

Rose Voice / Hearing Notes

Name / Address / Background - Alexandra, , Military & Medical background

I have learnt so much in the last 2 years, I am not technically robust but will be honest & hopefully informative. Please accept my lived expert evidence :)

Moved here 16 years ago with our family of 5.

Why ?

"There are few places in the world which will leave you with a lasting sense of difference. Central Otago is undoubtedly one of them from its landscapes, its seasons, its people, its products and experiences. " ex, CO WoD"

At that stage it was virtually impossible to purchase a lifestyle property , we were alerted to this 2.4hectare block then owned by CODC.

Before being considered as purchasers we had to present ourselves to the local Community Board with a power point to prove & demonstrate that we are tidy, reliable residents as they had concerns about us developing this land as it is the entrance to both Naseby & Ranfurly. Locally called " 3 Mile Corner".

We were given conditions of building timeframes & and give assurances to keep our property tidy & in keeping with the Maniototo.

Now that same council is considering a proposal that will turn the approach to Ranfurly & Naseby into an industrial zone for many decades to come.

The irony is not lost on us.

To now come the full circle dealing with the CODC we could not be more disappointed with our local council, 9 days out from this hearing the CODC CEO himself was unaware of its timings or that a date had been set & was passing this information onto elected members. This lapse undermines public confidence in both the council's governance and the perceived fairness of the RMA process.

Our property is extremely unusual in the area being a small lifestyle holding , most everything else here are considerably large farms.

I believe we have been misrepresented as to distance for the nearest solar array , I would suggest some 600m to our property boundary. BUT Im not to distressed about this oversight or the wrongly named roads on the plans.

The overwhelming important fact is we are direct adjoining neighbours either way and spend a good majority of our days outside with dogs, customers or horses in the raised arena area. Saying "it won't affect because you can't see it all the time" is like stating " my stomach cancer won't kill me because I can't see it "

I believe the CODC planner has not made enough effort in assessing our living and working situation that the effect on us is more than minor.

The **planner has failed to address one of the core RMA considerations** — "the economic wellbeing of people and communities" (RMA s5(2)) — by not even investigating or recording potential effects on land value or viability of neighbouring businesses.

Lack of Engagement

The facility came to our attention a short time before the drop in session.

Our neighbour (a project land owner) called in & told me "he is going to put a couple of Solar

panels way up on his farm & has told developers we would not be a problem". Having been since told by Helios " the leasee land owners do not speak for Helios" . This is a little confusing.

2 years ago we made it clear to our neighbour (project landowner) that this was never personal & not directed at them in any way, rather it was CODC & Helios we are dealing with . Unfortunately they have chosen to see it differently.

Getting our heads around the enormity of this took a moment, it fast became obvious this was bigger than us it involved our entire community, an entire population of people that hold the Maniototo dear.

I had ongoing email correspondence from Sarah at Helios, generally brushing off any concerns we had. On only one occasion acknowledging the main question I asked many times around no future property saleability & lifestyle loss, stating " we don't believe that will happen" " it is unreasonable to assume" . At no stage has there been any investigation into how our businesses functions or the realities of our daily operations.

Helios & the planner at Boffa Miskel (when Boffa Miskel visited) at no time discussed planting on our boundary as stated in report.

Many submissions raised landscape, amenity, & cumulative industrialisation concerns that remain unresolved.

Our concerns remain unresolved.

A community " Drop in session" attended by so few that actually knew about it is not community consultation for a project of this scale.

My family is left footing the cost of fighting a multi million \$\$ company.
This is so unbalanced , typically rural communities neither process the technical or financial reserves to fight this legally.
I ask the commissioners to give our lived expert evidence as much weight as legal sections where possible.

Property & Lifestyle Value.

Lifestyle buyers value being part of a rural environment, not living beside an industrial site. Perceived stigma will lead to not being able to sell.

Lifestyle buyers , like us will know the risk that this site can grow in scale or be joined by additional energy infrastructure, as was stated by CODC CEO at last Maniototo Community Board meeting, he stated " many more are coming, they will be everywhere"

Buyers of lifestyle would not accept the proximity to such an industrial facility. Traditional Lifestyle buyers would be looking for peace, character of a rural setting, not a vast linear expanse of panels, security fencing, lighting & cameras. Any sense of tranquility would be diminished by constant presence of machinery, noise & operational traffic, especially during construction.

