**Farm Environment Plan**

|  |  |
| --- | --- |
| **Property name** | Notes  Version 1:  Version 2: |
| **Physical address** |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Property Owner** |  | | | | | | | |
| **Postal address** |  | | | | | | **Phone no.** |  |
|  | | **Postcode** |  | | | **Mobile no.** |  |
| **Email address** |  | | | | | | | |
| **Contact person for owner (if different)** |  | | | | | | | |
| **Postal address** |  | | | | | **Phone no.** | |  |
|  |  | **Postcode** | | |  | **Mobile no.** | |  |

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| --- | --- | --- | --- | --- | --- | --- |
| **Is whole property leased?** | **Yes /No If yes, provide details:** | |  | | | |
| **Name of lessee:** |  | | | | |  |
| **Postal address** |  | | | | **Phone no.** |  |
|  | **Postcode** | |  | **Mobile no.** |  |
| **Email address** |  | | | | | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Farm Manager name**  **(if different to owner)** |  | | | **Position (manager, sharemilker etc)** | |  |
| **Postal address** |  | | | | **Phone no.** |  |
|  | **Postcode** |  | | **Mobile no.** |  |
| **Email address** |  | | | | | |

|  |  |
| --- | --- |
| **Person responsible for implementing Farm Plan** |  |

**FARM PLAN NO: xxx**

This Farm Environment Plan sets out the management practices that will be used to actively manage environmental issues on the property, with a focus on managing water quality and quantity within limits, as specified by Canterbury Regional Council. The Plan will be audited regularly by independent assessors in accordance with the required audit, compliance and enforcement procedures as set out in the scheme Environmental Management Strategy .

**Version no: xx**

Scheme name / Logos etc can be placed at top or bottom of page

**Responsibility for Implementing the Farm Plan**

***As the person responsible for implementing this plan, I confirm that the information provided is correct:***

**Name (Plan implementer):………………………………………………….Signature: ………………………………..…….**

**Position (e.g. owner/manager):………………………….…………………Date: …………………………………………………….**

**Owner and Lessee Commitment**

***As owner/s of this farming business I/we are committed to ensuring that all activities on our property are undertaken in an environmentally sustainable and culturally sensitive manner. We agree to monitor our performance in meeting the management objectives and outcomes in this Plan, and take appropriate actions to address any areas where improvement is needed.***

**Name (Owner or owner representative) ……………………………………………………….. Signature ……………………………………….. Date:** / /

**Name (Lessee or lessee representative) ……………………………………………………….. Signature ……………………………………….. Date:** / /

|  |  |
| --- | --- |
| **Technical approval by (Scheme)**  I have reviewed this plan and believe it to be:   1. Technically sound and feasible **Yes No** 2. Addressing the cause of identified environmental risks **Yes No** 3. Able to meet the plan objectives **Yes No**   **Name:**  **Signature:**  **Date:** | **Comments** |

|  |  |  |  |
| --- | --- | --- | --- |
| **Farm Information** | | | |
| |  |  | | --- | --- | | **Farm Plan Areas** |  | | **Total area covered by Plan (ha)** |  | | **Effective area (ha)** |  | | **Irrigated area (Scheme water)** |  | | **Irrigated area (other water)** |  | | **TOTAL Irrigated Area (ha)** |  | |  |  | | **No. of staff (labour units to operate property)** |  | | **Enterprise type** | Tick √ | | Dairy |  | | Sheep/beef |  | | Cattle |  | | Mixed Cropping |  | | Orchard/vineyard |  | | Nursery |  | | Lifestyle |  | | Other |  | | |  |  |  | | --- | --- | --- | | **Irrigation type / area (water)** | | | | **Irrigation type (water)** | **Scheme Water**  **Irrigated area (ha)** | **Other Water**  **Irrigated area (ha)** | | **Pivot** |  |  | | **Linear move** |  |  | | **K-line** |  |  | | **Gun** |  |  | | **Rotary boom** |  |  | | **Linear boom** |  |  | | **Border dyke** |  |  | | **Long lateral** |  |  | | **Solid set** |  |  | | **Drip / micro** |  |  | | **Other ….** |  |  | |  |  |  | | **Total Irrigation** |  |  | | |  |  | | --- | --- | | **Collected Effluent** | | | **Effluent irrigation type** | **Area irrigated by irrigator type (ha)** | | **Pivot** |  | | **Linear move** |  | | **K-line / pod** |  | | **Travelling irrigator** |  | | **Other** |  | |  |  | | **Total effluent area (ha)** |  | | |  |  | | --- | --- | | **Collected Effluent** | | | **Effluent storage** | **Tick box** | | **Less 5 days** |  | | **5-15 days** |  | | **15-30 days** |  | | **2 months** |  | | **3 months** |  | |
| |  |  | | --- | --- | |  |  | | **DAIRY** |  | | **Peak. cows milked** |  | | **Cows milked in winter Y/N** |  | | **No. cows wintered off farm** |  | | **No. R1 &/or R2 heifers grazed on farm** |  | |  |  | | **SHEEP** |  | | **Ewes** |  | | **Hoggets** |  | | **W.lambs** |  | | **Lamb trading Y/N** |  | |  |  | | **OTHER STOCK (type /no)** |  | |  |  | | |  |  | | --- | --- | |  |  | | **CATTLE** |  | | **Cows** |  | | **R1 & R2 cattle** |  | | **Cattle trading Y/N** |  | | **No. winter grazers** |  | | **Young stock dairy support** |  | |  |  | | **DEER** |  | | **Hinds** |  | | **R1 & R2 deer** |  | | **Velveting stags** |  | |  |  | | **OTHER STOCK (type /no)** |  | |  |  | |  |  | | |  |  |  | | --- | --- | --- | | **CROPS** |  | | | **Ha in crop** |  | | | **Standard Crop rotation (example rotation)** |  | | |  | | | | **Other - vineyards, orchards etc (describe)** | |  | |  | | | | **Nutrient budget** | |  | | **Nutrient budget prepared by:(Person, company, contact details)** | | | |  | | | | **Current farm nutrient losses: N kg/ha** |  | | | **Current farm nutrient losses: P kg/ha** |  | | | **N loss target (if known): kg/ha** |  | | | **N loss target (if known): kg/property** |  | | | |

