

# Te Kauwhata Wastewater Discharge Short List Optioneering Meeting

*August 2024*

# Agenda

- Karakia
- Introduction and purpose of the meeting
- Recap on last hui
- Presentation of options list - Short list
- Round table discussion
- Closing Karakia

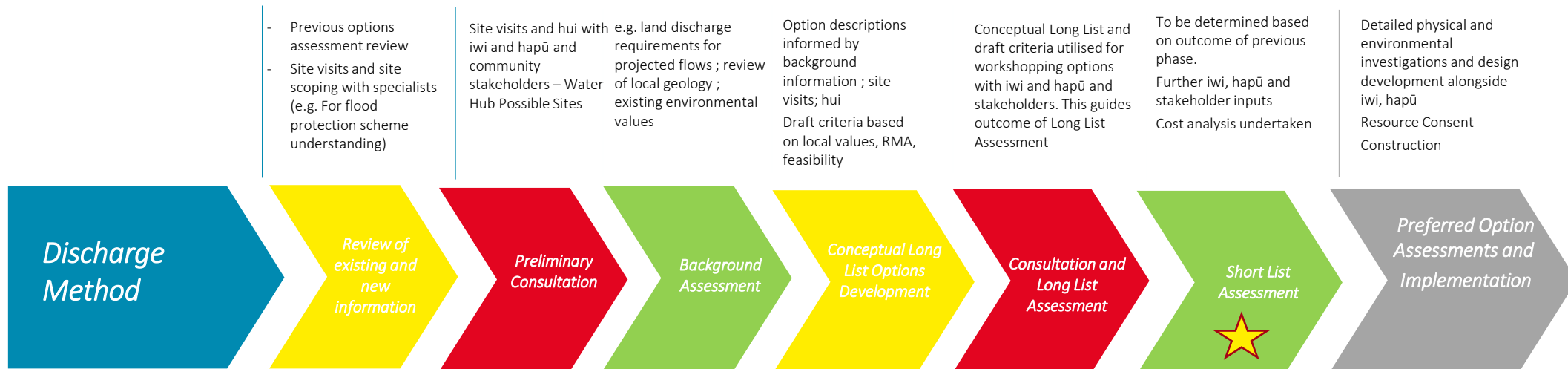
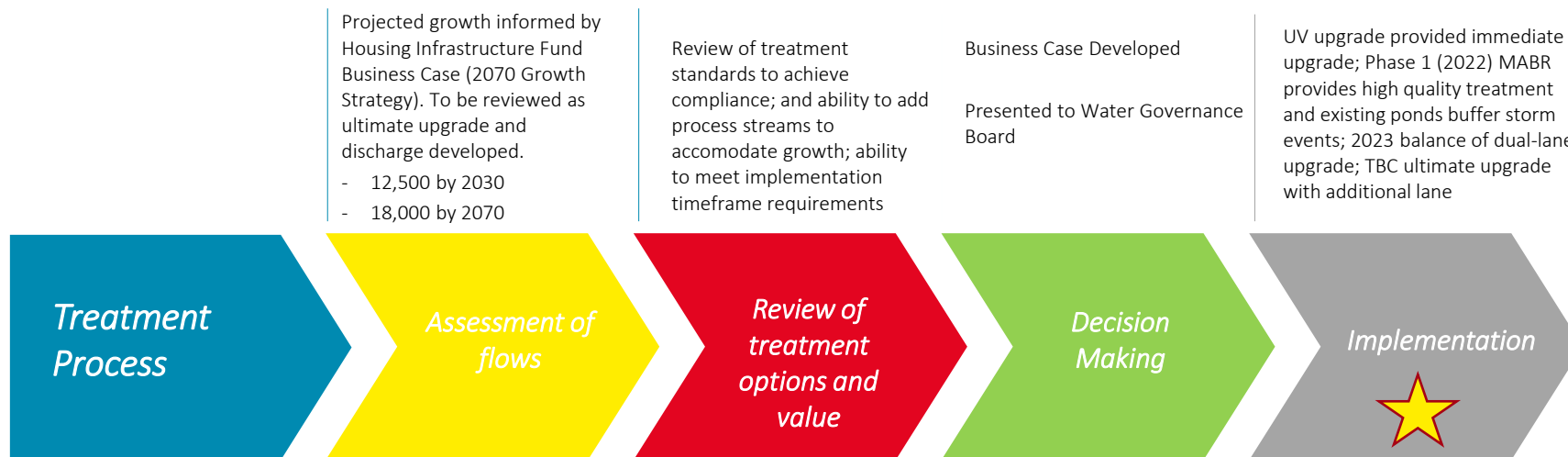
## Last hui we covered a long list of discharge options:

