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*In the matter of:* Clauses 6 and 8 of Schedule 1 – Resource Management Act 1991 – Submissions on publicly notified plan change and variation – Proposed Plan Change 1 and Variation 1 to Waikato Regional Plan – Waikato and Waipa River Catchments

*And:* **Wairakei Pastoral Ltd**

Submitter

*And:* **Waikato Regional Council**

Local Authority

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**STATEMENT OF EVIDENCE OF NICHOLAS CONLAND**

**Block 3 Hearing Topics**

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*Dated:* 5 July 2019

## STATEMENT OF EVIDENCE OF NICHOLAS CONLAND

### SUMMARY

- 1 My Block 3 evidence considers the structural requirements for FEP preparation that should be included in Schedule 1 under the following headings:
  - 1.1 Vulnerable Land;
  - 1.2 Role of Good Farm Practice;
  - 1.3 Role of Table 3.11-1;
  - 1.4 Decision Support Tools;
  - 1.5 Role of Sub-catchment Assessment;
  - 1.6 Role of Adaptive Management;
  - 1.7 Role of Mitigation Actions;
  - 1.8 Role of Reporting.
- 2 My assessment considered a range of risks from farming activities which contribute to ongoing diffuse discharges from land across the Waikato and Waipa River Catchments and identified key elements which require an evaluation when preparing an FEP.
- 3 I have reviewed the amended version of Schedule 1 included in Mr McKay's Block 3 evidence (Appendix 2). I am satisfied that this includes the matters (noted above) that should be included in this Schedule. In my opinion the amended Schedule 1 appropriately addresses the requirements for preparing an effective FEP.

## BLOCK 3 HEARING TOPICS

### 1. BACKGROUND

- 1 My name is **Nicholas Ashley Conland**. I have the qualifications and experience recorded in my supplementary statement of evidence filed in relation to the Block 1 Hearing Topics.
- 2 My statement of evidence has been prepared in accordance with the Code of Conduct for Expert Witnesses set out in Section 7 of the Environment Court of New Zealand Practice Note 2014.

### 2. MAKING REDUCTIONS IN DIFFUSE DISCHARGES VIA CATCHMENT WIDE RULES AND THE NRP

- 3 Objectives 1 and 3 are implemented via the catchment wide rules that provide for farming activities. A mandatory requirement under these rules is the preparation of a Farm Environment Plan (**FEP**) in accordance with Schedule 1 for all properties and enterprises that exceed 20 ha in area. My Block 3 evidence focuses on what the content of FEPs should be.

#### TOPIC C9. FARM ENVIRONMENT PLANS

- 4 In particular I focus on Schedule 1 of PC1 that is the primary guidance for the property, enterprise, sub-catchment and sector scheme level actions to achieve the Vision and Strategy.
- 5 The following paragraphs consider the content and structure of FEPs in Schedule 1 under the headings:
  - 5.1 Vulnerable Land;
  - 5.2 Role of Good Farm Practice;
  - 5.3 Role of Table 3.11-1;
  - 5.4 Decision Support Tools;
  - 5.5 Role of Sub-catchment Assessment;
  - 5.6 Role of Adaptive Management;
  - 5.7 Role of Mitigation Actions;
  - 5.8 Role of Reporting.

