JUNE 2018

FARM ENVIRONMENT PLAN

Mahere Ārahi Taiao Ahuwhenua

Healthy Rivers
PLAN FOR CHANGE

Wai Ora
HE RAUTAKI WHAKAPAIPAI

Waikato
REGIONAL COUNCIL
Te Kaunihera ā Rohe o Waikato

Contents

1. Introduction

Healthy Rivers/Wai Ora: Proposed Plan Change 1 – Waikato and Waipā River Catchments (PPC1) is the first step in an 80-year plan to achieve water quality objectives and targets for the Waikato and Waipā river catchments.

A key part of PPC1 is for farmers to complete a Farm Environment Plan (FEP). An FEP is a tailored, risk-based approach to farm planning. They identify on-farm risks and associated mitigations to reduce diffuse discharges within specified time frames. Landowners can choose to develop an FEP themselves or hire a consultant to help with the process. However, all FEPs will need to be approved by a certified farm environment planner (CFEP).

By having an FEP, a farmer is able to design specific solutions to fit their own circumstances regarding soil, slope, climate and farming system. The process of creating an FEP involves an individualised risk assessment of each farm followed by the development of an action plan to reduce the risk.

It is expected that most farms will already have undertaken significant programmes of action, and an FEP will allow for those actions to be recorded and acknowledged.

Detailed guidance and suggested mitigations, based on good industry practices, are set out in Section 2.9.2 of this guide. It is important to note that these will be used by the CFEP in their decision making, to ensure that risks are fully addressed. It is not intended for every possible mitigation to be described in the notes. Further resources are listed in Section 3.4.

1.1 PURPOSE OF THIS GUIDE

The purpose of this guide is to support the preparation of quality FEPs that are practical to implement and effectively reduce environmental risks on farms. FEPs also need to be consistent in the assessment of risks and identification of appropriate mitigations as required by Schedule 1 of PPC1.

This guide is intended to help with filling in the regional council's FEP template, and is expected to be used by:

- industry workshop facilitators
- certified farm environment planners
- farmers.

1.2 HOW TO USE THIS GUIDE

By using this guide and the associated template, CFEPs and farmers will be able to complete an FEP that meets the requirements of PPC1. It is best to read through the guide before beginning your farm planning process, and regularly refer to the appropriate sections while filling in the template.

The intention of this guide is to explain some of the concepts in the FEP template, and highlight how the template should be used. It also points to some key materials, such as FarmMenus and guides to good management practices, to use or consider when developing an FEP.

1.3 INTRODUCTION TO FARM PLANNING

Farm planning for PPC1 requires every risk to be assessed across individual farms and mitigations put in place to reduce the impact of these risk areas. There will be variability between FEPs as influenced by the farming system and the biophysical properties of the farm.

Flexibility is a necessity as changes to the farming system and risks will influence the mitigations selected. The FEP is a living document that will need to be updated whilst fulfilling Schedule 1 requirements outlined in Section 2 of this guide.

In general, the greater the risk of contaminant loss from a property, the greater the scale of reduction expected in an FEP through the use of mitigations.

- Where possible, the activities that result in the greatest contaminant loss should be considered a priority. However, the impact on the farm system may be considered when prioritising mitigations.
- Farming activities that vary across landscapes (e.g. cropping/cultivation) may be accompanied by more general mitigations (e.g. silt fence and buffer strip). Risks associated with activities occurring in a fixed location are expected to have more site-specific mitigations.
- Existing mitigations on-farm (including management practices) should be considered when assessing risk. Should these mitigations be ongoing or necessary to ensure a reduction in contaminant losses, then it is expected that these be included in the list of actions in the FEP.
- The FEP will contain a list of mitigations represented as mandatory time-bound actions to be undertaken, and when, where and how they will be completed.
- FEPs may include matters that go beyond PPC1 requirements to reflect the goals and aspirations of the farmer, or opportunities for ecological enhancement that become apparent as a part of a property assessment. These matters may be kept separate in the FEP and will not be enforceable. They will, however, enable a positive story to be told by the farming community about what work is being done to enhance environmental outcomes, and in some cases may be eligible for funding support.

