

**BEFORE THE INDEPENDANT HEARING PANEL
AT SELWYN DISTRICT COUNCIL**

Under The Resource Management Act 1991 ('**RMA**')

In the matter of an application by KeaX Limited to construct and operate a 111ha solar array at 115 & 187 Buckleys Road, Leeston.

STATEMENT OF EVIDENCE OF MICHAEL JOHN DALLEY

4th of March 2024

- I provide this evidence on behalf of myself and Anneka Dalley, Clark and Elizabeth Casey, Dave and Donna Kewish, Corey Krygsman, Anne and Donald Green, Simon Robinson and Donna Irons (the **Brookside Submitters Group**), who were all part of the limited notified group and lodged submissions in oppositions to the KeaX Limited proposal RC235464 to construct and operate a 111ha solar array at 115 & 187 Buckleys Road, Leeston (the **Application**).

INTRODUCTION

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- My full name is Michael John Dalley. With my wife Anneka and three children we run a 200-ha self-contained Dairy and Beef Farm. We live at 56 Buckleys Road, Brookside.

- We trade under the name of Haurere Farms Ltd and are both directors and owners of it. I have lived and farmed in Brookside for over 50 years now. I have a great understanding of the unique beauty of the area that attracts people to live and farm. Many large areas of native and exotic plantings, especially Oak and Black Poplar Trees border along the Inwell River, Hamner drain and Boggy creek. On either side of these streams farming takes place with a mixture of dairy, mixed crop/sheep and organic vegetable market gardening on beautiful fertile soils. Also, there are many lifestyle holdings, where people enjoy living in a farming area that has natural beauty, is quiet and free of the hustle bustle of the city, but still close enough (30 minutes) to go to work and shop.

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• **BACKGROUND**

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• **Haurere Farms**

- Our dairy operation is based around having health, high genetic and well-fed cows that produce high quality milk (we have been supplying dairy companies with the finest and grade free milk for over 30 years)
- Our aim is to run a sustainable business that farms responsibly looking and caring for our land and the environment.
- Our soils are heavy clay loams that are vulnerable to plugging when wet with sediment run off in high rain fall events. We negate this by running a lower stocking rate/ha, we have sheltered stand of areas and have and continue to plant large riparian plantings along streams, drains and gullies on the farm.
- We have a small solar farm of 0.5 of a hectare, owned and built by Kea Energy that provides power to our dairy shed and irrigation.
- **Ward Family**
- I have known the Ward Family for over 50 years and have fond memories of growing up, making hay and building projects on each other's farms. Also, over the years and presently we have shared ownership of machinery including heavy rollers, hay trailers and generators to name a few.
- So, it has been quite hard now dealing with their proposed Solar Farm and being on the opposite sides.
- We fully understand that it is their right to do whatever they want with their land, but you must understand that this project is going to have a huge Enviromental and emotional impact on the Brookside community and wider Ellesmere area.
- **Kea Energy**
- We have known Mr McMath and his family for about 11 years.

- At a BBQ at our place with the McMaths we talked about Solar Panels in our farming operation. Not long after in late 2013 Kea Energy were putting half a hectare of panels near our dairy shed to power it up.
- Kea Energy paid for all the infrastructure for no lease on our land but a cheaper power rate to us.
- Sounded great at the time and we thought we were saving the world, giving us a great Carbon Footprint and giving the perception to the public that we were doing the right thing for the future.
- We lived with this idea for 9 years but then it all changed.
- On the 30/7/2021, Mr McMath came to our house with his grand scheme of building 298 ha of Solar Farm on the land of the Prices, Wards and our 40 ha on the south side of Buckleys Road.
- We were offered \$60,000 /ha to sell or \$4000/ha to lease – very attractive.
- The impression we got from Mr McMath was that we would sign up straight away – we had been one of his first solar projects and believers!
- We told him we would think about it and tell him in the morning. The next day we told Mr McMath “NO” to using our land on the grounds that we wanted to carry on farming ourselves and give our children the opportunity to farm.
- We also said we don't want to drive out of our gateway and look directly into Solar panels.
- Well, that was about it, Mr McMath couldn't grasp the idea we said “NO” and pretty much ever since he has had nothing to do with us.
- Time went by, then Clarke Casey in November 2022 came to see us regarding signing a petition against the proposed Solar farm on the Wards and Prices Farms. We signed the petition and gave our full support financially as well.
- It was here when we deepened our opposition to this as we were not notified by SDC as a notified party even though we were the immediate Neighbour boarding both the Ward and Price properties.
- To think something this scale (258 ha) which is a complete change of land use and not to even consider notifying the immediate next-door Neighbour – it's just ridiculous!!
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- **PUBLIC NOTIFICATION**