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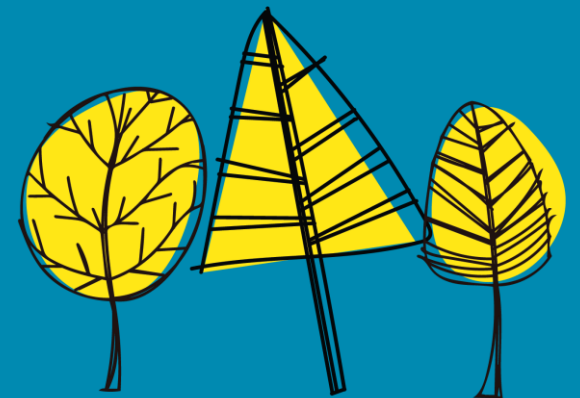
- Discharge to the Waikato River (Water Hubs C)
- Lake Waikere DOC Wetland Discharge
- Existing Discharge Locations

## The **short-listed** options were:

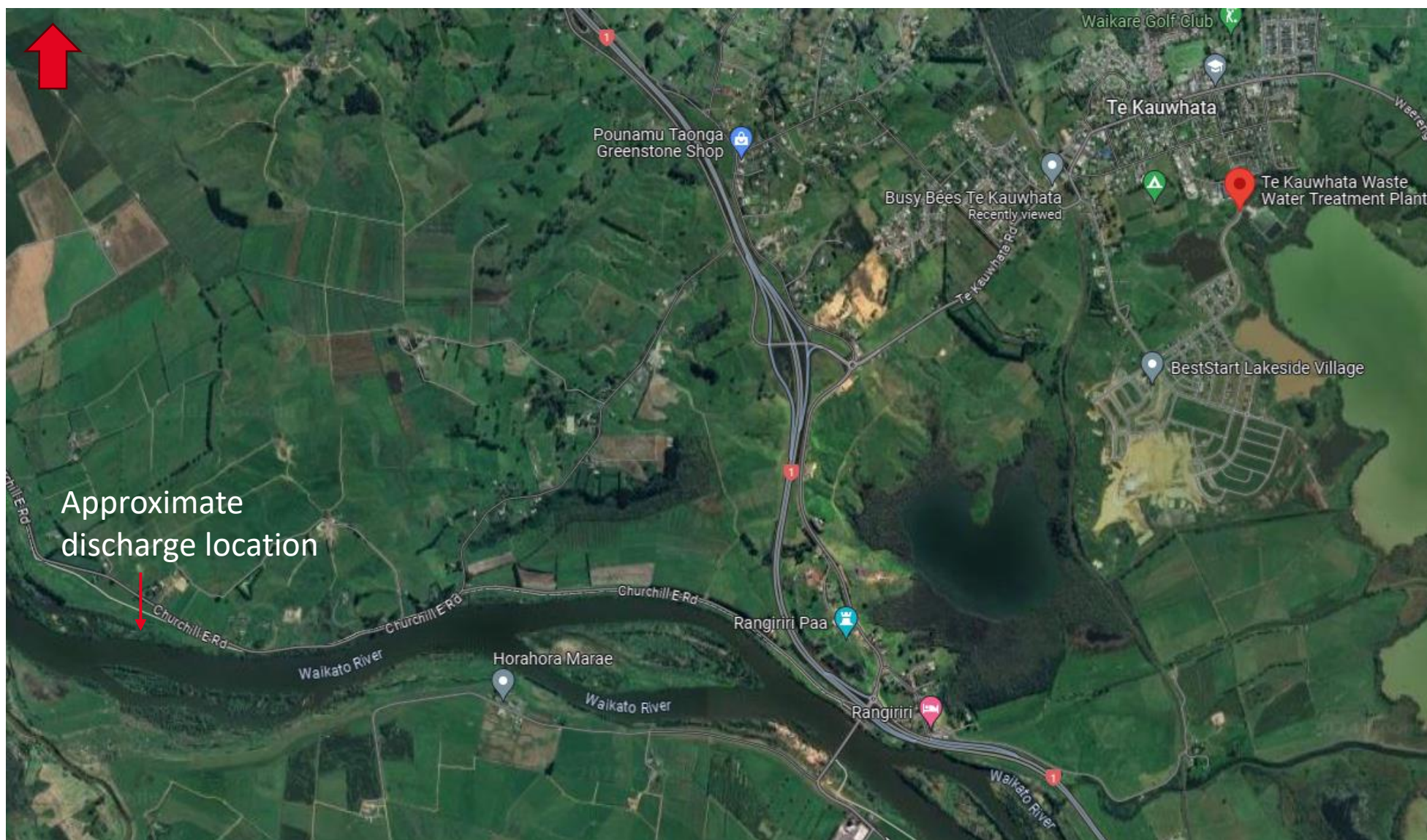
1. Discharge to the Waikato River at a new location downstream (Water Hub C)
2. Existing Lake Waikare discharge with environmental enhancements
3. Plus a new option 'Lake Waikare discharge at a new wetland location (DoC wetland)'