### **Vulnerable Land**

- 6 As Vulnerable Land is based on physical catchment properties, it can be identified across the Waikato and Waipa Catchments and easily mapped from existing spatial layers and data.
- 7 In my Block 2 evidence I introduced the concept of Nitrogen Risk Areas, based on the science developed in the Ruahuwai Decision Support Tool (**RDST**). The RDST is characterised and developed in the Block 2 evidence and supporting reports of Mr Williamson.
- 8 Nitrogen Risk Areas are a further category of Vulnerable Land and are defined in my Block 2 evidence. They are where rapid groundwater travel times occur from land close to waterways with high soil or aquifer transmissivity leading to direct discharges of nitrogen. **Table 1** attached to my Block 3 evidence illustrates the connections between the different Vulnerable Land types, environmental risks and mitigation actions.
- 9 For effective risk evaluation when preparing an FEP I recommend detailed mapping for each of the Vulnerable Land types to evaluate the potential environmental risk of existing land use on the property or enterprise or subject land area managed under a sub-catchment or industry/sector consent.
- 10 A comparison of the potential risks from inappropriate land use on Vulnerable Land versus the current environment planning on the farm is the initial step. This step is currently characterised as an evaluation of critical source areas in the notified PC1. This first step illustrates the existing work undertaken, and provides the scale of outstanding work required to prevent adverse environmental effects.
- 11 As discussed in my Block 2 evidence, Vulnerable Land represents land areas that should be excluded from intensive land use (e.g. farming activities) unless actions are included in an FEP to reduce land use intensity or mitigate the effects of activities on Vulnerable Land. Following the risk assessment and profiling (in the FEP), Vulnerable Land then becomes a key focus for mitigation actions.

### **Role of Good Farm Practice**

- 12 WPL introduced in submissions that a new schedule should be included in PC1 regarding “Farm Mitigations for Catchment Management” to implement “Good Management Practice” (now termed Good Farm Practice (**GFP**)). At that time the level of GFP guidance available in 2016 was poorly defined and nationally inconsistent.

- 13 Subsequently there has been considerable work by industry to develop agreed principles for GFP including:
- 13.1 Beef + Lamb New Zealand Farm Environment Plan Guidelines;<sup>1</sup>
  - 13.2 Good Farming Practice – Action Plan for Water Quality;<sup>2</sup>
  - 13.3 Good Management Practices – A guide to good environmental management on dairy farms;<sup>3</sup>
  - 13.4 DairyNZ EnviroWalk.<sup>4</sup>
- 14 The GFP amendments to Schedule 1 recommended by the Block 3 Section 42A Report are sourced directly from the GMP process in Canterbury and the publication “Good farming practice for water action plan 2018” (**GFP 2018**) that represents a broad sector alignment for GFP objectives.
- 15 There are three issues with a universal application of GFP principles in this way. The first issue is the assumption in the Nitrogen Reference Point (**NRP**) calculation by OVERSEER that GFP benchmarks are already met. The second is that GFP is a subjective assessment with uncertain compliance outcomes. The third issue is that GFP is not explicitly linked (when controlling land use) to the maintenance and enhancement of water quality in water bodies.
- 16 GFP needs to provide clear guidance and certainty for plan users on what GFP actually means for managing farm practices across a broad range of farm systems and biophysical conditions. I recommend this is best located in industry material outside PC1 to take account of both recent developments and evolving practice during the PC1 period.
- 17 I also recommend that Schedule 1 which should provide direction to identify:
- 17.1 Existing farming practice including any GFP implemented since 22 October 2016; and

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<sup>1</sup> <https://beeflambnz.com/sites/default/files/factsheets/pdfs/RB7-Waikato-FEP-guidelines.pdf>.

<sup>2</sup> [http://www.fedfarm.org.nz/FFPublic/Policy2/National/Good\\_Farming\\_Practice-Action\\_Plan\\_for\\_Water\\_Quality\\_2018.aspx](http://www.fedfarm.org.nz/FFPublic/Policy2/National/Good_Farming_Practice-Action_Plan_for_Water_Quality_2018.aspx).

<sup>3</sup> [https://www.dairynz.co.nz/media/4106341/Good\\_management\\_practices\\_April\\_2016.pdf](https://www.dairynz.co.nz/media/4106341/Good_management_practices_April_2016.pdf).

<sup>4</sup> <https://www.dairynz.co.nz/media/5787800/envirowalk-walk-action-plan.pdf>.

17.2 The GFP that will need to be implemented during the term of the FEP; and

17.3 The effectiveness of the GFP.

18 An important component of GFP is nutrient budgeting (in accordance with Schedule B). In the FEP, farming activities are to establish an NRP baseline and remain below it. To assist with this the nutrient budget needs to be assessed every year (with a record of input data kept) and compared to the five-year rolling average.

19 As will be highlighted in the mitigation actions discussion below the review of the farm systems relative to GFP benchmarks and the nutrient budget should provide both proactive and reactive mitigation actions.

