Memorandum 4

To: The Expert Panel for the Ashbourne Fast-Track Application

From: Bronwyn Rhynd (CKL Consultants Ltd)

Date: 27th November 2025

Fast Track Application FTAA-2507-1087: Ashbourne Development, Matamata

Minute 3 of the Expert Panel dated 21 November 2025 - Response to Request for Information on behalf of Matamata-Piako District Council (stormwater/ erosion and sediment control)

1.0 Introduction

This Memorandum has been prepared for the Matamata-Piako District Council in response to the Expert Panel's request as set out in Minute 3 dated 21 November 2025, for information pursuant to section 67 of the Fast-track Approvals Act 20024 (FTAA).

The Memorandum addresses matters pertaining to stormwater, erosion and sediment control.

The numbering below refers to the paragraph numbers in the Expert Panel's Minute 3.

2.0 Stormwater

2.1 Information request

[18] Solar farm runoff- refer to question no. 3 under Groundwater above (see [17] below)

[17] The application material states that stormwater runoff from the proposed solar panels will infiltrate into the ground, thus not increasing the surface water runoff above existing from the solar farm sites. Is this a reasonable and accurate assumption? Is further investigation or assessment required to justify this assumption? Is it necessary to assess whether future groundwater levels may reach the ground surface at the proposed solar panel sites, which may affect infiltration of stormwater?

[19] Are the calculations for stormwater runoff for existing land use for the proposed residential and retirement village development appropriate, taking into account the existing undulating topography and lack of drainage channels. This is of particular importance when assessing effects of proposed development on future runoff for the 100-year runoff event for flooding. If the calculations for runoff from existing land use over estimate runoff then this will result in an under estimation of the effect of proposed development on future flooding both on the site and downstream.

[20] For future runoff from the proposed retirement village and residential development that discharges to the greenway, is providing detention such that flows are limited to 80% of predevelopment flows sufficient to ensure there are no adverse effects on flooding or stream channel erosion in the Waitoa River that may arise from the proposed development?. Are further hydrological analyses required to address this matter?

2.2 Response

2.2.1 Stormwater runoff from solar farms

Response:

The proposed solar panel installation has not been described in the substantive application infrastructure report, however, is assumed to be a photovoltaic array installation for the purposes of this review. Therefore, the photovoltaic array will alter the rainfall pattern prior to the runoff entering the site ground surface. As such whilst there is an alteration in the rainfall arriving to the site the runoff regime across the surface itself remains the same as existing scenario.

Runoff to the existing grassed areas

Whilst the panels themselves are considered impermeable, the ground below remains vegetated and permeable. Rainfall (stormwater) will runoff from the panels and fall to the ground, where it will either infiltrate into the soil or runoff as overland flow when the soils infiltration capacity is exceeded, or the soils are saturated. The infiltration rates that have been presented in the application show soakage rates that would not be altered as part of the development of the solar farm.

An example photograph of an existing Agrivoltaic facility is presented below

This shows the gaps between photovoltaic arrays allow the water (rainfall) to runoff onto the ground, and that the natural groundcover can remain.

Only minor earthworks associated with the access tracks are proposed for the development. No major grading or contouring of the site is proposed.

The photovoltaic array tables will be raised above the ground, there will be no significant change in impermeable surface cover across the site (at ground level), and the existing site surface flow regime will remain untouched. Therefore, the increase in stormwater generation will be no more than minor.

Whilst there maybe evidence of groundwater table rising to the surface the solar farm installation will not change the outcome of the rainfall discharge regime.

2.2.2 Calculations for stormwater runoff from existing landuse

I concur with WRC's comments with respect to the stormwater runoff responses. For completeness I have included Sheryl Roa's preliminary comments.

"The applicant has used standard methodology outlined in WRC's Waikato Stormwater Runoff Modelling Guideline to determine pre-development hydrology. The approach is considered acceptable.

The selection of the Hydrological Soil Group (HSG) (based on site testing and guidance) takes into account the existing level of infiltration that is present at the site (HSG A represents the presence of high infiltration soils, through to HSG D which represents low infiltration). The applicant has adopted HSG B for the pre-development condition reflecting dense sands and stiff silts with sandy loam and loam textures. For the post-development condition, the applicant has adopted HSG C (less infiltration than HSG B) to reflect the compaction that occurs during earth-working. This is consistent with WRC's guideline.

The assessment of hydrology also takes into account site topography with consideration of grades when determining the time of concentration."

It is to be noted that the runoff assessment has applied climate change predictions for the post-development assessment and has no inclusion for the pre-development assessment, as per RITS and WRC guidelines.