Our loss is a generational loss, this is our only investment , my husband gave 22 years with NZ Police to purchase & build our home, this is all we have to pass on to our 4 children, no big savings , nothing but this.

If another person took this from us it would end up in a criminal court hearing.

Our family home & financial security are on the line. Whether the effect on our property's saleability can be measured or not , the probability of that impact must be zero, anything else

is unacceptable.

A wait & see attitude is untenable.

Again I believe the CODC planner has not made enough effort in assessing our living and working situation that the effect on us is more than minor.

The planner declines to treat property value loss as a separate effect, but concedes "property valuesmay be used as an indication that an effect is likely to occur" (para 35) Our property is our only asset. It underpins our business and our future,. If this proposal proceeds its market value will be decimated. That means no equity to pass on to our children, no ability to relocate in old age & nothing to show for decades of work we have put in to building our life here.

Proximity & Effect Reply to Planners comments

The planner has downplayed temporary and permanent adverse effects (e.g., landscape changes, construction noise, visual disruption, loss of amenity), arguing they'd be less than minor once mitigated. He has stated (44) " we would adapt to it"

Case Law : The High Court ruled the Council **cannot ignore temporary or permanent effects** even if future mitigation is a possibility—they must be assessed and treated seriously in notification and overall effect determination.

This case emphasizes that effects on **neighbouring owners**, even short-term ones, matter and cannot be casually dismissed.

I challenge anyone here to briefly put themselves , their family , their business & assets in our predicament. It's not just something you should have to just adapt to ?

<https://brookfields.co.nz/articles/environmental-resource-management/high-court-decision-temporary-effects-undertaking-notification-assessment?>

Again I believe the CODC planner has not made enough effort in assessing our living and working situation that the effect on us is more than minor.

Key RMA provisions, **Section 5 (purpose)** and **Sections 6–8 (matters of national importance and other principles)**, clearly direct planners to give particular regard to **amenity values, quality of the environment**, and enabling communities to provide for their economic and social wellbeing. Neglecting a business like ours undermines these obligations.[Wikipedia](#)

Consideration of our lifestyle land value decimation has been ignored in the planner's assessment. There has been no investigation into how we operate, how we serve the community, or how these proposals would make us non-viable. In failing to identify these issues for the RMA process, the planner has left the commissioners without the full facts they need to make a fair decision. That is not just an oversight — it is a serious failure of professional duty.

RMA Protections

I believe the RMA is clear: decision-makers must protect the ability of people and communities to live well, maintain their livelihoods, and enjoy their environment. Approving a 660-hectare industrial facility beside a lifestyle property would directly compromise these protections — stripping away rural outlook, eroding amenity values, and undermining the very lifestyle the RMA is

designed to safeguard.

We appeal the outcome of this hearing to honour the objectives of the CODC District Plan "to protect amenity , the needs of the districts people. Provide social, economic & cultural wellbeing"

We are relying on RMA protections for Lifestyle, Business, and Wellbeing

Section 5 – Purpose of the Resource Management Act

The purpose of this Act is to promote the sustainable management of natural and physical resources.

Sustainable management means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while —

- (a) sustaining the potential of natural and physical resources to meet the reasonably foreseeable needs of future generations; and
- (b) safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and
- (c) avoiding, remedying, or mitigating any adverse effects of activities on the environment.

Section 7 – Matters to Have Particular Regard To

- (c) *The maintenance and enhancement of amenity values.*
- (f) *Maintenance and enhancement of the quality of the environment.*

This Protects People, Businesses, and Lifestyles

- **Amenity Values** – The RMA recognises that the pleasantness, aesthetic coherence, and cultural attributes of an area matter. An industrial solar array beside a lifestyle property destroys those qualities.
- **Quality of the Environment** – A shift from rural to a linear display of industrial character is a degradation of environmental quality, even without going into documented pollution risk .
- **Social & Economic Wellbeing** – Property value loss, reduced marketability, and stress on the family's mental health directly breach the Act's requirement to "enable people and communities" to meet their wellbeing needs.
- The Maniototo's "big sky" views, openness & uncluttered rural horizon are key amenity values & advertising a point of difference for locals, visitors & tourism operators, these will all be degraded by large scale linear industrial development .
- The proposals national renewable energy benefit must be balanced against the local & regional loss of valued landscapes, tourism appeal & rural character.
- Sustainable management doesn't mean prioritising one national goal (energy) at the expense of other equally important local values , particularly where alternative sites & scales exist.
- Central Otago District plan contains objectives to protect rural landscapes & amenity, MOST particularly where they contribute to the districts identity & tourism economy.