**INSERT FARM MAP/S HERE**

**Name key roads and show North direction, to enable farm to be located on a road map.**

**Show on map, if present:**

* Land management units (these should align with the blocks used in the nutrient budget)
* Irrigated area by irrigation type
* Effluent area
* Bores/wells
* Water races
* Conservation or covenanted areas/ indigenous bush/scrub
* Streams and wetlands, including stock crossing points - Show which streams are fenced
* Standoff areas, feed pads
* Tracks
* Open drains
* Areas that are tile drained
* Lease blocks – including owner name (If the whole farm is leased from one owner, then record this information on page 1)

|  |  |
| --- | --- |
| **Land Management Unit[[1]](#footnote-1) A (as shown on map: (name)**  Tick relevant boxes | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | **SLOPE** | **Flat** | **Rolling** | **Mod. steep** | **Steep** | |  |  |  |  | | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | **LAND USE** | **Pastoral** | **Arable** | **Small seeds** | **Vegetables** | **Other**  **horticulture** | **Other………..** | |  |  |  |  |  |  | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  |  |  |  | | **TYPE** | **Movable Spray** | **Fixed Spray** | **Drip/Micro** | **Surface** | |  |  |  |  | | |  |  |  |  | | --- | --- | --- | --- | |  |  |  |  | | **Area of block (ha)** | **Stream/s present** | **Wetland/s present** | **Soil type** | |  | Yes / No | Yes / No |  | |
| |  | | --- | | **Block Strengths** | | **Block Weaknesses** |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Environmental Risk Assessment for this Land Management Unit** | | | | | | | | | | | | | | | |  | | | |  | |
| ***Farm Activity:*** | **Stock grazing**5 | | **Winter grazing**5 | | **Fertiliser application** | | **Irrigation** | | **Dairy effluent** | | **Cultivation** | | | **Drain Use / Cleaning** | | | | **Earthworks3** | | | |
| ***Risk of:*** | **Risk1** | **Mgt2** | **Risk1** | **Mgt2** | **Risk1** | **Mgt2** | **Risk1** | **Mgt2** | **Risk1** | **Mgt2** | | **Risk1** | **Mgt2** | | **Risk1** | | **Mgt2** | | **Risk1** | | **Mgt2** |
| N leaching4 |  |  |  |  |  |  |  |  |  |  | |  |  | |  | |  | |  | |  |
| P leaching4 |  |  |  |  |  |  |  |  |  |  | |  |  | |  | |  | |  | |  |
| Runoff |  |  |  |  |  |  |  |  |  |  | |  |  | |  | |  | |  | |  |
| Erosion |  |  |  |  | n/a | n/a |  |  |  |  | |  |  | |  | |  | |  | |  |
| Compaction |  |  |  |  | n/a | n/a | n/a | n/a | n/a | n/a | |  |  | | n/a | | n/a | |  | |  |

1 Estimate the**Potential Risk** of the problem occurring – High, Medium or Low – H, M, L

2 How adequate are **your current management practices** to management the risk? Use a scale of 1 -5 where:1 = risk not managed at all, 5 = risk fully managed

3 Tracks, races, recontouring etc.

4 ‘Leaching’ is the loss of nutrients when water drains through the soil profile below the root zone

5 Under ‘Stock grazing’ consider general environmental risks arising from stock on this block, and under ‘winter grazing’ assess specific issues arising in winter.

|  |  |
| --- | --- |
| **Land Management Unit B (as shown on map: (name)**  Tick relevant boxes | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | **SLOPE** | **Flat** | **Rolling** | **Mod. steep** | **Steep** | |  |  |  |  | | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | **LAND USE** | **Pastoral** | **Arable** | **Small seeds** | **Vegetables** | **Other**  **horticulture** | **Other………..** | |  |  |  |  |  |  | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  |  |  |  | | **TYPE** | **Movable Spray** | **Fixed Spray** | **Drip/Micro** | **Surface** | |  |  |  |  | | |  |  |  |  | | --- | --- | --- | --- | |  |  |  |  | | **Area of block (ha)** | **Stream/s present** | **Wetland/s present** | **Soil type** | |  | Yes / No | Yes / No |  | |
| |  | | --- | | **Block Strengths** | | **Block Weaknesses** |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **Environmental Risk Assessment for this Land Management Unit** | | | | | | | | | | | | | | | |  | | | |  | |
| ***Farm Activity:*** | **Stock grazing**5 | | **Winter grazing**5 | | **Fertiliser application** | | **Irrigation** | | **Dairy effluent** | | **Cultivation** | | | **Drain Use / Cleaning** | | | | **Earthworks3** | | | |
| ***Risk of:*** | **Risk1** | **Mgt2** | **Risk1** | **Mgt2** | **Risk1** | **Mgt2** | **Risk1** | **Mgt2** | **Risk1** | **Mgt2** | | **Risk1** | **Mgt2** | | **Risk1** | | **Mgt2** | | **Risk1** | | **Mgt2** |
| N leaching4 |  |  |  |  |  |  |  |  |  |  | |  |  | |  | |  | |  | |  |
| P leaching4 |  |  |  |  |  |  |  |  |  |  | |  |  | |  | |  | |  | |  |
| Runoff |  |  |  |  |  |  |  |  |  |  | |  |  | |  | |  | |  | |  |
| Erosion |  |  |  |  | n/a | n/a |  |  |  |  | |  |  | |  | |  | |  | |  |
| Compaction |  |  |  |  | n/a | n/a | n/a | n/a | n/a | n/a | |  |  | | n/a | | n/a | |  | |  |