2.2.3 Adverse effects on flooding or stream channel erosion in the Waitoa River

As per my original assessment the following points still stand as no new or further information has been provided to date to respond to the comments and points raised:

"Discharge from the Greenway is to 80% of pre- development flows to Waitoa River. There is an acknowledgement of increase in flood depth regarding the Greenway flow, however uncertain as to the location of this increase (refer SMP Section 8.1 pg. 49). Further review of information required. "

"The connectivity of the Waitoa River from the Greenway has been shown as a rip rap lined swale of 3m width in the Maven drawing set C4000; however, this has not been detailed. However, as observed during the site visit there is an elevation difference that should be addressed. This information would typically be included in a substantive (or resource consent) application. "

"Assessment of flows within the Greenway need to be reviewed, to ensure the 80% pre-development/post development threshold is appropriate (or necessary). "

"Greenway discharge flow and interaction with Waitoa River is to be reviewed, as outlined above. This is to occur for this substantive application review, and prior to detailed design. "

The design criteria stated within the Greenway memo provided by Maven dated 23rdSeptember 2025:

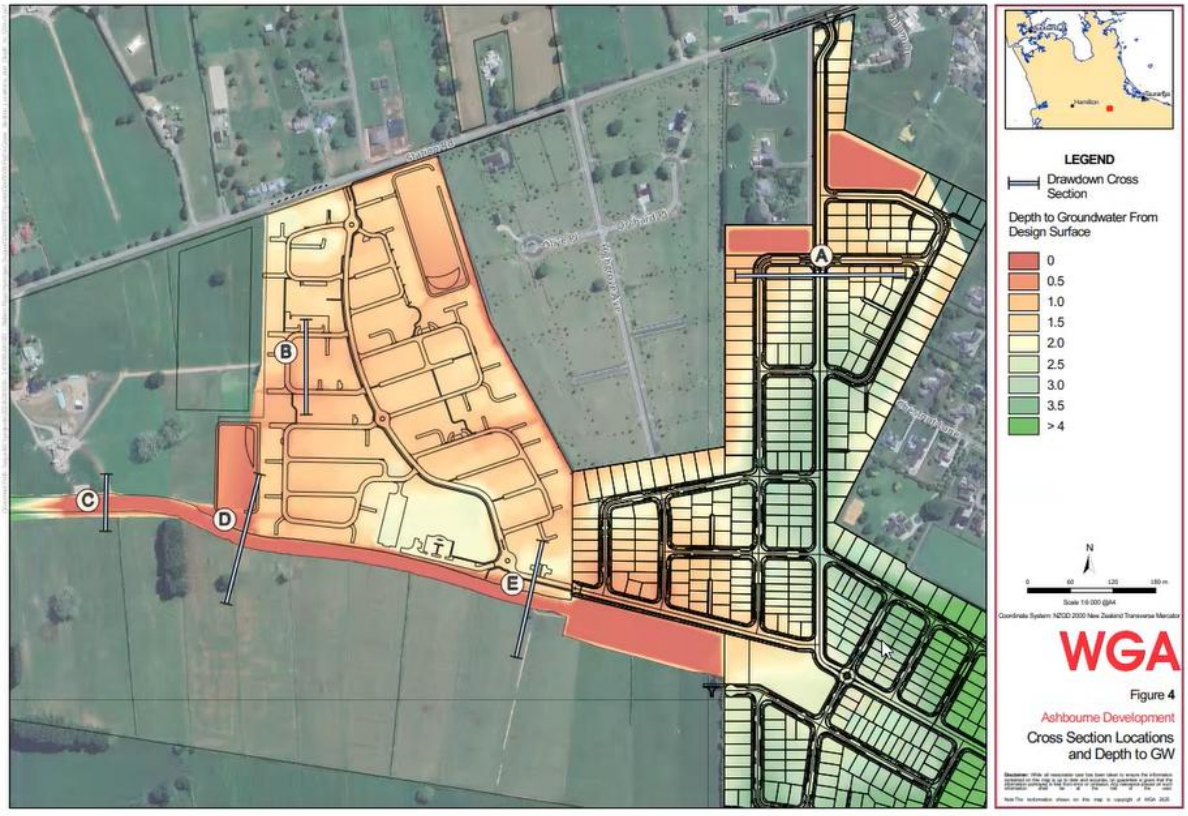
"To provide attenuation such that the total outflow equals to 100% of inflows (conveyance) plus 80% of the Basins B predevelopment 100yer flow."

To respond specifically to the expert panel Minute 3 request, the following is noted:

The attenuation to 80% predevelopment is limited to the 100yr rainfall event only, other rainfall events have not been assessed as to the effect on the receiving environment in particular the Waitoa Stream.