# Short List Discharge Options



# 1. Discharge to the Waikato River at a new location downstream -Water Hub C





# Conveyance route - concept design







**Water Hub C**





## Water Hub C - Landscape Design Concept

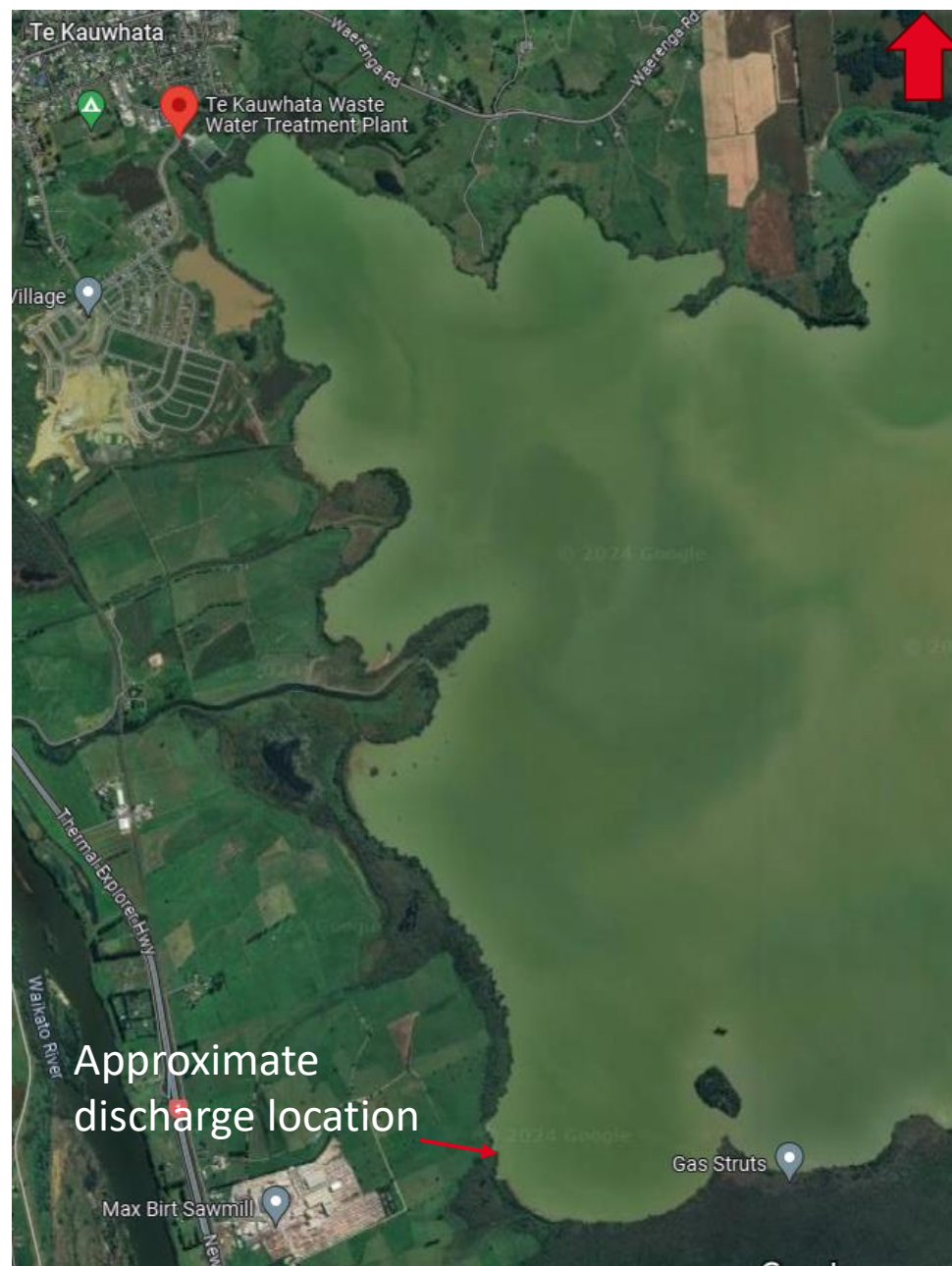
# Water Hub C – Cost Estimate and Pros/Cons