1 Estimate the**Potential Risk** of the problem occurring – High, Medium or Low – H, M, L

2 How adequate are **your current management practices** to management the risk? Use a scale of 1 -5 where:1 = risk not managed at all, 5 = risk fully managed

3 Tracks, races, recontouring etc.

4 ‘Leaching’ is the loss of nutrients when water drains through the soil profile below the root zone

5 Under ‘Stock grazing’ consider general environmental risks arising from stock on this block, and under ‘winter grazing’ assess specific issues arising in winter.

|  |  |
| --- | --- |
| **Land Management Unit C (as shown on map: (name)**  Tick relevant boxes | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | **SLOPE** | **Flat** | **Rolling** | **Mod. steep** | **Steep** | |  |  |  |  | | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | **LAND USE** | **Pastoral** | **Arable** | **Small seeds** | **Vegetables** | **Other**  **horticulture** | **Other………..** | |  |  |  |  |  |  | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  |  |  |  | | **TYPE** | **Movable Spray** | **Fixed Spray** | **Drip/Micro** | **Surface** | |  |  |  |  | | |  |  |  |  | | --- | --- | --- | --- | |  |  |  |  | | **Area of block (ha)** | **Stream/s present** | **Wetland/s present** | **Soil type** | |  | Yes / No | Yes / No |  | |
| |  | | --- | | **Block Strengths** | | **Block Weaknesses** |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Environmental Risk Assessment for this Land Management Unit** | | | | | | | | | | | | | | | |  | | | |  | |
| ***Farm Activity:*** | **Stock grazing**5 | | **Winter grazing**5 | | **Fertiliser application** | | **Irrigation** | | **Dairy effluent** | | **Cultivation** | | | **Drain Use / Cleaning** | | | | **Earthworks3** | | | |
| ***Risk of:*** | **Risk1** | **Mgt2** | **Risk1** | **Mgt2** | **Risk1** | **Mgt2** | **Risk1** | **Mgt2** | **Risk1** | **Mgt2** | | **Risk1** | **Mgt2** | | **Risk1** | | **Mgt2** | | **Risk1** | | **Mgt2** |
| N leaching4 |  |  |  |  |  |  |  |  |  |  | |  |  | |  | |  | |  | |  |
| P leaching4 |  |  |  |  |  |  |  |  |  |  | |  |  | |  | |  | |  | |  |
| Runoff |  |  |  |  |  |  |  |  |  |  | |  |  | |  | |  | |  | |  |
| Erosion |  |  |  |  | n/a | n/a |  |  |  |  | |  |  | |  | |  | |  | |  |
| Compaction |  |  |  |  | n/a | n/a | n/a | n/a | n/a | n/a | |  |  | | n/a | | n/a | |  | |  |

1 Estimate the**Potential Risk** of the problem occurring – High, Medium or Low – H, M, L

2 How adequate are **your current management practices** to management the risk? Use a scale of 1 -5 where:1 = risk not managed at all, 5 = risk fully managed

3 Tracks, races, recontouring etc.

4 ‘Leaching’ is the loss of nutrients when water drains through the soil profile below the root zone

5 Under ‘Stock grazing’ consider general environmental risks arising from stock on this block, and under ‘winter grazing’ assess specific issues arising in winter.

|  |  |
| --- | --- |
| **Land Management Unit D (as shown on map: (name)**  Tick relevant boxes | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | **SLOPE** | **Flat** | **Rolling** | **Mod. steep** | **Steep** | |  |  |  |  | | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | **LAND USE** | **Pastoral** | **Arable** | **Small seeds** | **Vegetables** | **Other**  **horticulture** | **Other………..** | |  |  |  |  |  |  | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  |  |  |  | | **TYPE** | **Movable Spray** | **Fixed Spray** | **Drip/Micro** | **Surface** | |  |  |  |  | | |  |  |  |  | | --- | --- | --- | --- | |  |  |  |  | | **Area of block (ha)** | **Stream/s present** | **Wetland/s present** | **Soil type** | |  | Yes / No | Yes / No |  | |
| |  | | --- | | **Block Strengths** | | **Block Weaknesses** |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Environmental Risk Assessment for this Land Management Unit** | | | | | | | | | | | | | | | |  | | | |  | |
| ***Farm Activity:*** | **Stock grazing**5 | | **Winter grazing**5 | | **Fertiliser application** | | **Irrigation** | | **Dairy effluent** | | **Cultivation** | | | **Drain Use / Cleaning** | | | | **Earthworks3** | | | |
| ***Risk of:*** | **Risk1** | **Mgt2** | **Risk1** | **Mgt2** | **Risk1** | **Mgt2** | **Risk1** | **Mgt2** | **Risk1** | **Mgt2** | | **Risk1** | **Mgt2** | | **Risk1** | | **Mgt2** | | **Risk1** | | **Mgt2** |
| N leaching4 |  |  |  |  |  |  |  |  |  |  | |  |  | |  | |  | |  | |  |
| P leaching4 |  |  |  |  |  |  |  |  |  |  | |  |  | |  | |  | |  | |  |
| Runoff |  |  |  |  |  |  |  |  |  |  | |  |  | |  | |  | |  | |  |
| Erosion |  |  |  |  | n/a | n/a |  |  |  |  | |  |  | |  | |  | |  | |  |
| Compaction |  |  |  |  | n/a | n/a | n/a | n/a | n/a | n/a | |  |  | | n/a | | n/a | |  | |  |