- Otago Regional policy Statement (RPS) explicitly seeks to maintain and enhance the natural character and values of outstanding natural landscapes.....this will follow on to
- (Case law showing that 'non ONL' areas that contribute to ONL values can still require a high threshold before change is considered appropriate .)

RMA Section 6 — Matters of national Importance

"All persons exercising functions and powers under (the RMA) shall recognise and provide for....the protection of outstanding natural features and landscapes from inappropriate subdivision, use and development"

Even if the exact site isn't mapped as an ONL in the District plan, the surrounding Maniototo basin and mountain backdrop (Rock & Pillar Range, Kakanui Range, Ida Range, Hawkdun Range)) form a visually unified landscape recognised locally, regionally & nationally outstanding.

The Solar facilities scale (665ha) means it will be visible with in & across the setting of identified ONLs, diminishing their natural character.

That means the definition of an " inappropriate" development in the s6(b) context.

IE...if I am riding my bike or horse up on Mt Buster or any ONL in the area I look down across, beside the amazing vista which is the Maniototo, just because the map line shows the ONL finishes on paper, it does not , it is a unified view & experience.

This facility is out of character with the area.

NZ has solid case law to show that "landscape values" aren't confined to a hard line on a map—and why I trust decision-makers will look beyond strict mapped boundaries.

1. **Wakatipu: ONLs are understood in context**—foregrounds, wider views, and scale—so **effects adjacent to or just beyond a line still degrade the ONL.** [Queenstown Lakes District Council 003-wakatipu-environmental-society-inv-v-qldc-enc-christc.pdf](#)
2. **I would argue & be supported that** "the map doesn't show it here" argument. **Mapping is indicative; values can (and do) extend across sheet or zone edges.** [Queenstown Lakes District Council](#)
3. **QLDC Strategic/Preliminary decision on ONL "Priority Areas" (2025)**
The Court noted that where part of an ONL is not labelled a "Priority Area," that **"does not imply that it is... less important"**—again signalling that labels/lines aren't the whole story; **landscape values traverse internal map demarcations.** [Queenstown Lakes District Council Decision No - 2025-04-11-2025-nzenvc122-preliminary-decision.pdf](#)
4. **QLDC PDP "Topic 2" landscape decisions (2019)**
The Court emphasised methodology and **context** for ONL lines and required better linkage between maps and identified **values/capacity**, reinforcing that it's the **values** (and their visibility/foregrounds) that drive outcomes, not simply the line. [Queenstown Lakes District Council1d-interim-decision-of-the-environment-court-topic-2-rural-landscapes-decision-2-3.pdf](#)
5. **King Salmon/Policy 15** : once ONL values are engaged, **avoid adverse effects**—even if the activity sits just outside a drawn boundary but **impacts the ONL's values** (view shafts, coherence, memorability, naturalness). [Doc.govt.nz+1 NZCPS 2010 Guidance](#)