- In the first hearing in 2023 the commissioner Hughes – Johnson in his summing up stated in **section 10.21 that “having regard to the findings which I have made earlier in this my decision relating to the environmental effects of the Proposal (which I will not repeat here), and noting my finding that the loss of productive potential in the sense to which I referred to this matter earlier in this decision I am required to decline to grant a resource consent in this case because of my view that the application should have been the subject of**

public notification and was not.” Mr. McMath, in countering “the loss of productive potential” has pointed to solar panels on the Ward property where there was photographic evidence of good spring growth. Similar panels exist on our property where we then initiated research under the panels to establish whether those panels were impacting “highly productive lands’. I requested Mr Ray Henderson to assist with this work. We have written a progress report for this hearing detailing what has been established to date(Attachment 1). That report remains the intellectual property of myself, and I will submit it with my evidence. Mr Henderson as co-author will also present some of the science in his evidence statement.

- One must ask why the 2 immediate bordering Neighbours to a 258 ha to a Solar Farm, us and Simon Robinson and Donna Irons, were never notified in the first place.
- Does no one understand the scale of this original 258 ha Solar Farm proposal, and the fact that it is a significant change of land use from a highly productive farming to manmade structures and a few glorified land mowers (sheep) under neath.
- Why does the council not let the wider Brookside community have a say in a Public Notification. This impacts a lot more people than a few neighboring neighbours to the Solar Farm.
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- **COMMUNITY CONSULTATION**

- We struggle to understand why Mr McMath thinks he did enough regards communicating with notified parties and the rest of the community.
- In our own case he is correct in saying we met at our house in July 2021, but only regarding the proposed 298 ha Solar Farm not the current 111 ha farm.
- Apart from that meeting we have only had a generic email from KeaX on 5/12/2023 after we were notified by SDC in November 2023.
- Mr McMath, forgot to mention that he and I met at our Solar Farm in November 2022, and he mentioned about Mr Caseys petition.
- I said to him quote “It’s a free world and Mr Casey is allowed to do whatever he wants”.
- I also told him we were fully supportive of Mr Casey’s petition and that we had signed it.
- We have not heard from him since until the generic email. Isn't it prudent for a “responsible developer” like Mr McMath has said about Kea that they actively go out and communicate with the local community at a very early stage in the process.

- That would be calling a local meeting themselves proposing what they were going to do. The SDC could be there as well. But nothing was done.
- There are many cases in New Zealand now, where developers/investors are actively going to communities with their proposed Solar projects at an early stage before anyone is notified.
- Trying to pick off individual notified parties as you tried to do with Mr Casy in the first proposal, with chocolate cake and bacon seems shifty to me.
- Yes, we did have meetings with the immediate community (we are entitled too) but they were to inform them what was going on. People had no idea and were shocked to hear this and to think it was now at a limited notification stage. And again, with your new proposed 111 ha Solar Farm, there was still no meeting called by you.
- It is unfair to us all (Brookside community) as said by Mr McMath and Ms Kelly that we did not want to engage with Kea Energy. It was up to Kea X well before notification to go to community with their proposal and communicate.
- Ms Kelly goes on in her summary 9.6 of her evidence that Mr McMath is also part of the community. Contrary to this Mr McMath is not part of the Brookside Community he lives over 9 kilometers away in Leeston and will not have to live next door to the solar Farm.
- Yes, Ms Kelly is correct in saying in her summary 9.8 that there is no benefit to the community.
- All the Solar Farm is doing is splitting the community and sending a whole lot of contaminants into Lake Ellesmere, creating a huge fire risk and risking the lives of the community with increases in the Electric Magnetic Fields(EMF) and noise pollution.
- Furthermore, the consequence of reducing Fossil Fuel dependency, managing climate change and less nitrates because of less intensive use of land are a load of Greenwashing. The Solar Farm is still being farmed with a few token sheep (however we still don't really know what they are going to farm). The sheep urinate too, and the Solar Panels release nitrate-nitrogen (attachment 1, table1)
- In another Attachment 3:Dairy NZ link to staff shortages in Mr McMath's evidence I assume he has this in there because if The Wards reduce their cow numbers they won't have to worry about getting workers(I can't actually find what he is referring to in his Evidence).This is a problem in the dairy industry but is not usually the case with the Wards.Because their farm is small compared to most Canterbury farms they tend to attract disillusioned staff from large farms and they are attracted to the close proximity to Christchurch,Rolleston and Lincoln University.Also there tend to be more variety of jobs ,less hours of work and good time off.The Wards have always been good employers and have had many staff from NZ and overseas and to be fair the Wards have always had one of the most over staffed farms for their size.
- I believe this is another misleading comment by Mr McMath.
- **Communication from the Selwyn District Council**
- There seems to be inconsistencies with communication from the council. We asked our local councilor, Shane Ephraim to our first meeting. He recalled having a social gathering with other councilors over a few beers with Mr McMath who was giving them a brief on his Solar Farm

project in Brookside. Mr Ephraim was shut down and told to refer everything to the Planner. Aren't we entitled to share our thoughts and communicate via our local councilor?