Summary of Cost	OPTION 1- Discharge to Waikato River
<b>Item Description</b>	<b>Total NZD (\$)</b>
Physical Works (Construction)	15,884,000
Project/Non-Construction Costs (includes geotech, investigations, assessments, design, tender evaluation & construction monitoring)	1,348,000
<b>Total Base Estimate - P5 (Lower Bound Range)</b>	<b>17,232,000</b>
Procurement Risk (5%)	862,000
Design Development and Scoping Risk (15%)	2,585,000
Construction Contingency (10%)	1,723,000
<b>Total Expected Estimate - P50 (Mean Assessment)</b>	<b>22,402,000</b>
Funding Risk/Management Reserve (30%)	6,721,000
<b>Total Project Estimate - P95 (Upper Bound Range)</b>	<b>29,123,000</b>

Pros	Cons
Removes discharge to Lake Waikare.	The most significant financial investment in conveyance of pipeline to discharge site of all the options.
Wetland restoration with native planting.	New WW discharge to the Waikato River. Must meet the betterment standard of Te Ture Whaimana.
Small area for discharge site required, Crown Owned Land?	Misalignment with Northern Metro DBC approach of removing discharges to the Waikato awa.
	Some discharge of peak flows to Lake Waikare still likely required



## 2. Lake Waikare discharge at a new wetland location - DoC wetland





# Conveyance route - concept design





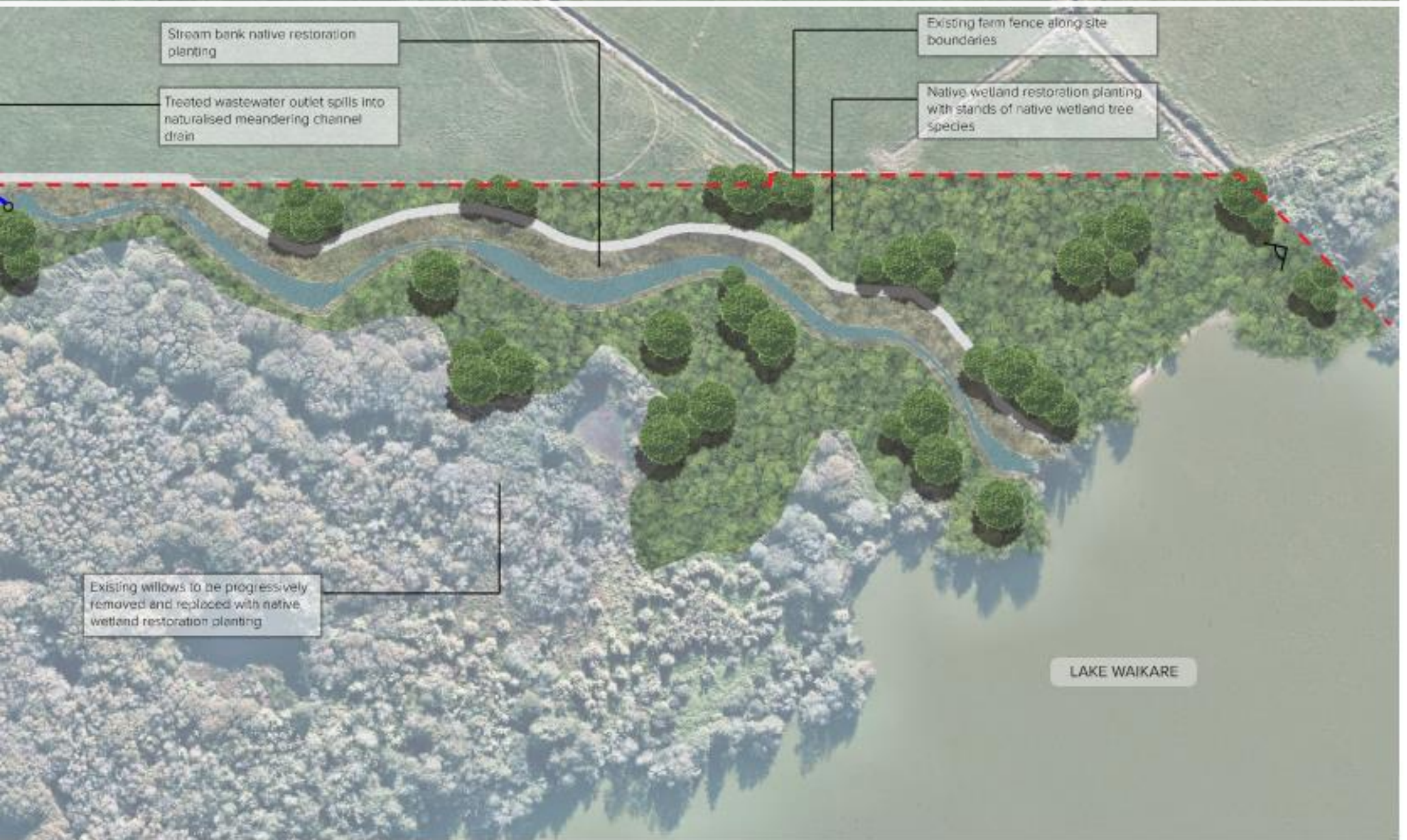