Core authorities

- **Wakatipu Environmental Society Inc v QLDC** (the Queenstown "landscape" decisions)
The Environment Court warned that where an ONL "ends" is *"not a technical one... [but] a robust practical decision based on the importance of foregrounds"* and the **wider context and scale** must be considered. This rejects a rigid map-edge approach.
[Queenstown Lakes District Council_003-wakatipu-environmental-society-inv-v-qldc-enc-christc.pdf](#)
- **Gertrude's Saddlery Ltd v Arthurs Point Outstanding Natural Landscape Society [2021] NZHC 147**
The High Court recorded the Environment Court's point that *"the absence of a brown line on [the] map might suggest... no [ONL]. However... Arthurs Point is actually within an ONL."* In short: **don't treat mapping gaps or sheet boundaries as determinative**.
[Queenstown Lakes District Council_005-gertrudes-saddlery-ltd-v-aponls-2021-nzhc-147.pdf](#)
- **Man O' War Station Ltd v Auckland Council [2017] NZCA 24** (Court of Appeal)
The Court confirmed that whether land is an **Outstanding Natural Landscape is an "essentially factual" assessment** at the proper district/region scale—not driven by consequences or cartographic convenience. That supports looking beyond a drawn line when the evidence shows the values extend. [Auckland Council](#)
- **Environmental Defence Society Inc v NZ King Salmon Co Ltd [2014] NZSC 38** (Supreme Court)
Once you're dealing with ONLs/ONFs (in the coastal environment), **Policies 13 & 15 require avoiding adverse effects** on those values. Protection is **effects-focused**, not property-boundary-focused—so effects just outside a line that harm the ONL's values still matter. (See DOC's Policy 15 guidance reflecting King Salmon.) [Doc.govt.nz+1](#)

Traffic Uncertainty

There has been much to & fro discussion about the use of Goff Road as opposed to SHW 85 thru Ranfurly town.

Lived local knowledge will tell you almost all Traffic & especially HT traffic & trailers use Bypass Road, un-sealed shortcut from our gate to SHW85 5kms down the road.

Has the CODC even considered the further degradation to this road ?

I can understand the confusion as Helios has SHW85 named as Bypass Road on one of their situational photos. Yes I have pointed it out to them over 12 months ago.

" Rail Trail is a distance away"

Rebuttal detail.

- Report states the Otago Central Rail Trail is some distance away so not negatively impacted
- I would argue many cyclist leave rail trail to detour to visit our premises & Naseby area, to enjoy Curling, Lugging, Mountain Biking & trail running , & eating ! taking them directly by the entire length of the solar site.

- Gravel bike racing & touring is becoming a super fast growing sport in NZ & world wide, Gravel riding was the **fastest-growing category** on Strava in 2023, with a **55% year-on-year increase globally**.
- Cycling culture has embraced gravel as a hybrid between road and mountain, appealing for its versatility and accessibility.
- Many cyclists take Dansey's pass road down thru Naseby , right past Solar site & onto Ranfurly or Alexandra.
- I have attached gravel route offered by Tiaki Maniototo to allow cyclists to explore sites in our region including ecological, cultural & historical, this loop takes cyclists directly past the entire length of the Solar site.

End

I feel woefully inadequate sitting here speaking to this hearing,

But these past two years have shown me the strength that comes when you are fighting for your family, your community, and for those unable to speak today. We will not be defined as "that unfortunate family who had everything taken from them." Instead, we stand here determined to protect what matters — for ourselves and for others.

I challenge anyone here to briefly put themselves , their family , their business & assets in our predicament. It is not OK is it ?

We are grateful to be part of this amazing Community.

The toll on our lifestyle, relationships, physical & mental health has already been enormous, but we are grateful for this hearing & opportunity to be listened to for the first time in 2 years.

Conclusion

Given the scale of unmitigated effects on amenity, health, business viability and generational security, I respectfully request that :

The application be declined on the grounds that adverse effects on us as an immediate neighbour and our community are more than minor and cannot be adequately mitigated.

Questions from First day Hearing speakers.

1. Bond ... (attached info)

1a. Fire . 4m in wild fire is not enough in our winds, expert experience in fire fighting & local wind knowledge.

2. Helios wanted commercial consideration for the set back at wet areas.....yet we can't even be acknowledged for even having commercial entity ??

3. Avian report . As much as I love my own ducks & believe all animals & life is precious..... I can't help but be stumped why we didn't get a separate report on our life & business ????

4. Dwelling 2 . This property owner is directly involved with a solar development in the area, based on information from them , part of their land is to be sold to a solar developer. This relationship is relevant because it distinguishes their support by their own admission " would be wrong to oppose given their vested interest locally"

5. The entire proposal rests on the effectiveness of the mitigation planting. Given its pivotal role, why has Helios not committed to investing in earlier establishment, larger specimens, and adequate watering to ensure this critical measure is delivered successfully for the community?