- On the last day of the hearing the Brookside Submitters were locked out of the room while the Selwyn District Council planners engaged with the Kea Energy applicants' team. There was no engagement with the Brookside submitters by the council on their own.
- When notification came through some of the notified parties weren't given an email of the submission, hence the final submission date being delayed.
- A member of our community, Geoff Lill asked Mr Mathew Ward at a Lions function in June 2023 about the proposed Solar Farm on his property and asked him why he hadn't initiated some consultation with his Neighbours on the proposal. Mr Ward then advised him that the Selwyn District Council had advised him not to consult with the community, (see attached letter 2).

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• **HIGHLY PRODUCTIVE LAND**

- From our perspective this land is being changed in land use from a highly productive dairy farm to a large scale industrialized Solar Farm with a sprinkling of sheep to keep the grass down.
- Yet again more productive farmland is being taken away from NZs agricultural food production. The investors and developers of solar energy offer prices for farmers' land they cannot refuse. These high prices put land out of the reach of future generations to be able to go farming.
- Our own children would like to go farming and they are losing any opportunity of buying neighboring properties.
- We are not against solar power, as you know we have solar ourselves, but there are better places to site these projects like on unproductive land or the roofs of large warehouses of Izone in Rolleston and hence closer to a nearby substation and where the power is needed.
- Leave our highly productive land to be farmed properly.

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• **FARMING**

• ***Farm Management Implications of The Proposal***

- I understand from the application documents, that the proposal site will also be used to graze and finish lambs.
- To finish lambs, you will need good quality feed that being clover, annual ryegrass or some kind of fodder crop like rape or oats.
- In most cases lamb finishing in Canterbury is done from Autumn through to spring when store lambs are available for sale.
- This means you will need this feed grown in late summer early Autumn. Given that most of the growth is in spring and if there is no irrigation under the panels there will be no feed available. (see photo below)



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- 14th February 2024 unirrigated pasture under Solar panels
- You only have to look at this summer and this could be common if we go into a El Nino weather pattern.
- All this high-quality feed needs water, fertilizer and in the case of fodder crops the ground will need to be cultivated and drilled.
- Assuming the tractable panels proposed are driven by a horizontal drive shaft which is 90 degrees perpendicular to the rows of panels and 500 mm above the ground, like our own there are some major issues. Using machinery in the panels is very restrictive and the time moving around back and forth would mean you would be spending over twice as long and hence twice as much fuel. Your fuel costs would be double that of a conventional farm. This also applies to harvesting the surplus spring feed. Who is going to buy this feed when they can get it a lot cheaper somewhere else.
- Compaction will also be an issue with all these restrictive vehicle movements as this reduces the amount of grass growing and creates a channeling effect allowing runoff in rain events.
- It is not enough just to say there is more grass growing under the panels as quoted. Mr McMath has many Solar sites around Canterbury where he could have engaged Lincoln University to measure grass growth against a control. There is no relevance to getting data from a Massey University trail, when our climates and soil types are so different. This also applies to the Wairau Valley site. Mr McMath has had many years to trial grass growth rates and various stock uses on Canterbury sites especially the 3 solar sites bordering the proposed Solar Farm.

- From my experience of managing sheep under our own solar panels compared to the conventional open paddocks with no obstructions which is common in Ellesmere, it is that they are completely different and are very difficult to manage.
- Given that there are upright posts and a horizontal bar 500mm above ground, trying to move sheep is very difficult. The sheep have many options to avoid being moved as they can go under or over rail as well getting behind the panel posts. (see photo below)



- January 14th, 2024, Showing horizontal drive shaft
- This means the dogs working the stock must work harder and they will be prone to accidents/injuries. And it will take more time.
- This puts a lot of pressure on the stock handler with more yelling, whistling and stress. The stock handler will need to be highly trained and have a very good team of dogs. Finding someone of this skill level would be hard. One must ask how they are going to subdivide the Solar Farm into manageable paddocks? Where are the paddock layouts, stock yards, water troughs and in fact the whole stock management plan?
- I note that Mr McMath in his evidence attachment 9 may use a Halter virtual fence system. Does this mean they are thinking of putting collars on sheep or as it is designed for cows. We thought you were getting rid of dairy cows as you wanted to reduce nitrates as noted by Ms Kelly in 9-8 of her evidence but now you are talking about having virtual fencing with large animals between the panels.