#### **Role of Table 3.11-1**

20 I note that guidance relied on in the GFP 2018 publication, requires a focus on the 'critical water quality issues for the catchment' (page 8). This step is designed to focus the FEP actions on the water quality issues within the relevant sub-catchment.

21 The second component of the risk assessment for preparing an FEP under PC1 is evaluating the critical water quality issues in the sub-catchment in Table 3.11-1 to provide performance targets for maintaining and enhancing the quality of water in water bodies and improving freshwater ecosystem outcomes.

22 The FEP needs measurable goals that define a clearly set pathway and timeframe for the maintenance and enhancement of the quality of water in water bodies for each of the critical water quality issues in the sub-catchment.

23 Performance goals within the FEP will direct mitigations (similar to the GFP 2018 publication) during each annual review of the required mitigation actions. The performance goals will also provide an important direction for resourcing farm system changes and capital expenditure to make long-term changes.

24 The FEP risk assessment (particularly for enterprise, sub-catchment, and industry/sector scheme consents) will need to address the critical water quality issues in Table 3.11-1 directly through individual or collective mitigation actions that seek to achieve changes in attribute levels to achieve the freshwater objectives.

25 The role of Table 3.11-1 in providing both numeric freshwater objectives and a temporal and spatial direction for achieving the Vision and Strategy is key to the successful implementation of PC1.

Each sub-catchment will have a different spatial and temporal risk assessment to develop targeted FEPs at property, enterprise, sub-catchment, and industry/sector scheme scale.

### **Decision Support Tools**

- 26 The FEP risk assessment will require the use of Decision Support Tools (**DSTs**) to explore a range of mitigation options and scenarios. They should include the mitigation actions relating to erosion controls, riparian mitigations, and GFP. These actions can then be translated into cost forecasting and planning.
- 27 The use of DSTs for FEP preparation is an essential element to focus expenditure and decision-making. One example of a DST is the Ruahuwai Decision Support Tool developed by WPL based on a suite of three coupled models described by Mr Williamson in his Block 2 evidence. In practice, landowners and their professional advisers will select the most appropriate DST, and they will either develop their own specific DST or select one from the broad range of DSTs that are now becoming publicly available.<sup>5</sup>
- 28 DSTs are used to predict the effectiveness of potential collective mitigation actions, in terms of their contribution to maintaining and enhancing the quality of water in water bodies in each sub-catchment and therefore achieving the Table 3.11-1 freshwater objectives, targets and limits.
- 29 The key point here is that Schedule 1 should enable landowners or managers to use any DST they consider appropriate subject only to meeting the Schedule B criteria recommended by Mr McKay in his Block 2 evidence.

### **Role of sub-catchment assessment**

- 30 The WPL submission requested that a new schedule should be included in PC1 to provide specifically for the “Requirements for a Sub-catchment management plan”. I addressed these matters in my Block 2 evidence and recommend that Schedule 1 includes the direction I provided for sub-catchment consents.
- 31 These matters remain important in relation to consenting at scale but can be streamlined by including these requirements in the amended Schedule 1 as recommended by Mr McKay.

<sup>5</sup> <https://ballance.co.nz/MitAgator>.

<sup>5</sup> <https://www.lucitools.org/>.

<sup>5</sup> <https://riparian-planner.dairynz.co.nz/>.

### **Role of Adaptive Management**

- 32 The WPL submission requested that a new schedule should be included in PC1 to provide for an “Adaptive Management Approach”. These provisions can however be streamlined and included in Schedule 1. **Figure 1** attached to my Block 3 evidence illustrates how this can be achieved.
- 33 To provide a living document for workflow a FEP needs to embed adaptive management into the FEP through the steps set out in **Figure 2** attached to my Block 3 evidence. The workflow diagram illustrates the practical cycle for adaptive management in the FEP, including:
- 33.1 Adaptive management triggers;
  - 33.2 Evaluation and screening processes;
  - 33.3 Mitigation (reactive and proactive) actions.
- 34 The adaptive management triggers are identified within the FEP and are based on the initial risk assessment.
- 35 The evaluation and screening assessment is required to triage the risks identified to an appropriate mitigation response. The FEP risk and evaluation process will also identify the mitigation actions. These may include a mixture of responses to Vulnerable Land, GFP reviews, monitoring data, weather events, and incident notifications.
- 36 Through the term of the FEP additional mitigation actions are likely to be added to the FEP and their effectiveness rating may change, based on testing and experience. Importantly, adaptive management is focussed on achieving the FEP performance targets, rather than the method of achieving these targets.

