tree fuschia (Fuchsia excorticate) Kowhai (Sophora spp) Matai (Prumnopitys taxifolia) Miro (Prumnopitys ferruginea) Northern rata (Metrosideros robusta) Pohutukawa (Metrosideros excelsa) Puriri (Vitex lucens) Red beech (Fuscospora fusca) Rewarewa (Knightia excelsa) Rimu (Dacrydium cupressinum) Tanekaha, Celery pine (Phyllocladus trichomanoides) Taraire (Beilschmiedia tarairi) Titoki (Alectryon excelsus) Totara (Podocarpus totara) Silver beech (Lophozonia menziesii).

Suitable small native trees/large shrubs include: *Akeake* (Dodonaea viscosa), Akiraho (Olearia paniculata), Cabbage tree, Ti kouka (Cordyline australis), Five finger, Whauwhaupaku (Pseudopanax arboreus), Horoeka, Lancewood (Pseudopanax crassifolius), Houpara (Pseudopanax lessonii), Karamu (Coprosma robusta), Karo (Pittosporum crassifolium), Kohuhu (Pittosporum tenuifolium), Lacebark, Houhere (Hoheria spp), Lemonwood, Tarata (Pittosporum eugenioides), Mahoe, Whiteywood (Melicytus ramiflorus), Makomako, Wineberry (Aristotelia serrata), Manatu (Plagianthus regius), Manuka, Tea tree (Leptospermum scoparium), Ngaio (Myoporum laetum), Putaputaweta, Marbleleaf (Carpodetus serratus), Rangiora (Brachyglottis repanda), Rautawhiri (Pittosporum colensoi), Red mapou (Myrsine australis), Shining karamu (Coprosma lucida)

## 3. Additional Activity

Ensuring that the planting is additional to what would have happened, e.g. an existing manuka forest for honey production is not suitable to claiming offsets.

## 4. Not Double Counted

Trees are planted in reserve/covenanted areas are not to be claimed as carbon credits as this would be double counting. A Memorandum Of Understanding (MOU) is required to be signed by the landowner to protect the planting.

## 5. Address Leakage

To mitigate losses & variables we only calculate the first 50 years of growth with the additional slowing growth rates after year 50 used as margin for variable/losses.

Emissions from the planting and transport of nursery stock to the site are allowed for. The nursery is to supply Carbon Positive with the delivery method (type of vehicle/truck) and the distance tree stock travelled to from the nursery to the planting location so that we can allow for these additional emissions created.

Funded trees through the nursery are only to be suppled and planted within the annual planting season (May – September).

The nursery shall be responsible for native tree sourcing, ground preparation, fertiliser, planting. The landowner shall be responsible for maintaining the trees over time.