1 Estimate the**Potential Risk** of the problem occurring – High, Medium or Low – H, M, L

2 How adequate are **your current management practices** to management the risk? Use a scale of 1 -5 where:1 = risk not managed at all, 5 = risk fully managed

3 Tracks, races, recontouring etc.

4 ‘Leaching’ is the loss of nutrients when water drains through the soil profile below the root zone

5 Under ‘Stock grazing’ consider general environmental risks arising from stock on this block, and under ‘winter grazing’ assess specific issues arising in winter.

**Compliance**

To fully comply with (the scheme) requirements for environmental management requires:

| **Compliance Requirements** |  | **Evidence for Compliance** |
| --- | --- | --- |
| **Farm Plan is prepared, approved, implemented and maintained.** |  | Farm Plan approved and signed |
| **Full compliance with Scheme requirements relating to:**   * Water take/use consent/s * Water metering |  |  |

**Note:** A list of all regional council consents held for farm activities on the property is contained in Appendix one to this plan.

**Irrigation System Design and Installation**

**Management Objective:** To ensure that all new irrigation systems and significant upgrades[[2]](#footnote-2) meet industry best practice standards

|  |  |  |
| --- | --- | --- |
| **Required outcomes** | **Covered by alternative plan? Y/N** | **Name of alternative plan / programme** |
| 1. New irrigation infrastructure is designed and installed to deliver water to industry best practice standards |  |  |

| **Acceptability of practices** | | **Baseline Practices (examples of practices, others may be added)** | **Current Practices** | **Additional actions proposed to meet outcomes & timeframes for completion** | **Evidence for Compliance** |
| --- | --- | --- | --- | --- | --- |
| **Required outcome: 1. New irrigation infrastructure is designed and installed to deliver water to industry best practice standards** | | | | | |
| **Poor**  Generally inadequate | **No design or installation checks** | |  |  |  |
| **Basic**  May be adequate for small blocks with low application depth and intensity and low water use; | * System complies with requirements for flow meter, and limits on flow rate, volume and area irrigated | |  |  | Show application depth, intensity and uniformity are adequate for soil type, slope etc. |
| * System has been designed with site specific knowledge of the soil, climate and crop needs | |  |
| * Post installation checks of application rate and distribution uniformity using DIY evaluation or certified evaluator | |  |
| **Good**  Minimum for most spray irrigators | * All new on-farm irrigation infrastructure is designed in accordance with Design Standards for Piped Irrigation Systems in New Zealand (Irrigation NZ, October 2012); Code of Practice for the Design of Piped Irrigation Systems in New Zealand (Irrigation NZ, October 2012) and meets scheme requirements for flow meter, and limits on flow rate, volume and area irrigated; | |  |  | Provide certificate from INZ accredited designer or from a suitably qualified independent reviewer  Provide commissioning report  Manuals available |
| * Independent evaluation of design/s | |  |
| * All new irrigation infrastructure is installed in accordance with Installation Code of Practice for Piped Irrigation Systems (Irrigation NZ, January 2012); | |  |
| * Commissioning tests show that system performs to desired specifications for:   + System capacity   + Application depth   + Application intensity   + Application Uniformity (>=85%)   + Return interval | |  |
| * Operation and maintenance manuals obtained. | |  |
| **Premium**  Required to ensure design can achieve effective and efficient use of water | * Comprehensive evaluation and decision-making process used (e.g. INZ Decision support process). | |  |  |  |

**Irrigation Management**

**Management Objective:** To ensure efficient on-farm water use that meets crop needs and minimises losses.

|  |  |  |
| --- | --- | --- |
| **Required outcomes** | **Covered by alternative plan? Y/N** | **Name of alternative plan / programme** |
| 1. All irrigation applications are justified by monitoring and/or other assessment or information |  |  |
| 1. Farm practices optimise water applications from irrigation system |  |  |
| 1. All staff involved in the operation and maintenance of the irrigation system are suitably trained |  |  |