### **Role of Mitigation Actions**

- 37 The FEP mitigation actions are directions for change to reduce risks identified through the risk assessment, GFP benchmarking and adaptive management triggers. The evaluation and screening process can also identify mitigations required at a catchment scale such as riparian retirement and gully protection.
- 38 Once adaptive management triggers are identified, the evaluation and screening step will review and consider appropriate mitigation actions taking account of both the performance goals and recent mitigation actions, and then set a timeframe to complete any new required mitigation actions.



- 39 The mitigation actions that maintain and enhance the quality of water in water bodies (relevant to a FEP performance target) connect the FEP to an adaptive management cycle. These actions will eventually result in fewer adaptive management triggers and changes in 'on-farm' management practices (i.e. fertiliser management, irrigation management).
- 40 A regional example for mitigation actions is provided in the "Farm Menu" website<sup>6</sup> where the mitigation action's effectiveness at reducing the risk of the relevant Table 3.11-1 attribute entering waterways is rated (low, medium or high).
- 41 Schedule 1 should therefore provide a logical pathway to determine mitigation actions including:
- 41.1 Focus on critical water quality issues in Table 3.11-1;
  - 41.2 Risk assessment – for diffuse discharges;
  - 41.3 GFP benchmarks – based on GFP principles;
  - 41.4 Mitigation effectiveness – based on monitoring;
  - 41.5 Mitigation triggers – based on the adaptive management cycle; and
  - 41.6 Mitigation actions – to meet performance targets.

#### **Role for reporting on mitigation actions**

- 42 The WPL submission requested that a robust monitoring programme regarding land use change should be included in the PC1 schedules, and that annual monitoring and mitigation reports should be required regarding farming activities at scale (e.g. sub-catchment consents).
- 43 The effectiveness of the FEP is expressed in terms of the performance against the FEP targets for each year. The performance targets are reflected in the adaptive management triggers registered during the year.
- 44 The FEP records both reactive and proactive actions and follows up actions across the consent/management area as a metric of the success for the scheduled mitigation actions and provides a mechanism for focusing the next year's mitigation schedule. These records will reflect the ongoing improvements in GFP against benchmarks and mitigations on Vulnerable Land.

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<sup>6</sup> <https://www.waikatoregion.govt.nz/community/your-community/for-farmers/healthy-farms/farm-menus>

- 45 Schedule 1 should therefore include provisions that detail monitoring and reporting requirements for each FEP, including records of:
- 45.1 Mitigation triggers;
  - 45.2 Actions, timeframes and other measures to ensure that diffuse discharges from the property or enterprise, sub-catchment or industry/sector scheme (expressly allowed as part of the land use consent) do not increase, unless other suitable mitigations are specified;
  - 45.3 Annual plans of where the actions will be undertaken, and when and to what standard they will be completed;
  - 45.4 Water quality monitoring if the management area is a sub-catchment;
  - 45.5 Performance against targets.

### **3. CONCLUSIONS**

- 46 The FEP should provide a tailored risk-based approach to managing land use, including adaptive management, to manage diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens at a property, enterprise, sub-catchment or sector schemes scale.
- 47 I have reviewed the amended version of Schedule 1 included in Mr McKay's Block 3 evidence (Appendix 2). I am satisfied that this includes the matters that should (as mentioned in my Block 3 evidence) be included in Schedule 1. In my opinion the amended Schedule 1 appropriately addresses the requirements for preparing an effective FEP.

**Nicholas Ashley Conland**

*Taiao Natural Resource Management Limited*

5 July 2019