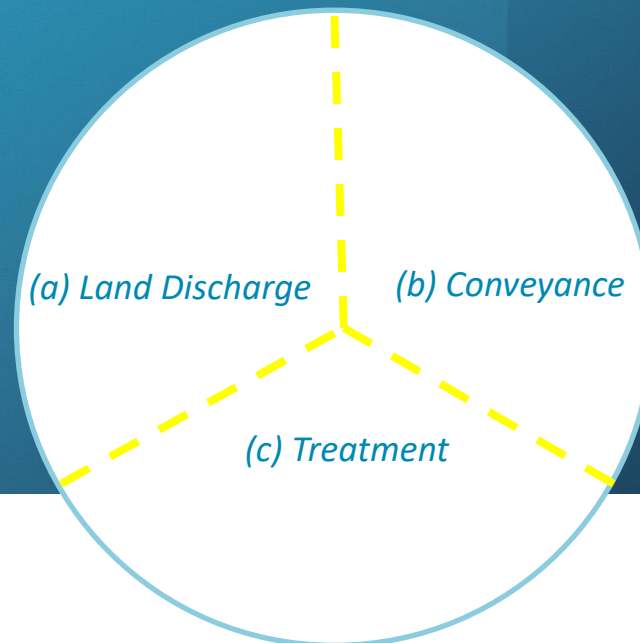


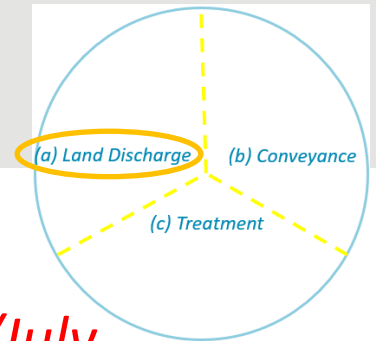
# Raglan WWTP Discharge Consent Application Project

July 2022: Land Discharge Workstreams

*(purple water (land irrigation) vs blue (W), red (WW) and green (SW))*

- (a) Discharge Update: *Land securement steps*
- (b) Conveyance: *Multidisciplinary consideration (infrastructure corridor concept aligned with 2070 growth)*
- (c) Treatment Update : *Optioneering – next steps*





## *(a) Discharge Update: Land securement – May/June/July*

### Order of preference in securing land:

1. Purchase so in Council ownership (Public Asset - Loamy): Full solution
2. Easement (Remains Private –Loamy Characteristic): Alternative discharge reliance
3. Lease registered against title (Remains Private –Loamy Characteristic) Alternative discharge reliance
4. Public Reserve Consideration (Co-use – Clay Characteristic) Alternative discharge reliance

*May 22 Slide*

*Ability to advance studies on a ‘without prejudice basis’ with a view of achieving agreed consentable land discharge solution*