| **Acceptability of practices** | **Baseline Practices (examples of practices, others may be added)** | **Current Practices** | **Additional actions proposed to meet outcomes & timeframes for completion** | **Evidence for Compliance** |
| --- | --- | --- | --- | --- |
| **Required outcome: 1. All irrigation applications are justified by monitoring and/or other assessment or information** | | | | |
| **Poor**  Generally inadequate | **No formal monitoring or other practices used to make irrigation application decisions** |  |  |  |
| **Basic**  May be adequate for small blocks, low application rates, low water use; or border dyke on roster | **Observations / basic checks made** |  |  |  |
| * Measure rainfall |  |
| * Consideration of rain/weather forecast |  |
| * Dig holes and check |  |
| * Use a probe (e.g. electric fence standard) to check soil moisture |  |
| * Other… |  |
| **Good**  Desirable minimum for most spray irrigators | **Measurements taken and used** |  |  | * Rainfall records * Soil moisture records * Soil temperature records * Staff questioning of irrigation scheduling |
| * Rainfall measured and recorded |  |
| * Consideration of rain/weather forecast |  |
| * Soil temperature monitored |  |
| * Soil moisture assessment actively used: |  |
| * + Buried sensors |  |
| * + Scheduling service |  |
| * + Hand held probe |  |
| * + Modelling e.g. aquabook |  |
| * + Plant sensors |  |
| * + Water balance calculation |  |
| * Crop irrigation scheduling model used |  |
| * Use basic checks (holes / fence standard) to check technology / calculations |  |
| * Other … |  |
| **Premium**  Required to fully demonstrate efficient water use | “Good” plus: |  |  | * Provide records * Staff questioning of irrigation scheduling |
| * Farm-wide water balance modelling using local climate data and ground-truthed with soil moisture monitoring |  |
| * Records of measurements and irrigation decisions kept to demonstrate how soil moisture levels are managed between field capacity and the Management Allowable Deficit (irrigation trigger point) |  |
| * Sensor records stored on computer or in notebook and reviewed regularly or provided by scheduling service |  |
| * Variable rate irrigation |  |
| **Required outcome: 2. Farm practices optimise water applications from irrigation system** | | | | |
|  | **Optimise applications for spray systems** |  |  |  |
| **Poor**  Generally unacceptable | * Excessive application depths |  |  |  |
| * Low application uniformity |  |
| **Basic** |  |  |  |  |
| **Good**  Desirable minimum for most low pressure spray systems | * Daily checks for excessive runoff or ponding and adjust system, if necessary |  |  | * Provide irrigation application calibration record (e.g. a spreadsheet). * Application rate check results * Staff questioning of irrigation operations * Irrigation incident records * Baseline evaluation report * System evaluation report that sets out the system performance and upgrade workplan |
| * System closed down if excessive runoff and/or ponding occurs |  |
| * Application to non-productive areas (tracks, impermeable surfaces, rivers streams) is minimised |  |
| * Daily checks for blocked nozzles, leaking hydrants or hoses, irrigator alignment and problems fixed |  |
| * Rotation adjusted according to ET, soil moisture status and rainfall |  |
| **Moveable systems** | * Spray line shifts made to suitable plan (e.g. GPS on bike; follow map) |  |
| * Lines moved to cover any dry patches that occur |  |
| **Pivots** | * Wetted width widened on outer spans on long pivots or on slopes (e.g. by fitting boom-backs or clipping hoses over truss rods and fitting wide spray sprinklers) |  |
|  | * Lines shut down where effluent irrigation is being applied |  |
| * Monitor pasture/crop growth and development |  |
| * Water distributed evenly (DU) |  |
| * Application rate checks with buckets or rain gauge pre-season and keep records |  |
| * System in place for staff to report/fix problems |  |
| * A baseline audit of the irrigation system is completed by an Irrigation NZ accredited evaluator to identify efficiency improvements. |  |
| * Any required upgrades should be included in a workplan with timelines for completion |  |
| **Premium**  Required to fully demonstrate efficient water use | “Good” plus:   * Application depth and uniformity checks with buckets or rain gauge pre-season, and regularly through season |  |  | * Application rate checks * System evaluation report and workplan * Water use check report |
| * System evaluation by certified evaluator 5 yearly, and programme to remedy problems implemented |  |
| * Annually complete water use checklist |  |
|  | **Optimise applications for micro /drip** |  |  |  |
| **Poor** |  |  |  |  |
| **Basic** | * Pre-season calibration of at least half system area |  |  |  |
| **Good**  Desirable minimum for most systems | * System layout plan and control points available at system on/off control station |  |  | Provide irrigation application rate record (e.g. a spreadsheet). See example at: http://www.pagebloomer.co.nz/resources/irrigation-calibration/  Sight system layout plan  Sight calibration sheets  Sight log book  Baseline audit sighted  Upgrade workplan sighted |
| * Pre-season calibration check of each block. Run-time adjustment factors applied |  |
| * Regular readings of operating pressure and flow logged by block |  |
| * System flushing at least annually |  |
| * Determine cause of and manage identified wet or dry spots |  |
| * A baseline audit of the irrigation system is completed by an Irrigation NZ accredited evaluator. If required, upgrades should be included in a workplan with timelines for completion |  |
| **Premium**  Required to fully demonstrate efficient water use | “Good” plus:   * System maintenance plan in place and records kept |  |  | Maintenance plan and records  Evaluation report  Completed water use checklist |
| * System evaluation by certified evaluator within last 5 years; and programme to remedy problems implemented |  |
| * Annually complete water use checklist |  |
|  | **Optimise applications for surface irrigation (e.g. border systems)** |  |  |  |
| **Poor** |  |  |  |  |
| **Basic** |  |  |  |  |
| **Good**  Desirable minimum | * Paddocks are monitored and clocks adjusted to soil moisture status, ET, rainfall and length of grass |  |  | Provide irrigation application record  Staff questioning of irrigation operations |
| * Monitor indicator points/areas are setup and clocks adjusted accordingly |  |
| * Gate seals maintained |  |
| * Sills cleaned |  |
| * Head races hard grazed |  |
| * Borders maintained and any holes repaired |  |
| * System in place for staff to report/fix problems |  |
| **Premium** |  |  |  |  |
| **Required outcome: 3. All staff involved in the operation and maintenance of the irrigation system are suitably trained** | | | | |
| **Poor**  Generally unacceptable | No training |  |  |  |
| **Basic** | * Understand resource consent conditions |  |  |  |
| * Limited training |  |
| **Good**  Desirable minimum for most irrigators | * Relative to their responsibilities, provide on-farm training for all staff involved in irrigation management, including but not limited to: * How to avoid runoff and/or ponding |  |  | * Staff questioning to determine competency * Irrigation management data and information is available to staff |
| * + Correct application depths |  |
| * + Emergency procedures |  |
| * + System monitoring for problem identification |  |
| * + System maintenance |  |
| * + Individual staff responsibilities and accountability |  |
| **Premium**  Required to fully demonstrate efficient water use | At least 1 staff member with Irrigation System Operator Training Standard (from Irrigation NZ). This staff member to be responsible for managing the irrigation systems on-farm. |  |  | * Certificate of attendance |