6. Crystals.....known carcinogen. This is exactly the short sighted decision that is not thought out or investigated..

All this & all other over sights of toxic materials all end up in our properties water supply & in our pond.

7. Do we have a guarantee there will never be Lithium storage ? Or will Helios presume to obtain by right of an existing energy producing area. ? perhaps under new regulations that will come.

8. If they are prejudiced to be given a right to obtain, we should be considering them now .

1. "NZ urgently needs more renewable energy"

Rebuttal detail:

- NZ already produces around **85% renewable electricity**, with hydro, wind, and geothermal providing a highly reliable base load. This is far above most countries and undermines the idea that urgent, large-scale rural solar farms are the only solution.
 - The claimed "70% increase in electricity demand" by 2050 is speculative. Demand projections depend on assumptions about population growth, electrification speed, and energy efficiency — all of which could reduce or shift the scale needed.
 - The Maniototo is already making a significant renewable contribution through **existing hydro infrastructure** and on-farm solar. There is no evidence that this particular project is the best or most efficient way to meet national demand.
 - Transmission losses from transporting electricity from Central Otago to main demand centres (Auckland/Wellington) can reduce the efficiency benefits claimed.
-

2. "Solar is the lowest-impact renewable"

Rebuttal detail:

- ✓ • A 665ha industrial installation is **not low impact** in a rural context. It will permanently alter the character of the Maniototo Plain, which is valued for its open, uncluttered vistas and wide skies — key to both residents' quality of life and tourism appeal.
 - "Compatible with agriculture" is misleading — stock exclusion zones, fencing, panel height limitations, and shade effects reduce pasture productivity. Overseas studies show co-grazing often requires modified breeds, reduced stock numbers, or altered farming practices.
 - Solar panels and infrastructure will change the soil microclimate under them, potentially affecting vegetation diversity, soil biology, and drainage over decades.
 - "Lowest impact" ignores end-of-life issues — decommissioning and recycling of hundreds of thousands of panels is unproven at this scale in NZ.
-

3. "Site is ideal"

Rebuttal detail:

- ✓ • The Maniototo's "strong solar resource" is true — but so are many degraded or brownfield sites closer to urban demand centres. This project's **land-take removes viable farmland** from production for at least 30–40 years.
- "No mapped constraints" doesn't mean no values — local residents value the uninterrupted views to the Kakanui, Rock and Pillar, and Ida ranges. The fact that the site is **not legally classified** as an Outstanding Natural Landscape doesn't remove its community or tourism value.

- Flat land and proximity to a substation are convenient for the developer — not necessarily the best outcome for the community.
 - Placing industrial energy infrastructure adjacent to heritage landscapes like Naseby risks incremental industrial creep into surrounding rural land.
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4. “Adverse effects are less than minor”

Rebuttal detail:

- **Visual impact:** Mitigation planting will take 5–10 years to mature, leaving years of exposed industrial infrastructure visible from public roads (Ranfurly–Naseby Rd, Goff Rd, SH85) and nearby homes. Winter frosts, windburn, and low rainfall in the Maniototo challenge plant survival.
 - **Glare:** While modelling predicts minimal glare, models can’t fully account for seasonal changes, snow reflectivity, and dust accumulation. Locals who drive daily routes will be more exposed than model averages suggest.
 - **Fire risk:** The Maniototo is a high-risk fire environment — strong winds, dry summers, and limited firefighting water capacity outside towns. Even with perimeter tracks, a panel or inverter fire could spread rapidly to surrounding farmland.
 - **Ecology:** Small wetland setbacks (5–10m) may be insufficient to protect surrounding hydrology, especially in dry years when water tables fluctuate.
 - **Noise:** Construction noise (piling) over a 24-month period will be a sustained disruption for nearby residents and could impact tourism stays in Naseby during summer events.
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5. “We consulted widely & resolved concerns”

Rebuttal detail:

- Attendance at consultation meetings or information drop-ins does not equal community agreement.
 - DOC and FENZ feedback addressed **only their areas of jurisdiction** (wildlife, fire) — not broader social, amenity, or economic impacts.
 - Many public submissions raised landscape, amenity, and cumulative industrialisation concerns that remain unresolved.
 - Rural communities often face a power imbalance in consent processes — technical reports are produced by the applicant’s experts, and residents may lack the resources to challenge assumptions.
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6. “Positive local benefits”