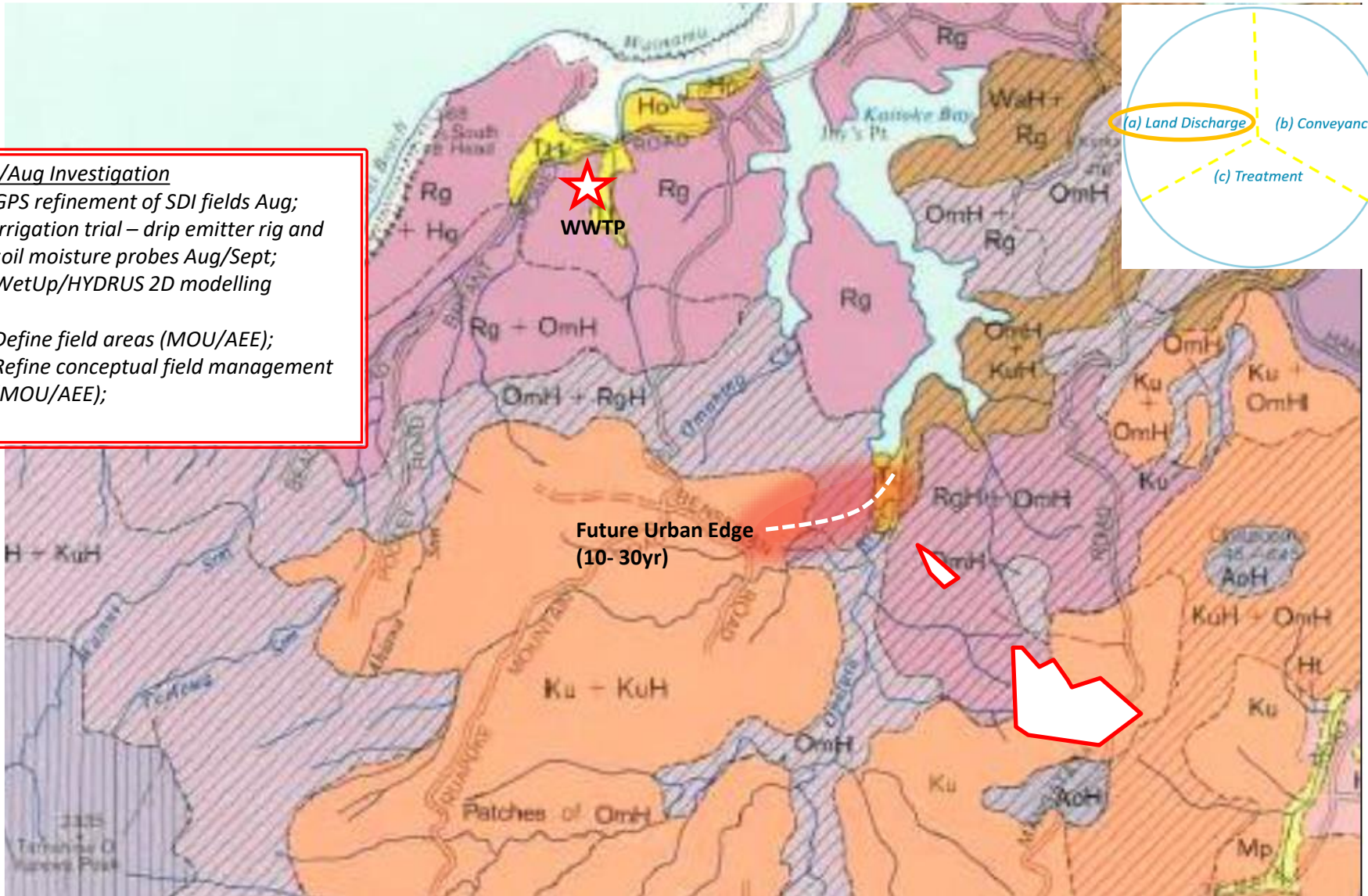
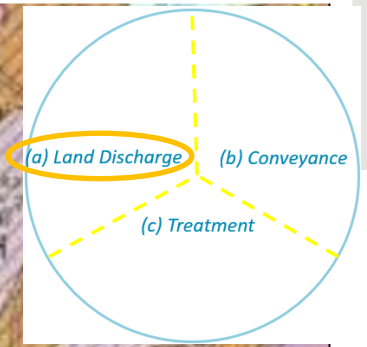
July/Aug Investigation