- Consider that Halter is not 100% accurate and there have been many instances where stock are given the wrong signal and in one case a mob of 500 cows spent the night walking around a water through.
- Imagine if Halter failed giving the wrong signal in Solar Panels. They would be hitting steel posts, horizontal bars and most likely the panels. There would be severely injured and even dead animals.
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- As well one must consider whether getting an electric shock frequently to tell the animal what to do is great for the animal's wellbeing.
- Referring to Mr McMath's evidence Attachment 9 he shows a picture of Halter. It talks only about large animals like cows pointing the pictures below which show sheep. It seems strange to have sheep when Halter is specifically designed for cows only. (see attachment 3).
- There is no nutrient work or Farm Environmental plan made available for a change to sheep grazing, which gives us as neighbours no comfort that the land will be sustainably managed.
- I also consider that the proposal to finish lambs on the proposal site will cause implications for the future animal end use.
- From my observations of our sheep in our Solar Panels, they like to rub themselves on the the posts and rails of the solar structure. The consequence is their backs start going grey with all the zinc they are rubbing off. This is still happening after 10 years of having the panels. (see photo below)
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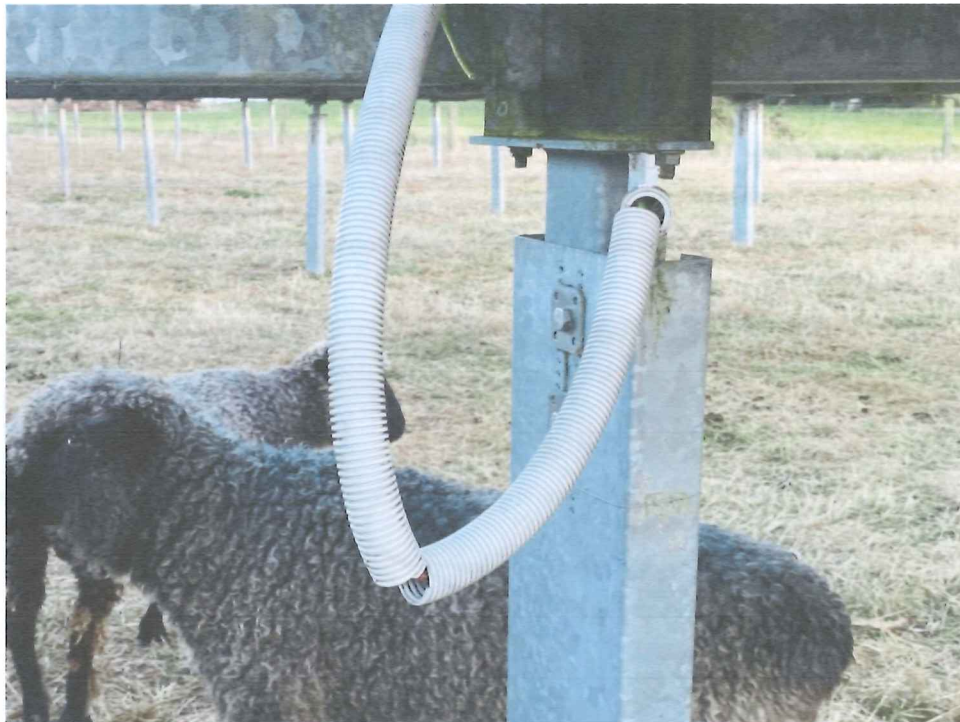


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- Zinc Galvanizing on sheep 14th January 2024
- I don't know how meat and wool companies are looking at this, but these metal fragments will be entering their skin and colouring the wool.
- It may be prudent for meat companies to start monitoring stock that comes off solar farms. This is not even considering that the feed the sheep eat may be contaminated from metal contaminants off Solar Panels.
- At the end of the day, it will be hard to promote Solar lamb as a clean green grass-fed product to our overseas markets.
- Maybe they could promote under this label:
- **"Solar fed lamb galvanized to perfection"**
- **"Experience that Metallic Feeling"**
- Finally, from our own observations of managing sheep or what Mr McMath intends to farm under the panels is that sheep like to reach up to lick exposed/loose cables on the panels and drive units. Dairy cattle (if they have survived a Halter malfunction) will be worse as they will reach further up to the panels. Cows love to lick things and over time they will deteriorate the panel.

- Infact our sheep after being introduced under the solar panels disabled the drive unit for the drive shaft that moves the tracking solar panels in a couple of days. For over 3 years the panels have remained in the same position and have never been fixed.
- I question whether Mr McMath will be able to maintain 111 ha of panels when he can't even look after 0.5 ha of panels.
- His workmanship/maintenance is average at the least ie loose cables and drive units not fenced off.(see photos)