Existing Department of Conservation land





# DoC Wetland – Landscape design concept



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# LAKE WAIKARE

## ARTISTS IMPRESSION - VIEW LOOKING SOUTH



Existing willows to be progressively removed and replaced with native wetland restoration planting

Native wetland restoration planting with stands of native wetland tree species

Naturalised meandering channel drain

Maintenance vehicle access along existing farm track, extended along side the drainage channel

Stream bank native restoration planting

LAKE WAIKARE

Existing Site Looking South





# DoC Wetland – Capital Cost Estimate and Pros/Cons

Summary of Cost	OPTION 2- Discharge to Lake Waikare
Item Description	Total NZD (\$)
Physical Works (Construction)	13,530,000
Project/Non-Construction Costs (includes geotech, investigations, assessments, design, tender evaluation & construction monitoring)	1,160,000
<b>Total Base Estimate - P5 (Lower Bound Range)</b>	<b>14,690,000</b>
Procurement Risk (5%)	735,000
Design Development and Scoping Risk (15%)	2,203,000
Construction Contingency (10%)	1,469,000
<b>Total Expected Estimate - P50 (Mean Assessment)</b>	<b>19,097,000</b>
Funding Risk/Management Reserve (30%)	5,730,000
<b>Total Project Estimate - P95 (Upper Bound Range)</b>	<b>24,827,000</b>