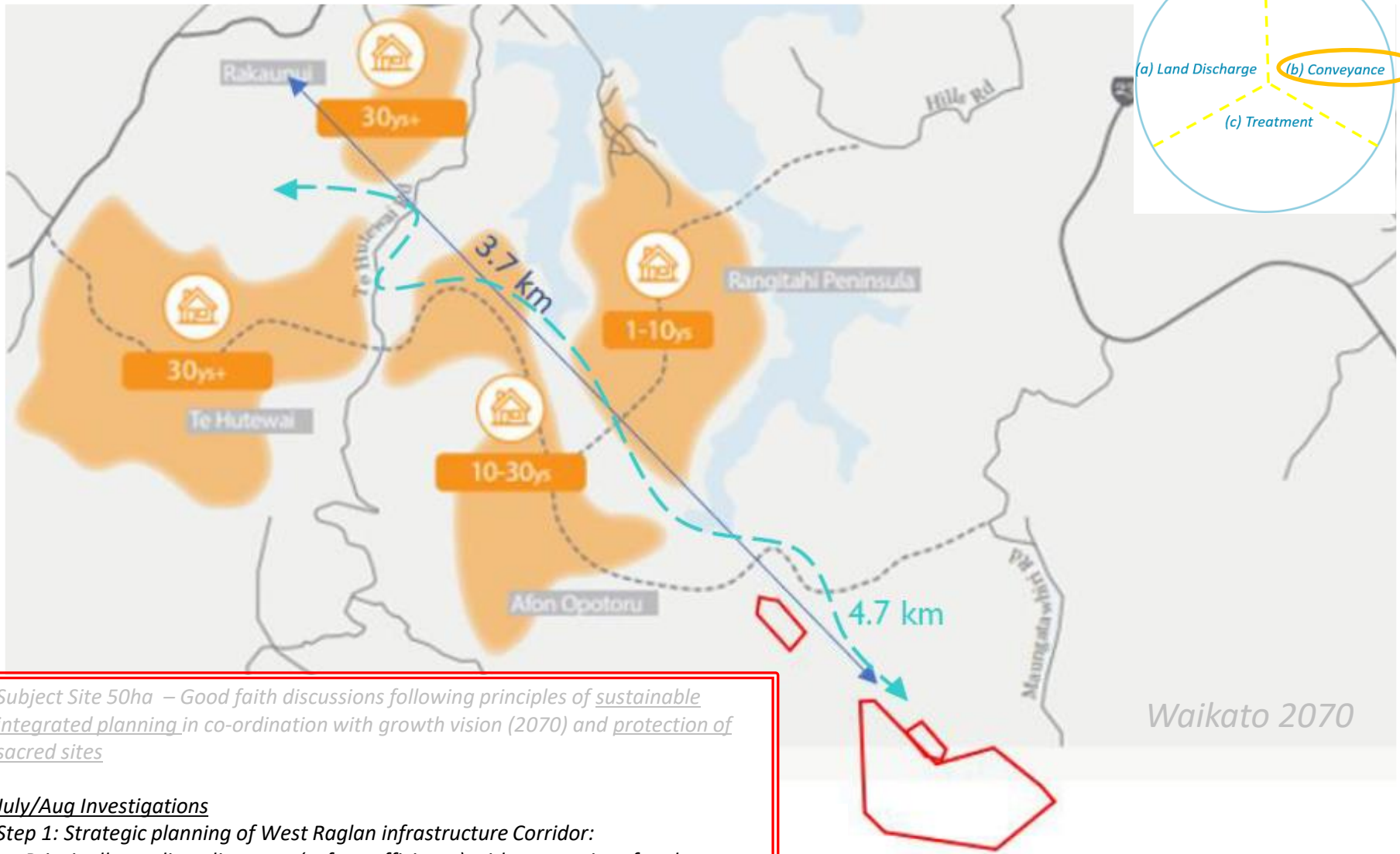
- GPS refinement of SDI fields Aug;
- Irrigation trial – drip emitter rig and soil moisture probes Aug/Sept;
- WetUp/HYDRUS 2D modelling
  
- Define field areas (MOU/AEE);
- Refine conceptual field management (MOU/AEE);



WWTP

Future Urban Edge  
(10-30yr)





*Subject Site 50ha – Good faith discussions following principles of sustainable integrated planning in co-ordination with growth vision (2070) and protection of sacred sites*