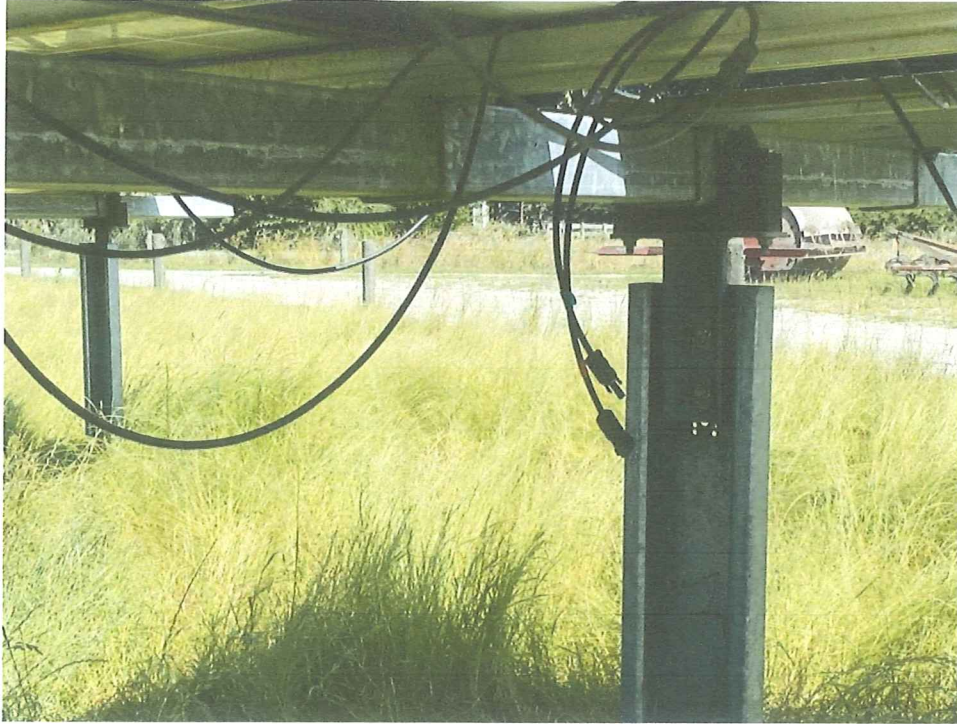
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- Saturday 2nd of March 2024 Loose Cables



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- 2nd of March, 2024 Broken and hanging conduit.



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- 19th December 2023, disabled drive shaft unit/unprotected



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- 19th December 2023, more loose cables
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- Do these solar energy developers/contractors abide by a code of compliance for their work like an electrician would require?
- We never saw any code of compliance for the panels site on our property.
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DRAINAGE AND RUNOFF – STORM WATER CONSENT

- In June 2023 we spoke to our lawyer regarding our concerns of flooding/runoff of storm water and potential metal contamination from the proposed solar farm onto our farm.
- We were concerned about our children's futures as they would like to go farming, so we want some sort of protection going forward.
- The proposed Solar Farm soil type is an Ayre. 3a.1 (Waterton clay loam) with a heavy clay loam and iron pan at 400mm depth. They are renowned for their high-water capacity. Once these clays get up to full water capacity, especially in winter, any rain event above 10mm will start to runoff.
- We have substantial rain events (over 25mm) most years. Over recent years they have become more frequent with totals over 100 mm at a time. In July 2023 from the 22nd to the 27th we accumulated 109mm and this caused substantial flooding through our property and into the Hamner drain.
- These photos taken show the flooding on the 26th of July coming out of the proposed solar site.



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- July 26th, 2023, On our boundary track from Ward property



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- July 26th 2023, looking at proposed solar farm on Wards property
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- 26th July, Culvert under track from Wards property



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- 26th July, corner of Brookside Irwell and Hamner Roads, flooding in gully of paddock R3 near Hamner Drain.

- It follows a natural gully through our paddocks and into the Hamner drain. There are a series of gullies through our farm that were the original drainage points of the land before the Hamner drain was dug in the 1930s.(See Flood Map below)

N2_20170722_163951 - Buckleys Road and Brookside and Inwell Road (south-west)

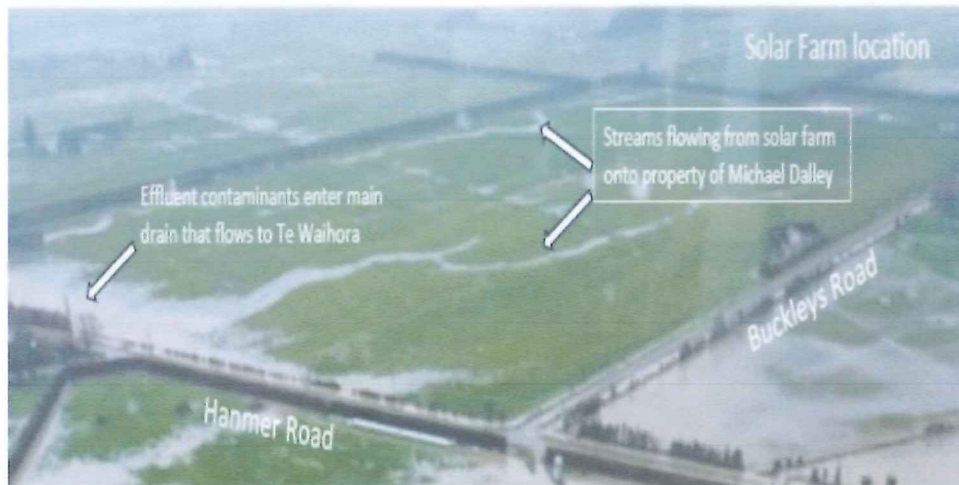


Photo 1. Run-off of floodwaters that will contain heavy metal and PFAS contaminants if a solar farm is located at Brookside.