Rebuttal detail:

- **Jobs:** The majority are short-term construction roles lasting less than 2 years, often filled by specialist crews from outside the district. Ongoing local employment is likely limited to a handful of maintenance positions.
 - **Economic injection:** Much of the \$450m spend will go to equipment imported from overseas and large national contractors, with limited flow-on to local trades or suppliers.
 - **Energy benefit:** Power is fed to the national grid; Maniototo residents will not receive cheaper or prioritised electricity.
 - Large-scale industrialisation of rural land could negatively affect tourism — events, accommodation, and cycling tourism rely on the area's open landscapes and rural charm.
-

7. "Policy alignment"

Rebuttal detail:

- Alignment with the **NPS-REG** and other high-level policies does not outweigh site-specific adverse effects under the RMA.
 - The NPS-HPL (Highly Productive Land) recognises the long-term value of versatile soils — once converted to industrial use, recovery to full agricultural potential can take decades.
 - The District Plan seeks to protect rural character and amenity — industrial-scale developments risk setting precedents for further utility infrastructure in rural landscapes.
 - The "operational need" test is not met if similar solar output could be achieved on less productive or already-modified land elsewhere.
-

8. "We removed contentious components (BESS)"

Rebuttal detail:

- Removing the Battery Energy Storage System removes one risk (groundwater contamination) but does nothing to address the **core concerns** — landscape change, productive land loss, and tourism impacts.
 - Future "variation" applications could reinstate a BESS once consent for the solar farm is granted, bypassing the current public scrutiny.
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Exhibit: Security of Assurance Bonds

While conditions of consent under the **Resource Management Act 1991 (s108(2)(b) and s109)** can require an assurance bond, it is critical that such a bond is independently secured.

If a bond is held only in the name of a limited liability company (such as *Helios NZ Ltd*), that instrument is at risk of becoming unenforceable in the event of company failure or liquidation. Under New Zealand company law, an LLC's obligations are confined to its own assets, and once insolvent, unsecured guarantees are effectively worthless.

The Environment Court in *Genesis Power Ltd v Franklin District Council* [2005] NZRMA 541 emphasised the need for certainty and enforceability of bonds under the RMA.

To protect the community and the environment, any bond must therefore be lodged as a **bank guarantee, cash deposit, or independently held surety in favour of Council**. This ensures the bond remains enforceable and available for remediation or decommissioning, regardless of the financial status of the operating company.

Reference: *Genesis Power Ltd v Franklin District Council* [2005] NZRMA 541 (EnvC), noting the Court's concern that bonds under the RMA must provide certainty and be enforceable to achieve their purpose.

Summary: Risks of Using Water Retention Crystals on 20 Hectares

At small scale, hydrogels (polyacrylamide or sodium polyacrylate crystals) are generally considered low risk. At the scale of 20 hectares, however, credible long-term toxicity and environmental risks arise.

- Persist in soil 5–10 years → tonnes of polymer accumulate.
- Residual acrylamide monomer (toxic, probable carcinogen) could leach → risk to groundwater and surface water.
- Sodium-based gels release sodium → soil salinity, degraded soil structure.
- Stock and wildlife ingestion risk (gut blockages, bird attraction).
- Runoff risk → aquatic life sensitive to acrylamide contamination.
- Regulatory oversight likely → Otago Regional Council (water quality and discharge rules).

In summary: ****safe for gardens, but risky at 20 hectares****. Risks include acrylamide contamination, soil degradation, animal safety issues, and ecological harm. Alternatives such as mulching, organic matter, or moisture-retention crops should be considered in preference to large-scale hydrogel use.

Long-Term Toxicity of Plant Water Retention Crystals (Large-Scale Use)

Water retention crystals (hydrogels, usually polyacrylamide or sodium polyacrylate) are sometimes proposed for large-scale soil moisture management. While generally safe at small garden scale, application over 20 hectares raises significant long-term toxicity and environmental concerns.

1. Polymer Stability & Degradation

Polyacrylamide hydrogels can persist 5–10 years in soil before breaking down. Over 20 ha, this may amount to tonnes of polymer. Degradation is slow and incomplete, raising concerns about residual contaminants.