**July/Aug Investigations**

**Step 1: Strategic planning of West Raglan infrastructure Corridor:**

- Principally roading alignment (safety, efficiency) with economies of scale consideration for waters within vested road reserve;
- Multidisciplinary appointment – WDC Growth Team coordination

**Step 2:**

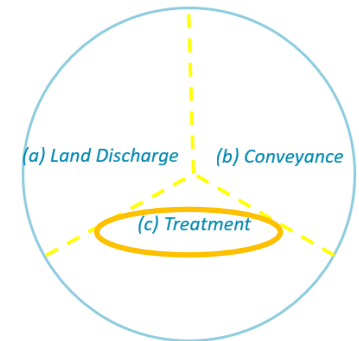
- Engineering route progression: Scope preparation – pumping and route (\$)

Wastewater	Meeting future growth demands	Upgrade of under capacity Wastewater Infrastructure	Meet increasing demand	Project Name	Period	Cost
 				Huntly Wastewater Treatment Plant Upgrade	2026-30	\$47
				Ngaruawahia Wastewater Treatment Plant Upgrade	2026-30	\$53
				Te Kauwhata Wastewater Treatment Plant Upgrade	2021-23	\$36
				<b>Raglan Wastewater Treatment Plant Upgrade</b>	<b>2021-27</b>	<b>\$28</b>

**TREATMENT CONSIDERATION: Project objectives include**

The aim of the project is to identify the best practicable option to provide wastewater services for the Whāingaroa community. In doing this we aim to:

- Work in partnership with the community and hapū;
- Retain flexibility for future, sustainable, long-term solutions including potential reuse of treated wastewater;
- Keep the overall costs of the wastewater solution to affordable levels ✓ **LET'S DISCUSS**



Aug/Sept Steps

Water Governance Board (WGB) Business Case Paper;  
 Upgrade – Supplier investigations and comparisons -side by side MBR/SBR  
 Parts: technical/financial/consenting sections – key specialist working group formed

## FAQ's

### Can SDI fields be grazed?

*Grazing cattle on SDI underground lines is not a compatible activity. Nutrient removal through cut and carry is a core principle of SDI, where grazing would return nutrients to ground and could damage lines over time. SDI advantages include reuse of water and nutrients for plant growth, typically allowing several more cycles of feed harvesting per annum. It would be the responsibility of the Resource Consent Applicant (WDC) to demonstrate how the area would be managed for the term of consent to ensure environmental protection and sustainability. Robust Management plans of farming activities to occur on SDI fields including, rest times, winter management, field order of discharge.*

## Are there limitations on what vegetation can be planted?

*Fitting vegetation for any secured SDI land will be worked through with relevant parties to ensure the balance modelled flows can be discharged to ground. There are no limits of vegetation that theoretically can be planted, beyond the need to apply cut and carry principles to ensure that nutrients are not returned to the land.*

*Balancing overall nutrient and hydraulic capability of the site to cater for existing and future flow would need to be presented within an application to provide certainty of the discharge method to the regulator.*

*Options include a mix of:*

- *Cut crops for sheep and beef feed – pasture, lucerne, maize, sunflowers, willow*
- *Non-consumptive crops – hemp (building products), oilseed rape (biofuel), vetiver (for essential oil), horse feed.*
- *Forestry – Exotic (pine/eucalypt), native (mānuka/kanuka)*
- *Non-contact consumptive crops (orchard/viticulture)*

**How long does the infrastructure last? – does it get removed when no longer functional?**

*Good upkeep and good quality water are key factors to that determine the asset life of SDI infrastructure. Like all public assets, renewal planning will apply, where certainty of renewal spend would equal the length of the consent (35 years is the longest term available). Consent Conditions will make any operating requirements a legal obligation.*



Can any human hormones and pharmaceutical compounds enter the food chain through animals being fed SDI raised crop, or through SDI water migrating to waterways?