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- Photo above taken July 22nd 2017 Flooding streams flowing from Proposed Solar farm at Wards..
- In November 2023 we did some soil testing under the Solar panels at our farm as this site is prone to flooding as well. It is located in a gully near the Hamner drain (see photo below)



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- Our reason for this was that we were concerned around contaminants coming off panels changing the soil profile of our property and contaminating our pastures.
- Given that we are achieving the highest-grade free milk that is paid a premium and will be the case in the future we did not want this risk causing financial grading, rejection of milk and subsequent loss of supply.
- This would also apply to any meat we sell or if we changed land use and went into crop and vegetable production. Sensitivity to fluctuations in milk or meat is pivotal and critical for our ongoing compliance and pricing.
- In our view, this cannot be managed and there is no control on runoff entering our property.
- Referring to our soil tests/ results/ analysis (attachment 1) named "a pilot study evaluating the effects of Solar panels on highly productive lands and the implications for other ecosystems" we have many concerns regarding the runoff off the proposed Solar Farm onto our farm then into the local stream Hamner drain, and into Lake Ellesmere.
- Here is a summary of our report. After 9 years the solar panels appeared to be still in good condition and there seemed to be no damage to them. Test soil samples were taken by a Ravensdown soil technician and compared by Analytical Research Laboratories (ARL) with "control" soil samples taken 40 meters distant from the panels. There were some disturbing results. Sodium up 33%, nitrate-nitrogen was up 40%, iron was up 70%, the sulphates/sodium of metal leaches were up 333% copper was up 22%, cobalt was up 13%, magnesium up 14%, manganese up 14%, boron up 17%, cadmium up 29.5%, arsenic up 27%, aluminum up 55 and lead up 22%.
- Also, high levels of iron, aluminum, manganese, copper and lead were found in rye grass from samples taken which were analyzed by Hill Laboratories, Hamilton. (Attachment 1, tables 5&6).
- The increased leaching of aluminum and iron from the solar panels leads to more soil compaction in loamy soils. Now with a soil crust at the surface of land and iron pan 8 inches deep in our Brookside soils, inevitably the rate of runoff of flood water will increase.
- The flood channels/gullies running through our property which drain the proposal Solar Farm, will be coated in heavy metal and Poly-fluoroalkyl substances (PFAS) contaminates which research shows are found in the milk of cows.
- The follow-on effect of this drainage of these metal leaches on the soil surface are to drain into the Hamner drain and down to Lake Ellesmere having a major toxic effect on aquatic organisms.
- The results of grass samples in our solar array show increased levels of heavy metals (refer to table 5, attachment 3). This concerns us as our sheep are eating these grasses under the panels currently and our cows will be eating pasture from contaminated runoff.
- This is a major concern as there are potential impacts on the cows milk production, health, the health of their offspring and the follow effect on the food chain via milk and meat being contaminated and passing onto humans.