Given that the WGA hydrogeological report (dated 18th November) highlighted the groundwater interaction with the Greenway, I recommend further assessment is to be

undertaken as to the attenuation requirements for the discharge to the Waitoa River and the effect of this discharge.



Regarding Greenway discharge erosion effects, an assessment should be carried out for rainfall events ranging from frequent to large occurrences. The current substantive application does not provide enough information to comment on how frequent rainfall events affect the discharge from the Greenway to the Waitoa River. For larger rainfall events, additional assessment is required, as discussed in the preceding paragraphs.

3.0 Erosion and sediment control ponds

3.1 Information request

[21] Has the conceptual design of proposed sediment retention ponds appropriately taken into account the likely elevated winter groundwater levels.

3.2 Response

The solar farms have not been reviewed with respect to Erosion and Sediment control interaction with the ground water table. This review is limited to the Retirement Village and Residential subdivision portions of the application.

Retirement Village:

A review of the sediment control plans identified that there is no reference to the high ground water table within the site. The infrastructure report is generic in nature and refers to the Construction Management Plan for further information. The CMP then refers to water quality aspects without specific reference to the interaction of the devices to the ground water table.

Residential Subdivision:

A review of the sediment control plans does not reference to the high ground water table within the site. The infrastructure report is generic in nature and refers to the Construction Management Plan for further information. The CMP then refers to water quality aspects and areas of works within high ground water table (reference section 2.3.2).

There are no specifics however the report further references the WGA report as follows:

"Wallbridge Gilbert Aztec Ltd has been prepared the Hydrogeology – Assessment of Effects for the Ashbourne construction. Please consult the Hydrogeological Effects Assessment prepared by WGA Ltd which provides detailed guidance on hydrogeological measures."

Recommendation:

It is recommended that further investigations are undertaken to ensure the Erosion and sediment control measures are designed to accommodate high ground water levels and ensure there is no cross flow within the base of any sediment control ponds (SRP's) as located on the Sediment Erosion Control plans.

4.0 Conclusions/ summary

The following conclusions are summarised for the queries raised by the panel :

Stormwater runoff from solar farms

The proposed (photovoltaic) solar panel installation is expected to have a negligible impact on stormwater generation and surface runoff at the site. The design maintains existing vegetated and permeable ground conditions beneath the panels, allowing rainfall to infiltrate or disperse as it currently does, with only minor earthworks planned for access tracks and no significant increase in impermeable surfaces at ground level. Consequently, the stormwater runoff regime will remain largely unchanged from the pre-development scenario, and the risk of increased flooding or adverse effects related to stormwater discharge is considered minimal. Any potential fluctuations in groundwater levels are not anticipated to alter the rainfall discharge regime as a result of the solar farm installation.

Calculations for stormwater runoff from existing land use

The assessment of stormwater runoff for the proposed solar panel installation has been conducted in accordance with the WRC's Waikato Stormwater Runoff Modelling Guideline and reflects current best practice. The methodologies used for determining pre and post development hydrology, including the selection of hydrological soil groups and consideration of site topography, are appropriate and consistent with regulatory expectations. While climate change predictions have been incorporated into the post-development assessment, their exclusion from the pre-development scenario aligns with RITS and WRC guidelines. Overall, the proposed development is not expected to result in more than minor increases in stormwater generation or significantly alter the existing runoff regime, ensuring that potential adverse effects on the site and surrounding environment are effectively managed.

Adverse effects on flooding or stream channel erosion in the Waitoa River

While the preliminary assessments and methodologies align with established guidelines, there remain unresolved concerns regarding stormwater discharge, flood risk, and erosion effects

associated with the Greenway and its connection to the Waitoa River. The lack of detailed information on the location and extent of increased flood depths, as well as the specifics of flow conveyance and rip rap swale design, underscores the need for further review and clarification. Additionally, the attenuation requirements and potential impacts of both frequent and extreme rainfall events on the receiving environment have not been fully addressed. Therefore, it is recommended that additional investigations and detailed design reviews be conducted to ensure that the final application adequately mitigates adverse effects on flooding, stream channel erosion, and groundwater interaction in the Waitoa River catchment.

Sediment and erosion control ponds:

While the sediment control plans and associated reports provide general information regarding water quality and construction management, there is a lack of specific detail concerning the interaction between erosion and sediment control measures and the high ground water table at the site. To address these gaps, it is essential that further investigations are undertaken and that site-specific hydrogeological guidance is incorporated into the design and implementation of sediment control measures. This will help ensure effective management of ground water and minimise any potential adverse impacts on water quality and site stability.