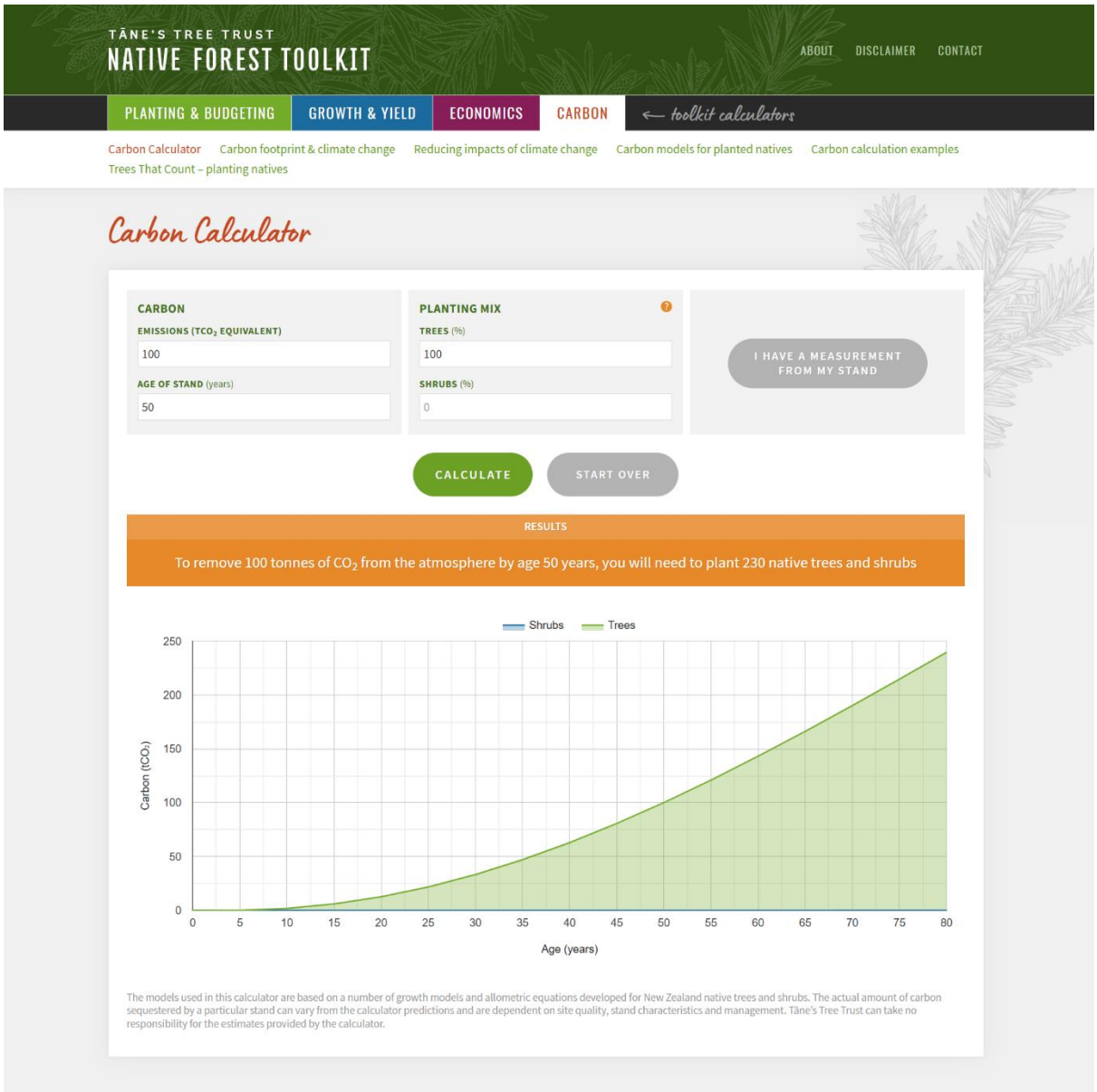
## 6. Permanent

Planting sites must be either reserves, covenanted land, or retired land set aside for planting, that cannot be developed in the future, with a signed Memorandum of Understanding (MOU) supplied to Carbon Positive.

Self-seeding supports regeneration & fills in gaps in the forest that might occur naturally through minor storm damage or erosion. Seed spread from birds & wind create additional offsets naturally, beyond what we measure, without the need to intervene with planting.

In the event of significant loss, such as widespread fire, Carbon Positive would intervene (see appendix 2), in consultation with the nursery and landowner, to speed up the naturally occurring self seeding process by spreading a mix of native tree seeds across the affected areas. Native tree variety averages will be applied to the affected area so if for example, we have funded 30% Kanuka across the planting site then the damaged area will have 30% Kanuka reinstated. The landowner shall allow access for re-seeding damaged areas

## Appendix 1: Tanes Trees



# Carbon Positive's Approach For Unexpected Offset Losses

## Background To Offset Calculations & Our Margins For Losses

The best available research from New Zealand offset studies shows that 2.3 native trees can sequester a Tonne of CO2e emissions over the first 50 years (Tanes trees). Growth rates then slow after 50 years with trees that breakdown naturally being replaced by the regrowth in the same forest. Tree growth rates vary across regional sites according to temperature, soil, site quality, rainfall, types of trees planted, and the management of the planting process. As there are many variables it is not physically possible to achieve an exact measurement for each tree or site.

Our calculation is based on 100% native trees that must be able to reach a minimum height of 5m, with sequestration measured for the first 50 years of growth.

*Our Calculation: 100% native trees over 50 year stand = 2.3 trees to offset 1 tonne of CO2*

*Our Margin: 100% native trees over 60 year stand = 1.61 trees to offset 1 tonne of CO2 so 2.3-1.61 = 0.69 (0.69/2.3*100) = 30% margin for losses.*

Our 30% margin occurs from year 50 through to year 60. The native trees continue to grow past year 60 so our margin for losses increases every 10 years past year 50 (see the below tree life statistics). This is because trees do not stop growing at year 60.

Example of native tree lifespan:

| Variety Of Tree | Expected Tree Life |
|---|---|
| Kanuka | up to 150 years |
| Mahoe | up to 50 years |
| Kowhai | up to 480 years |
| Puriri | up to 2000 years |
| Tī Kōuka | up to 200 years |
| Kowhai | up to 50 years |
| Lowland Totara | up to 1000 years |
| Māpou | up to 100 years |
| Kohekohe | up to 100 years |
| Karaka | up to 1000 years |
| Rewarewa | up to 100 years |

## Natural Regeneration Of Damaged Native Forests

The second significant factor to be aware of is that self seeding occurs naturally in forests from trees. Self-seeding supports regeneration & fills in gaps in the forest that might occur naturally through storm damage, erosion, or fire. Seed spread from birds & wind actually create additional offsets naturally, beyond what we measure, without the need to intervene with planting. In the event of widespread fire/flood, regrowth naturally occurs from trees, stumps, roots and seeds that are in the existing damaged environment.

As our measurement is based on a 50 year period the worst case scenario of a 100% loss at year 50, would put offsetting 50 years behind, nonetheless, the offsets would naturally regenerate over the following 50 years to naturally restore our clients offsets.

## Widespread Loss Intervention & Funding

Assuming widespread loss, such as fire, Carbon Positive would intervene, in consultation with the landowner, to speed up the naturally occurring self seeding process by spreading a mix of the above native tree seeds across the affected areas. Native tree variety averages will be applied to the affected area so if for example, we have funded 30% Kanuka across the planting site then the damaged area will have 30% Kanuka reinstated. Having margins past year 50 ensures sufficient offsets even if the applied average is not an exact match to the damaged site. The cost of seeding to support existing regrowth is within our existing budget and to be funded by Carbon Positive.

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