sensitivity
~~sensitivity~~

plantains

- Also of concern is the ~~sensitivity~~ of clovers, ~~plantations~~, chicory and other herbs that we are using in our pasture mix, to these metal contaminants.
- This pasture mix is important to our future farming practices in reducing nitrogen use/loss for example clovers are fixing nitrogen so less applications of other nitrogen sources like N-protect, deep rooting plantains are used for extracting nitrates and chicory/herbs help improve milk production and animal health.
- The runoff of metal contaminants into the Hamner drain and into lake Ellesmere is a major worry to us as it will have a major impact on aquatic organisms. Those metal contaminants found in our soils under the panels are toxic to aquatic life.
- Hamner drain has many trout, eels and mudfish are close by. Eels eat trout which are eaten by Māori and our own children fish and eat from the drains.
- The risk to birds is via the bioaccumulation of metals in fruit. We have numerous briar berries (wild rose bushes) and blackberry in hedge rows by drains which absorb the metal contaminants and are eaten by birds like sparrows, black birds, thrushes and fantails, which we have plenty of.
- We have many wader and water birds (like Pukeko, grey heron, stilts and oyster catchers) present on our farm and nearby stream which will be vulnerable to contaminated water ways as they eat the small aquatic organisms.
- Managing our contaminated soils will be hard when we want to take cuts of baleage and hay as the levels of Aluminum in the grass are high as shown in soil test results (table 6) they will need to be regularly soil tested to balance pH of soil with lime = more costs.
- I am no soil scientist, but I did differ the research/report Mr Professor Zac Beehey – Gradwell has done on Kea Energy Solar Farm in Wairau Valley, Marlborough.
- The soil has large stones, free draining and on a river terrace away from flooding compared to the heavy clay loam with iron pan prone to flooding at Brookside.
- They are located in a completely different area and climate, and one must ask why travel 800 km return (10 hrs.) when Kea Energy has 3 solar sites next door to the proposed site, only 40km (40 mins) return trip from Lincoln. I thought they were saving fossil fuels!
- These 3 sites including our own have been established over 10, 8 and 7 years, so would be an ideal comparison of soils and grass growth.
- The panels at Wairua Valley are only 3 years old so are particularly new. No valid comparisons can be made between the results from the Wairau site and Brookside site; it is like comparing apples with oranges because they are completely different soils.
- We believe that the research on the soil under the solar panels at Wairau Valley has proven a point.
- The location is a low-density residential area, the soil is stoney, free draining for leachates to go deep, and it is land which has low productive value. It has minimal visual impact as it is screened by pine trees away from the road.

- It is pretty much the opposite of the site being proposed at Brookside, which is a high density residential and rural area that has major visual impacts and made up of heavy fertile clay soils which are on highly productive agriculture land.
- Wairua Valley is the perfect site for a Solar Farm not Brookside!!
- To finish, Mr McMath makes an issue about nitrates in ground water under Brookside. There is a high probability they are coming from up country. As we know, the soils of Brookside has a deep layer of clay in the subsoil and an iron pan which lessens the passage of nitrates through the soil. Phosphates are more of a concern in terms of runoff/sediment loss, however riparian planting of gullies and stream beds helps to lessen the loss.
- In fact, the Ward property has a very low 'N' loss in their nutrient budget that is audited by ECAN.
- Yet again Mr McMath is misleading with statements regarding removing cows to lessen nitrate losses.

- **SOLAR PANELS**

- Despite repeated requests to Selwyn District Council and the applicant for the type of panel to be used on the Solar Farm over a period of 15 months, that information has not been forthcoming until two weeks before the hearing.
- Considering the solar panel is the most important part of the Solar Farm would it not be of most importance to have the type of panel and its specifications as part of the applicant's resource consent. This absence leaves us as notified parties guessing and assuming what the panel type is.
- Referring to Mr McMaths evidence he is going to install a crystalline silicon bifacial panel made by Yinqi solar in China. Referring to attachment 10 in his evidence a product statement is released by Yinqi however we still don't know the actual panel as a lot of information is 'X' out. (See attachment 4)
- When Mr McMath installed our solar panels (type Kyocera made in Japan) he assured us they were safe. Now after 9 years we are finding heavy metal containments in our soil.
- Without the specification of what is inside these panels it is hard to know whether these panels are safe or not. However, for a start they have an Aluminum exterior which is a leachate that as we know is toxic to both aquatic organisms and the soil.

- **HEALTH AND SAFETY**

- **Electric Magnetic Field (EMF)**

- It seems crazy that the substation and it's upgrading of existing lines is only considered hypothetical. The new Solar Farm is generating power that goes into the substation then is taken away by the transmission lines.
- The increased power going through the lines will increase the EMF risking to the health of the residents living close to them –i.e. cancer(Refer to Attachment 5) and Leukemia .Mr McMath himself has Leukemia probably from working with electricity all his life.

- Of concern to us is that our dairy cows are very sensitive to electricity. Our dairy is close to Buckleys Road and cows stand to wait and cross the road under power lines. The increase in high voltage power can affect milk production, lower fertility and affect cows' immunity systems. All these can impact the profitability of our farm.
- Remember that this is the biggest bluff in history. Mr McMath reapplies for a new consent on a smaller scale (111 ha) but in reality, it's just stage one of the original 258 ha which includes the Price family farm. He gives the perception he has listened to the community and compromised on the size. If the money keeps getting dangled in front of farmers, this project could morph into something the scale of 400-500 h. (see photo below) '



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- This will have a huge ramification on the wider community for example, major increase of EMFs from transmission lines getting bigger in capacity. As well the substation will expand into something far larger than now, probably similar to the new one on Telegraph Road.
- **Acoustics**
- We have major concerns regarding the use of the pile drivers during construction. From our own experience when our solar was built, the sound of the pile driver was extremely noisy especially when it had to ramp up to get through the iron pan.