**Nutrient and Soil Management**

**Management Objective:** To minimise nutrient and sediment losses from farming activities to ground and surface water.

|  |  |  |
| --- | --- | --- |
| **Required outcomes** | **Covered by alternative plan? Y/N** | **Name of alternative plan / programme** |
| 1. All sources and potential losses of nutrients, sediment and effluent are clearly identified |  |  |
| 1. Nitrate loss target/s for property, as set by scheme and/or regional council, are met or exceeded. |  |  |
| 1. Phosphate (P) and sediment losses to ground and waterways are minimised. |  |  |
| 1. Soils are well-managed to optimise infiltration and minimise runoff |  |  |

| **Acceptability of practices** | | **Baseline Management Practices**  **(other practices may be added)** | **Current Practices** | **Additional actions proposed to meet outcomes & timeframes for completion** | **Evidence for Compliance** |
| --- | --- | --- | --- | --- | --- |
| **Required outcome: 1. All sources and potential losses of nutrients, sediment and effluent are clearly identified** | | | | | |
| **Poor**  Unacceptable | **No action in place to identify losses** | |  |  |  |
| **Basic**  May be adequate for small blocks and/or low intensity operation | * Basic nutrient budget identifies all N and P inputs (only an option where Overseer or other approved budget is not required by regulation) | |  |  |  |
| * Likely sources of sediment losses identified | |  |
| **Good**  Required minimum for most situations | **Nutrient budget**   * Whole farm nutrient budget uses budgets for each land management unit/block and is prepared by a suitably qualified operator, using Overseer or approved alternative tool and using agreed input parameter protocol (e.g. industry or regional council) . | |  |  | * Provide the nutrient budget & parameter report (input data) * Map showing critical source areas plus plan to reduce nutrient and sediment losses from these areas. |
| * Nutrient budget calculations take full account of all nutrient inputs and outputs Particular note is taken of N and P requirements and losses from the property. | |  |
| * Whole farm nutrient budgets are reviewed and revised regularly or as required by regional council. | |  |
| **Critical sites for P and sediment loss**   * Identify locations that are key sites for P and sediment losses | |  |
| * Plan how to reduce P and sediment losses from these areas. | |  |
| **Premium**  Required to show excellence in nutrient management | Critical Source Area map and nutrient budget used as key on-farm management tools | |  |  | * Evidence that CSA map and nutrient budget integrated into day to day decision making processes. |
| **Required outcome: 2. Nitrate loss target/s for property as set by Scheme and/or regional council are met or exceeded.** | | | | | |
| **Poor**  Unacceptable | * Nitrate loss target not met and/or no plan in place to meet target by due date. | |  |  |  |
| **Basic**  May be adequate for small blocks and/or low intensity operation | * Nitrogen risks noted and farm practices address any issues. | |  |  | * Copy of basic nutrient plan provided. |
| **Good**  Required minimum for most situations | **N losses managed to meet targets by:**  **Selecting amount /type to apply:** | |  |  | Copy of nutrient management plan prepared by qualified person, including:   * nutrient budget * soil test results and nutrient analysis (if available) * fertiliser recommendations from fertiliser representative. * Application records * Proof of placement maps * Soil moisture records and application records * Crop rotation records * Record of wintering adjustment practices * Stock numbers * Record of supplements purchased and used on property, and made and sold from property |
| * Use recommendations on type and amount from qualified person (fertiliser consultant or farm advisor) or | |  |
| * Use an industry approved tool (e.g. wheat calculator) | |  |
| **Application decisions based on:**   * + Soil testing | |  |
| * + Plant analysis | |  |
| * + Nutrient budget results | |  |
| * + Assessment of pasture quality | |  |
| * + Deep soil nitrogen testing for arable crops | |  |
| * + Crop models | |  |
| * + Matching nitrogen applications in proportion to other nutrients, according to plant and animal requirements | |  |
| **Application techniques and timing** | |  |
| * Using Spreadmark standards or using suitably calibrated equipment for N applications. | |  |
| * Lower rates of nitrogen (not exceeding 50 kg N/ha/application) applied to match growth cycle of pasture and soil moisture conditions. | |  |
| * Pasture is at least 25mm high (approx 1000kg DM/Ha) before nitrogen is applied | |  |
| * Nitrogen application is matched to times of high plant growth and crop requirements | |  |
| * Nitrogen is not applied when the 10cm soil temperature at 9am is less than 6 degrees Celsius | |  |