Pros	Cons
Enhancing surrounding wetland environment with native restoration planting, and progressive removal of willows.	Significant financial investment in conveyance of pipeline to site. Pipeline passes through private properties.
Improves quality of treated wastewater flows entering Lake Waikare	Contaminants from treated wastewater would still be discharged to Lake Waikare.
	Access to site for technical investigations challenging due to wetland/swamp environment. May also have implications for constructability of stream channel.
	Potentially an ecologically sensitive environment with consenting and wildlife act implications.
	Within a WRC flood management area?

# 3. Existing Lake Waikare discharge with enhancements

## TE KAUWHATA WASTEWATER DISCHARGE ENVIRONMENTAL ENHANCEMENTS PLAN



### DESIGN PHILOSOPHY

Treated wastewater from the Te Kauwhata Wastewater Treatment Plant (WWTP) is released from the existing outfall and directed through a naturalised channel lined with boulders and native wetland planting, before connecting into the existing Lake Waikare channel.

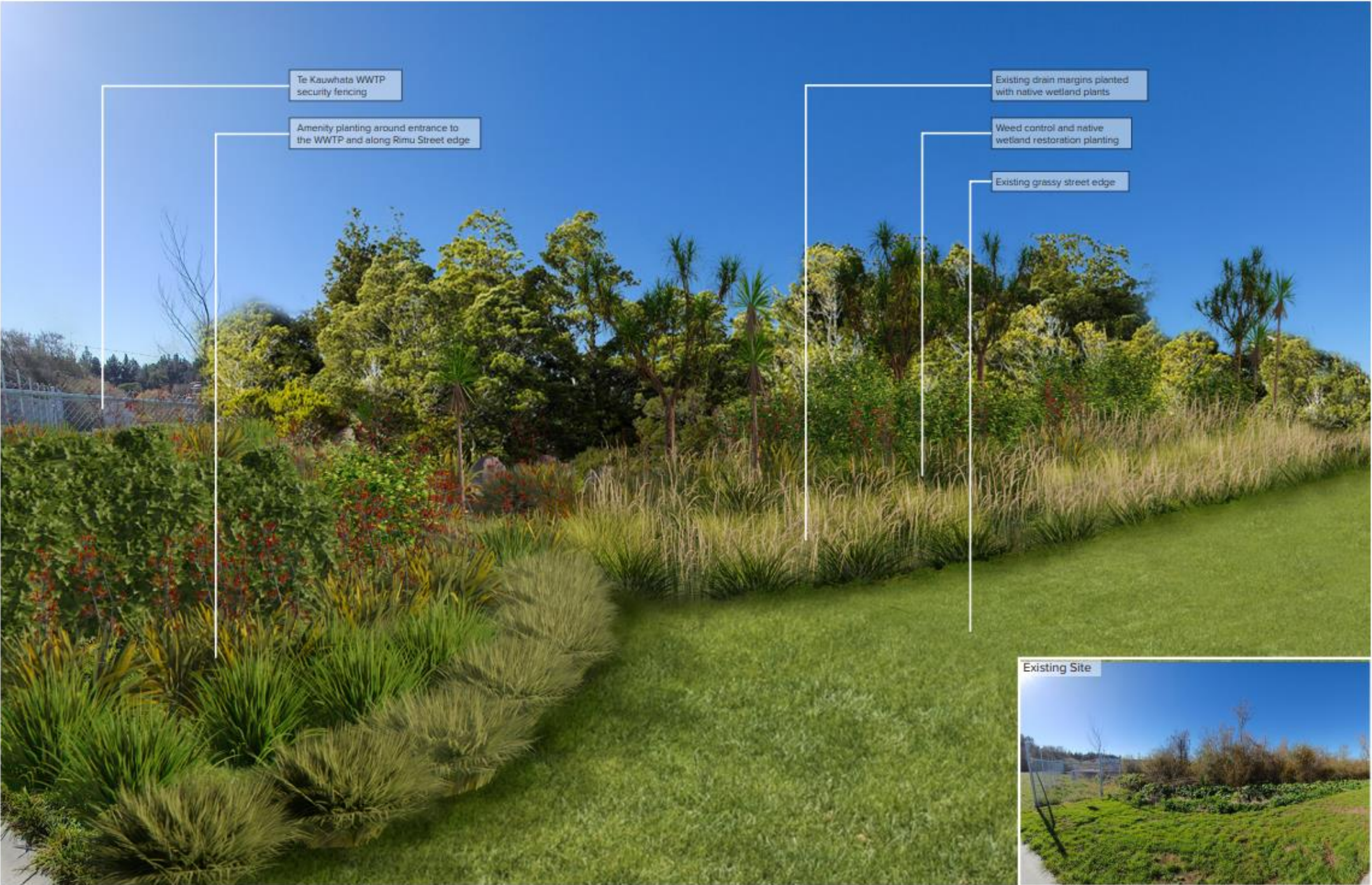
The area surrounding the channel, between the WWTP and the lake edge is restored via weed removal, clearing of exotic trees, and replanted with native wetland plant species that are suited to the ecology of Lake Waikare.