- Has the sound of the pile driver been tested on the soils of the proposed site? And with two going, the sound will affect more of the community.
- Also not considered is the noise that comes from the panel on a frosty morning after rain or the damp of winter. Even it is over 3 years ago since our panels stopped working, I remember when they first start moving, that the bracket underneath which is attached to top of post and allows the main frame which holds the panels lets off a loud cracking noise as it breaks the ice. This will be a significant noise that will annoy residents.
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- We are totally against the plan to work Saturdays. Many of the residents of our community work during the week, and do not want their sleep in, or coffee, breakfast, lunch and dinner destroyed by the sound of these drivers.
- We have major concerns for the safety of children getting on the school bus with increased traffic, noise and being close to the power lines and substation that are going to increase in size and create larger EMFs.
- There has been no fire plan. If the farm is not managed well and remains dryland it only takes a spark to light a fire like the recent Port Hills fire or sparks from machines such as mowers.
- This is a major concern for the local residents and will have a major impact on the whole of the Ellesmere district.
- Also, we do not consider there has been any considerations regarding a hail strike. Brookside is known to be in a belt where hailstorms come through. Glass and golf ball size hail stones probably don't go together.
- The damage will be substantial and the release of contaminants instantly with the intensity of hail and runoff channeling onto neighboring properties.
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- **EMOTIONAL IMPACTS**

- Considering the higher density of properties in the Brookside community compared to an area dominated by larger farms on the outer plains there is huge stress and future viability concerns for those living and working in the vicinity of the proposed site.
- Instead of Brookside being thought as an idyllic quiet, charming, farming settlement it will be tainted by an industrialized Solar Farm. That is destroying a community and polluting our waterways and lake.
- All this proposal has done is divide the community, especially where members of the community have not been given an opportunity to engage with the proposals.

- We also note there is no benefit to the direct community-the power is destined for Lincoln and Rolleston.
- Developers/ Investors building these Solar Farms of this scale have no concept what it is like to live and breathe next door to a Solar Farm – all they do is sip on their latte in a cafe somewhere on their phone with an app telling how much money they have made today. Even Mr Math's wife admitted to a good friend that she would not like live next door to a Solar Farm.
- The Developers/Investors offer excessive amounts of money that no other farmer can afford, they pretend to farm and eventually trash the land. Opportunities for our own children and future generations are lost.
- On a personal note, this whole saga has already impacted our business. You become totally absorbed in challenging this, it takes over your life which then impacts decisions made on farm. We have been so busy; jobs have not been done and the timings of crops have been delayed.
- I have become a health and safety issue on my own farm as my mind is fixated on Solar, so I am a liability in the making, as I work around large machinery and animals.
- I am not one for making excuses in life, but this has had a major effect on my health as I am already battling with a life-threatening health condition called Addisons disease(attachment 6).
- The stress and sleepless nights has impacted both Anneka and I-we are extremely tired. Our children end up living this Solar nightmare too. Now my daughter talks of never coming home if this Solar farm is built. I apologize to Anneka and my children for having to listen to constant talk of solar power. They have lost their father over the summer, but I thank them for supporting me, listening and putting up with me. Now this is over we can make up for the lost summer we have just had.
- To our fellow submitters. Good luck, well done it is not easy speaking at this hearing, but it is so important that you tell your story.
- I would also like to thank the Brookside Community for all your support (financially and mentally). It has been a pleasure meeting and working with you all.
- On a positive note, I believe that it has brought our community closer together.
- **Conclusion**
- We believe this application should have been publicly notified as there are more than minor adverse environmental effects.
- From our soil testing of solar panels and the associated runoff we believe there will be an impact on our farming operation and follow on effects in the Ecosystem of the Hamner Drain and Lake Ellesmere.
- There has been a complete lack of communication with the Brookside community by the applicant and he has also misled the hearing with his evidence.
- We see an inappropriate use and development of highly productive land that is not land-based primary production.

- The impact on the Brookside community of the proposed activity is more than minor, as the amenity, character of the area has been impacted as well as the wellbeing of the community.
- We believe the resource consent should be declined
- Finally Something to Think about below

Ten Commitments for effective Solar Development (by Tildy Bayar - Guru on solar development)	
1. Focus on non-agricultural land or land which is of lower agricultural quality.	This project X – fail
2. Be sensitive to national & locally valued landscapes	X – fail
3. Minimise visual impact where possible and maintain appropriate screening.	0.5 point
4. Engage with the community in advance of submitting a planning application.	X – fail
5. Encourage land diversification by incorporating biodiversity measures within solar projects	0.5 point
6. Do as much buying and employing locally as possible.	X – fail
7. Developers should act considerately during construction, and "stewardship" of solar arrays.	X – fail
8. We will seek the support of the local community and listen to their views and suggestions.	X – fail
9. We commit to using the solar farm as an educational opportunity	X – fail
10. At the end of the project life we will return the land to its former use.	X – fail
Final Mark=1/10	

Thank you Mr Commissioner.

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Michael John Dalley
xx March 2024