| * Nitrogen fertiliser is not applied when the ground is saturated and/or when the tile drains are running | |  |
| * Nitrogen not applied to excessively dry or compacted soil | |  |
| **Other management practices to reduce N losses:** | |  |
| * Cultivation practices and timing adjusted to minimise N losses. | |  |
| * Crop rotations adjusted to maximise the use of residual N in the soil and minimise N losses | |  |
| * Stock wintering practices adjusted to minimise nutrient losses. | |  |
| * Soil compaction from stock grazing and/or heavy machinery movement minimised | |  |
| * Stock numbers adjusted to meet N target. | |  |
| * Harvest supplements and export from property. | |  |
| * Supplements (e.g. maize silage) substituted for proportion of N fertiliser use. | |  |
| **Premium**  Required to show excellence in nitrogen loss minimisation from farming activities | * GPS technology is used for precise application and for a digital record of fertiliser proof of placement, for all N fertiliser spread on-farm | |  |  | * Evidence of technology use |
| **Required outcome: 3. Phosphate (P) & sediment losses to groundwater and waterways are minimised and critical source areas managed.** | | | | | |
| **Poor**  Unacceptable | **No action in place to manage critical sources and minimise losses** | |  |  |  |
| **Basic**  May be adequate for small blocks and/or low intensity operation | Phosphate and sediment risks noted and managed for | |  |  |  |
| **Good**  Required minimum for most situations | **Phosphate and sediment losses managed by:**  **Selecting amount /type to apply:**   * Use recommendations on type and rate of P applications, as recommended by qualified person (fertiliser consultant or farm advisor) based on: | |  |  | * Soil test and fertiliser recommendations. * Fertiliser application records * Nutrient budget * Spreadmark accreditation certificate * Fertiliser application records * Field observation * Proof of placement charts * Critical source map and action plan |
| * + Soil testing | |  |
| * + Plant analysis | |  |
| o Nutrient budget results | |  |
| o Assessment of pasture quality | |  |
| o Need for capital or maintenance fertiliser | |  |
| **Application techniques and timing** | |  |
| * Use Spreadmark standards or using suitably calibrated equipment for N applications. | |  |
| * Use split applications where the single application rate would exceed 100kgP/ha, unless there is sound justification around not adhering to this e.g. dry autumn and winter conditions leading to a potential animal welfare issue | |  |
| * Limit phosphate application between June-August | |  |
| * Fertiliser is not applied when the soil is saturated and/or excessively dry | |  |
| * Fertiliser is not applied to severely compacted soils | |  |
| * Vegetation buffer strips of sufficient width (leave a riparian margin of at least 1-2m on flat land and 5m or more on sloping land.) to filter any runoff are maintained adjacent to all waterways | |  |
| **Managing key sites to reduce P and sediment losses** | |  |
| * Implement plan to reduce P losses at critical locations | |  |
| **Premium**  Required to show excellence in phosphate and sediments minimisation from farming activities | GPS technology is used for precise application and for a digital record of fertiliser proof of placement, for all phosphate fertiliser spread on-farm | |  |  | * Evidence of technology use. |
| **Required outcome: 4. Soils are well-managed to optimise infiltration and minimise runoff** | | | | | |
| **Poor** |  | |  |  |  |
| **Basic** |  | |  |  |  |
| **Good**  Required minimum for most situations | * Check for soil compaction | |  |  | * Field inspection * Soil aeration records * Soil map of property and plan to manage major soil differences |
| * Actively reduce adverse effects of significant soil compaction on water and effluent infiltration rates (e.g. using soil aerator etc) | |  |
| * Recognize the difference in soil types and soil properties and manage accordingly to minimise soil compaction damage | |  |
| * Increased crop residue is left in the soil | |  |
| * Heavy machinery restricted to specified pathways | |  |
| **Premium**  Required to show excellence in phosphate and sediments minimisation from farming activities. | * Regular Visual Soil Assessments (VSA) and records kept. | |  |  | * VSA records |

**Collected Effluent Management[[3]](#footnote-3)**

**Management Objective:** To manage the operation of the effluent system to avoid adverse effects on water quality

|  |  |  |
| --- | --- | --- |
| **Required outcomes** | **Covered by alternative plan? Y/N** | **Name of alternative plan / programme** |
| 1. Effluent management and discharge comply fully with all regional council consent requirements 365 days / year |  |  |
| 1. Effluent discharge correctly applied to avoid contamination of surface or ground water |  |  |