2. Residual Acrylamide Risk

Acrylamide monomer (a neurotoxin and probable human carcinogen) is a residual from manufacturing. High-quality products limit this to <0.05%, but at 20 ha scale this could still represent kilograms of monomer. Leaching into groundwater or surface water is a credible risk.

3. Soil Chemistry Changes

Sodium-based polyacrylates release sodium ions, increasing soil salinity and potentially degrading structure (dispersion of clay, reduced infiltration). This risk accumulates over repeated or large applications.

4. Impacts on Stock & Wildlife

Livestock or wildlife ingesting swollen gels may suffer gastrointestinal blockages or metabolic disruption. While not acutely toxic, ingestion is a practical hazard at scale. Birds have also been observed attracted to gels.

5. Aquatic & Ecosystem Risks

Runoff into creeks or wetlands poses risks to aquatic invertebrates and fish, which are highly sensitive to acrylamide monomer. Some jurisdictions restrict large-scale field use of hydrogels near water.

Practical Considerations

- Check certification: horticultural-grade PAM with very low residual acrylamide.
- Avoid sodium-based gels; prefer potassium-based or neutral polymers.

- Establish buffer zones away from waterways.
- Consider alternatives such as mulching, organic matter, or moisture-retention crops.
- Expect regulatory scrutiny from regional council under discharge and water quality rules.

In summary, while hydrogels are low-risk in small-scale horticultural use, applying them over 20 hectares introduces credible long-term toxicity and environmental risks: acrylamide contamination, soil salinity, and ecological impacts. These risks are significant enough that alternative soil water management approaches should be considered.

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RANFURLY, NASEBY & THE MANIOTOTO

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RANFURLY, NASEBY & THE MĀNIATOTO

The Māniatoto is one of New Zealand's unparalleled places — a vast, soulful plain fringed by craggy, tussock-clad hills and sturdy mountain ranges. Big blue skies by day become incredible dark skies by night. Naseby residents know this for a fact — they've been taking scientific readings and their night skies are up there with the best.

Within the weathered and timeless plain and valleys are resourceful, resilient communities, generous in spirit and strengthened by deep, steadfast friendships forged through generations. Looking out for each other is simply a way of life. In this place, land and people shape each other — but nature is always in charge.

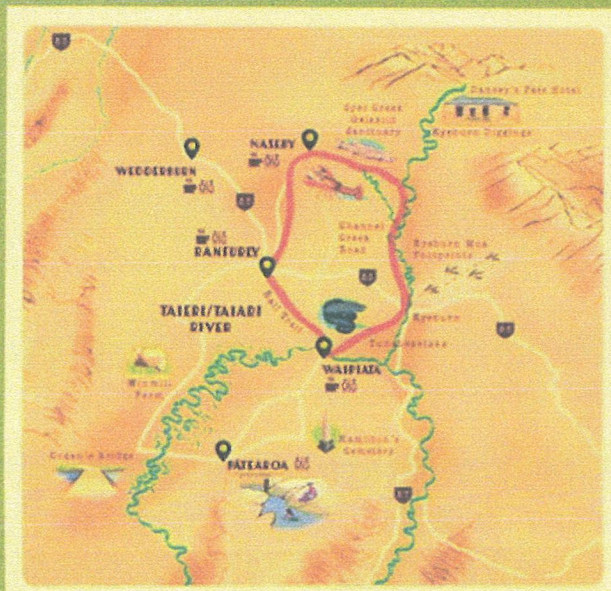


The Kyeburn Loop



Tiaki Maniototo
**KYEBURN
LOOP**

The Kyeburn Loop is a 45 kilometre road trail that explores the Kyeburn region, an area of great ecological, cultural and historical importance. It takes in our Spec Creek galaxiid site and our information site in Ranfurly.



Dansey's Pass Motel

Kyebrun Diggins

Spec Creek
Galaxias
Sanctuary

Kyebrun Moa
Footprints

Channel
Creek
Road

Kyebrun

Tungakelake

WAIPIATA

NASEBY

RANFURDY

TAIERI/TAIARI
RIVER

HAMILTON'S
Cemetery

PAILAROA

WIMMIE
FARM

Cogan's Bridge