### LEGEND

- Ecological Restoration
  - Existing drainage channels connected to Lake Waikare
  - Property Boundary
  - Outlet
  - Maintenance Track
  - Security Fence
  - Artist Visualisation Point of View
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# ARTISTS IMPRESSION 1



Te Kauwhata WWTP security fencing

Amenity planting around entrance to the WWTP and along Rimu Street edge

Existing drain margins planted with native wetland plants

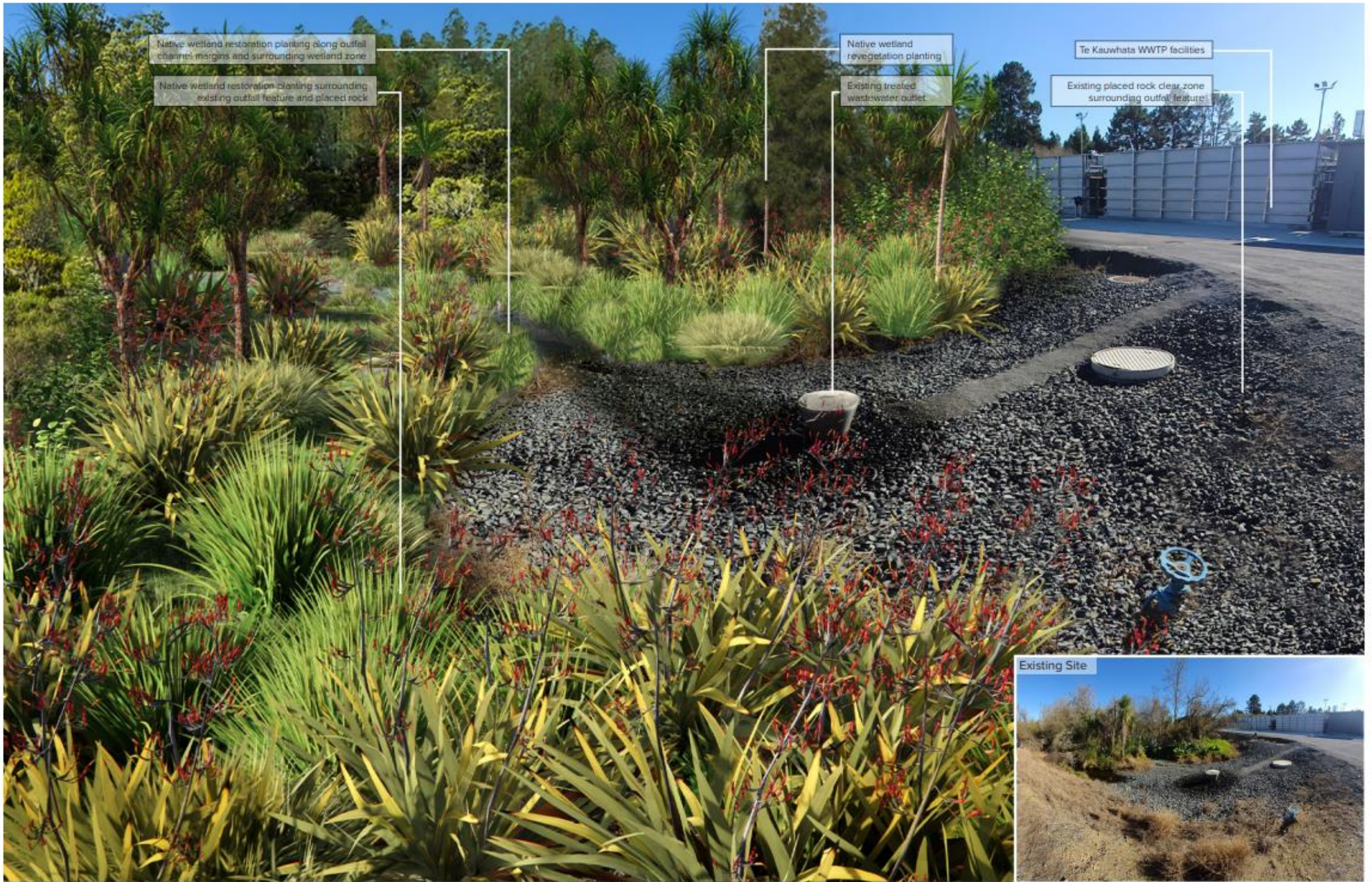
Weed control and native wetland restoration planting