*An Emerging Organic Contaminant (EOC) study has been undertaken as part of the Raglan consenting project, where the report from the Cawthron Institute can be found on the WDC website through the following link [EOC RAGLAN WWTP APRIL 2021](#)*

*In summary, the report highlights that Raglan wastewater EOC concentrations are comparable to any other township, with the conclusion that a discharge of treated effluent to water (via point source discharge) would pose no immediate risk to aquatic organisms in the receiving environments.*

*In respect to SDI and risk of EOC' s entering waterways, matters to consider are:*

- *the subsurface lines and methodology will mean that no treated irrigation water will get discharged to the surface, so there is no run-off risk into surface water bodies, also;*
- *The travel through the soil and then groundwater means a very long travel time to any surface water body. Adsorption and degradation of the EOCs will occur during this travel and due to mixing with rainwater in the soil and dispersion in the groundwater dilute will also occur.*

*(Continued next slide)*

- One endocrine of more concern would be EE2 (bio-active oestrogen commonly used in medications on humans as well as livestock and aquaculture activities), where this compound transforms to E1, E2 and E3 by aerobic organisms and especially at high moisture contents. Sub surface drip irrigation will have a positive effect on lessening any apprehension of endocrine presence.

On balance less concern around EOC presence can be credited to land treatment in comparison to discharge the existing tidal discharge. This is because the travel times will be such that most of the endocrines will have broken down before they get to the streams as the half-lives are relatively short. An Assessment of Environmental Effects (AEE) for the anticipated Raglan application for land discharge will utilise the site-specific soil modelling developed by Dr Freeman Cook to run a discharge scenario with Cawthron Institute findings..

The considered opinion of the Project team that it is scientifically demonstratable that due to both:

- the diminutive EOC concentrations within treated wastewater,
  - the proposed SDI discharge methodology which creates a dilution effect through soils, that
- EOC will be at undetectable (and probably zero concentrations) within food produced by way of Raglan discharge to land methodology, without risk of contaminants entering waterways or accumulating within irrigation soils.

**What is the Fonterra position animals fed on crops irrigated by treated wastewater from municipal treatment plants,**

*Fonterra applies irrigation (sprinkler, surface or subsurface) from their own non-municipal wastewater treatment facilities to pastureland to take advantage of the nutrient and water resource for dairy herd feed production.*

*In respect to municipal SDI, it is understood that the company has adopted the California Code of Regulations, Title 22 (CCRT22), with the intention that reclaimed water from town treatment plants is not accepted to grow feed for lactating cows that contribute to Fonterra milk products.*

*It is understood that this business decision has a present benefit of appealing to foreign customers with a point of difference based on NZ pure branding.*

*However, by way of an open letter December 2020, Fonterra state that “only wastewater that meets CCRT22 is to be used on pasture or feed that is fed to lactating animals supplying milk to Fonterra”. However, when drilling down into the detail of CCRT22, there is a clear differentiation between ‘surface*

*(Continued next slide)*

*irrigation' and 'subsurface drip' where the standard avoids discounting subsurface drip irrigation of municipal reclaimed water, given that "filtered wastewater" can be used for all recycled water irrigation uses (including "pasture for animals producing milk for human consumption", where one definition of "filtered wastewater" is "oxidised wastewater that has been coagulated and passed through natural undisturbed soils" i.e. potentially as applied via subsurface drip irrigation.*

*Aside from the above apparent misinterpretation of the standard, it can be readily accepted that Fonterra will not alter their view of dismissing milk from herds receiving town SDI grown crops.*

*In respect to dry stock feed, there is no statutory NZ health standard that applies to cut and carry crops, however Ministry of Primary Industry recommendations on labelling exist, so end users are aware of irrigation source*

*Any Raglan SDI cut and carry methodology will be in alignment with existing New Zealand SDI practice undertaken by local authorities, where presently:*

- *cut and carry crops are used to feed beef and sheep, or*
- *non-consumptive crops, such as fruit orchards utilise the resource.*