| **Acceptability of practices** | **Baseline Practices (examples of practices, others may be added)** | **Current Practices** | **Additional actions proposed to meet outcomes & timeframes for completion** | **Evidence for Compliance** |
| --- | --- | --- | --- | --- |
| **Required outcome: 1. Effluent system and application fully compliant with regulations 365 days / year** | | | |  |
| **Poor**  Inadequate | * Effluent consent not current |  |  | * Regional council compliance report |
| * Effluent consent monitoring shows major or minor non-compliance |  |
| **Good**  Minimum for most effluent management | * Effluent consent is current |  |  | * Regional council compliance report |
| * Effluent system fully compliant with consent conditions |  |
| **Required outcome: 2. Effluent discharge correctly applied to avoid contamination of surface or ground water** | | | | |
| **Poor**  Generally inadequate | * Limited storage which means effluent must be applied even when soils conditions are not suitable. |  |  | * Visual observation and/or evidence that demonstrates this is happening |
| * Effluent irrigator applies effluent at application rates which lead to ponding and/or runoff. |  |
| **Basic**  May be sufficient for some situations |  |  |  |  |
| **Good**  Minimum for most effluent management | * High risk effluent disposal areas identified |  |  | * Map showing risk areas * Bucket test information * System set-up specifications and follow-up tests * Bucket tests & visual observation * Map of effluent area. * Map or dairy record of effluent applications. * Visual observation + map showing exclusion zones * Staff training schedule |
| * Effluent applied at rates that do not lead to ponding and/or runoff. |  |
| * Minimise amount of effluent irrigation by careful yard management and diversion of shed roof water. |  |
| * Sufficient storage capacity is available at all times to ensure that effluent is not applied when soil conditions are near field capacity. |  |
| * Effluent irrigation system is capable of delivering the correct amount of effluent for soil type and slope. |  |
| * Correct amounts of effluent applied for specific soil properties and slope |  |
| * Ensure that effluent area covers at least 8ha/100 cows |  |
| * Ensure an even spread of effluent over the whole of the designated area. |  |
| * Take immediate action if incident or breakdowns occurs including:   + Rectify the problem   + Clean up if possible   + Take action to minimise the risk of the incident / breakage occurring again |  |
| * Staff who are involved in the management of the effluent system are fully trained in the use of the system. |  |
| **Premium**  Necessary to show excellence in effluent management | * Proof of placement technology used to identify areas of effluent application |  |  | * Proof of placement printouts * Visual observation |
| * Fail safe systems such as Gator-buddy and variable rate irrigation to minimize risk of incidents, and application of effluent to high risk areas. |  |

**Waterway and Wetland Management**

**Management Objective:** To manage waterways, wetlands and their margins to avoid stock damage and minimise inputs of nutrients, sediment and faecal contamination

|  |  |  |
| --- | --- | --- |
| **Required outcomes** | **Covered by alternative plan? Y/N** | **Name of alternative plan / programme** |
| 1. Stock damage to waterways and wetlands is minimised |  |  |
| 1. Farm practices minimise soil, nutrient and faecal contamination of waterways |  |  |

| **Acceptability of practices** | **Baseline Practices (examples of practices, others may be added)** | **Current Practices** | **Additional actions proposed to meet outcomes & timeframes for completion** | **Evidence for Compliance** |
| --- | --- | --- | --- | --- |
| **Required outcome: 1. Stock damage to waterways and wetlands minimised** | | | |  |
| **Poor**  Generally inadequate | * **Stock have access to waterways** |  |  |  |
| **Basic**  May be sufficient for some situations | * Grazed only with sheep |  |  | * Field inspection |
| **Good**  Minimum requirements for most waterways, wetlands and regularly wet areas | * Stock excluded from streams and wetlands in accordance with ECAN rules |  |  | * Field inspection of waterways and wetlands |
| * All regular stock crossings have bridge or culvert |  |
| **Premium**  Necessary to show excellence in water body management | * Approaches to stock crossings managed to avoid runoff to waterways |  |  | * Field inspection of waterways and wetlands |
| * All stock crossings have bridge or culvert |  |
| **Required outcome: 2. Farm practices minimise soil, nutrient and faecal contamination of waterways** | | | | |
| **Poor**  Generally inadequate | * Soil and nutrient contamination from farming practices regularly enters waterways |  |  |  |
| **Basic** |  |  |  |  |
| **Good**  Minimum requirements for most waterways | * Maintain vegetated riparian margin suitable to adequately filter any run-off from freshly cultivated or fertilised blocks and/or winter grazing blocks. Width of margin may vary from 1-10 metres depending on slope. |  |  | * Field inspection of waterways and wetlands |
| * Strip next to riparian margin grazed last when break feeding winter feed crops. |  |
| * Minimum or no-till cultivation techniques used when high risk of run-off from cultivated blocks. |  |
| * Runoff from stock races and tracks does not flow directly into waterways. Where necessary this runoff is directed to open pasture. |  |
| **Premium**  Necessary to show excellence in water body management | * Provide adequate filtering of sediment and nutrients e.g. by appropriate riparian buffers at low points. |  |  | * Field inspection of waterways and wetlands |
| * Riparian planting programme prepared and implemented. |  |
| * Permanently or frequently wet areas within paddocks are managed to avoid contamination from stock or fertiliser (e.g. fenced out, suitable planting, left uncultivated) |  |

**Summary**

**This Plan covers these management areas:**

|  |  |  |
| --- | --- | --- |
| **Management Area** | **Completed** | **If not completed, please give reason** |
| Irrigation System Design and Installation | Yes / No | Established irrigation system |
| Irrigation Management | Yes / No | No irrigation |
| Nutrient and Soil Management | Yes / No |  |
| Collected Effluent Management | Yes / No | No collected effluent |
| Waterway and Wetland Management | Yes / No | No waterways or wetlands |

**Appendix one: List of regional council resource consents held for farming activities on this property**

1. A land management unit is a homogenous block of land that responds in a similar way under similar management. The units should align, as far as possible, with the nutrient budget blocks [↑](#footnote-ref-1)
2. Define ‘significant upgrade’ e.g. conversion border to spray; k-line to pivot [↑](#footnote-ref-2)
3. This section of this FEP may be covered by an approved audited Dairy Supplier plan or similar e.g. from Fonterra, Synlait. [↑](#footnote-ref-3)