Existing grassy street edge





# ARTISTS IMPRESSION 2





# Existing Lake Waikare with enhancements – Capital cost estimate

Summary of Cost	OPTION 3- Enhanced Discharge at existing WWTP site
<b>Item Description</b>	<b>Total NZD (\$)</b>
Physical Works (Construction)	958,000
Project/Non-Construction Costs (includes geotech, investigations, assessments, design, tender evaluation & construction monitoring)	127,000
<b>Total Base Estimate - P5 (Lower Bound Range)</b>	<b>1,085,000</b>
Procurement Risk (5%)	55,000
Design Development and Scoping Risk (15%)	163,000
Construction Contingency (10%)	108,000
<b>Total Expected Estimate - P50 (Mean Assessment)</b>	<b>1,411,000</b>
Funding Risk/Management Reserve (30%)	424,000
<b>Total Project Estimate - P95 (Upper Bound Range)</b>	<b>1,835,000</b>

Pros	Cons
Enhancing surrounding wetland environment with native restoration planting.	Does not remove discharge to Lake Waikare.
Least financial investment of all the options.	
Improves quality of treated wastewater flows entering Lake Waikare	
No additional land required or conveyance.	
Location provides security of discharge infrastructure/investment.	

## Capital cost estimate comparison table for all 3 options

Summary of Cost	OPTION 1- Discharge to Waikato River	OPTION 2- Discharge to Lake Waikare	OPTION 3- Enhanced Discharge at existing WWTP site
<b>Item Description</b>	<b>Total NZD (\$)</b>	<b>Total NZD (\$)</b>	<b>Total NZD (\$)</b>
Physical Works (Construction)	15,884,000	13,530,000	958,000
Project/Non-Construction Costs (includes geotech, investigations, assessments, design, tender evaluation & construction monitoring)	1,348,000	1,160,000	127,000
<b>Total Base Estimate - P5 (Lower Bound Range)</b>	<b>17,232,000</b>	<b>14,690,000</b>	<b>1,085,000</b>
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Design Development and Scoping Risk (15%)	2,585,000	2,203,000	163,000
Construction Contingency (10%)	1,723,000	1,469,000	108,000
<b>Total Expected Estimate - P50 (Mean Assessment)</b>	<b>22,402,000</b>	<b>19,097,000</b>	<b>1,411,000</b>
Funding Risk/Management Reserve (30%)	6,721,000	5,730,000	424,000
<b>Total Project Estimate - P95 (Upper Bound Range)</b>	<b>29,123,000</b>	<b>24,827,000</b>	<b>1,835,000</b>



# Questions

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# Round table discussions