FEP actions are similar to any on-farm goals or targets and are most likely to be achieved if they follow the SMART approach:

S PECIFIC
M EASURABLE
A CHIEVABLE
R ELEVANT
T IME-BOUND

1.4 FEP STEPS

STEP 1	Preparation and discussions
STEP 2	Map – paddocks, waterbodies, infrastructure (e.g. tracks, buildings, water supplies)
STEP 3	Farm walk – LMUs (Land Management Units), strengths and weaknesses, risks, opportunities, achievements so far
STEP 4	Gather data – nutrient budget, soils info
STEP 5	Responses – including budget and schedule
STEP 6	Complete template
STEP 7	Approval by CFEP
STEP 8	Submit consent to council (via Certified Industry Scheme or consent application process)
STEP 9	Implement actions
STEP 10	Review FEP

2. Filling out the template

2.1 PROPERTY DETAILS

The first page of the template gathers basic contact information about the farm. Once all properties are registered, this page will be automatically pre-populated on the website. For now, it is only necessary to provide enough information to ensure that the FEP is correctly attributed to the right owner.

Farm trading name (if applicable)	If the farm is trading under a business name
Full name (owners)	Owner(s)
Healthy Rivers Farm Identifier	Office use only (pre-populated in online FEP template)
CONTACT DETAILS FOR OWNER(S)	
Postal address, Phone, Email address	An enterprise[1] may have multiple properties with different property owners
CONTACT DETAILS OF PERSON RESPONSIBLE FOR THE FARM (IF DIFFERENT FROM FARM	
Postal address	Mailing address
Phone	Most appropriate contact phone
Email	Most appropriate contact email
PROPERTY OWNER (IF DIFFERENT FROM ABOVE OWNERS)	
Property address	(If different from above owners)
Valuation reference[1]	From OurMaps or rates documentation
Legal description(s) of land parcels[1]	This should be per certificate of title
Total area (ha)	Pre-populated through registration
Effective area (ha)	Pre-populated through registration
Land use activities	Pre-populated through registration
Other relevant property identifier, dairy supply number, farm IQ	Complete the following details for the properties, including those within the enterprise
HEALTHY RIVERS/WAI ORA	
Freshwater Management Unit[2]	Pre-populated through registration
Sub-catchment name[2]	Pre-populated through registration[2]
Sub-catchment priority[2]	Pre-populated through registration[2]
CERTIFIED FARM ENVIRONMENT PLANNER	
Name	Office use only
Contact details	Office use only
Identifier/certification reference	Office use only
Sign-off	Office use only
Date	Office use only

[1] Obtainable from Waikato Regional Council or district council rates documentation.

[2] Not sure which sub-catchment you're in? Visit waikatoregion.govt.nz and click on Find My Farm.

2.2 FARM MAP

An accurate map is the foundation of an effective farm plan. Maps are used to identify different land blocks of the farm, which will help identify management systems and contamination risks as well as mitigation actions. Note that there are key elements that must be shown (see below). These will be linked to the Risks and Actions, so it is helpful to number the items on the map so they can be easily referred to later. As you mark items on the map, make notes in the plan of actions for later reference.

Farm maps can be requested from Waikato Regional Council either through the OurMaps online portal (waikatomaps.waikatoregion.govt.nz/Gallery) or through a request put in by a member of the council's staff. Otherwise, the CFEP is likely to have the ability to source farm maps for you.

For larger or more intensive farms it may be helpful to prepare two or more maps to help with clarity. These may be:

1. Risk map (showing slopes, soils, blocks, waterways and risk areas).
2. Action map (showing the location of the actions that appear in the Summary of Actions in the template).

Don't forget to show the actions, mitigations and enhancements that have already been completed.

Anything can be included on a farm map, but it is also expected that the farm map clearly shows:

- Area, property boundary
- Mitigation actions (existing and future)
- Overland flow paths[1]/ephemeral waterways
- Location land uses[2]
- Retired forestry areas
- Paddocks
- QE II or other covenanted areas
- Soil types
- Cultivation setbacks
- Slope classes
- Erosion prone areas[1]
- Riparian areas
- Soil conservation areas
- Yards, animal holding areas[1]
- Actively eroding areas[1]
- Effluent application areas[1]
- Cultivated area flow paths
- Effluent accumulation areas[1]
- Areas prone to flooding[1]
- Feed out areas[1]
- Dams
- Stock crossing structures (existing and future)
- Waterbodies[3]
- Existing fences adjacent to waterbodies[3]
- Cultivated land above 15 degrees
- Tracks and races

[1] Critical source areas

[2] This may be in the form of Overseer Blocks, or Land Management Units

[3] Any river, drain or wetland that continually contains surface water

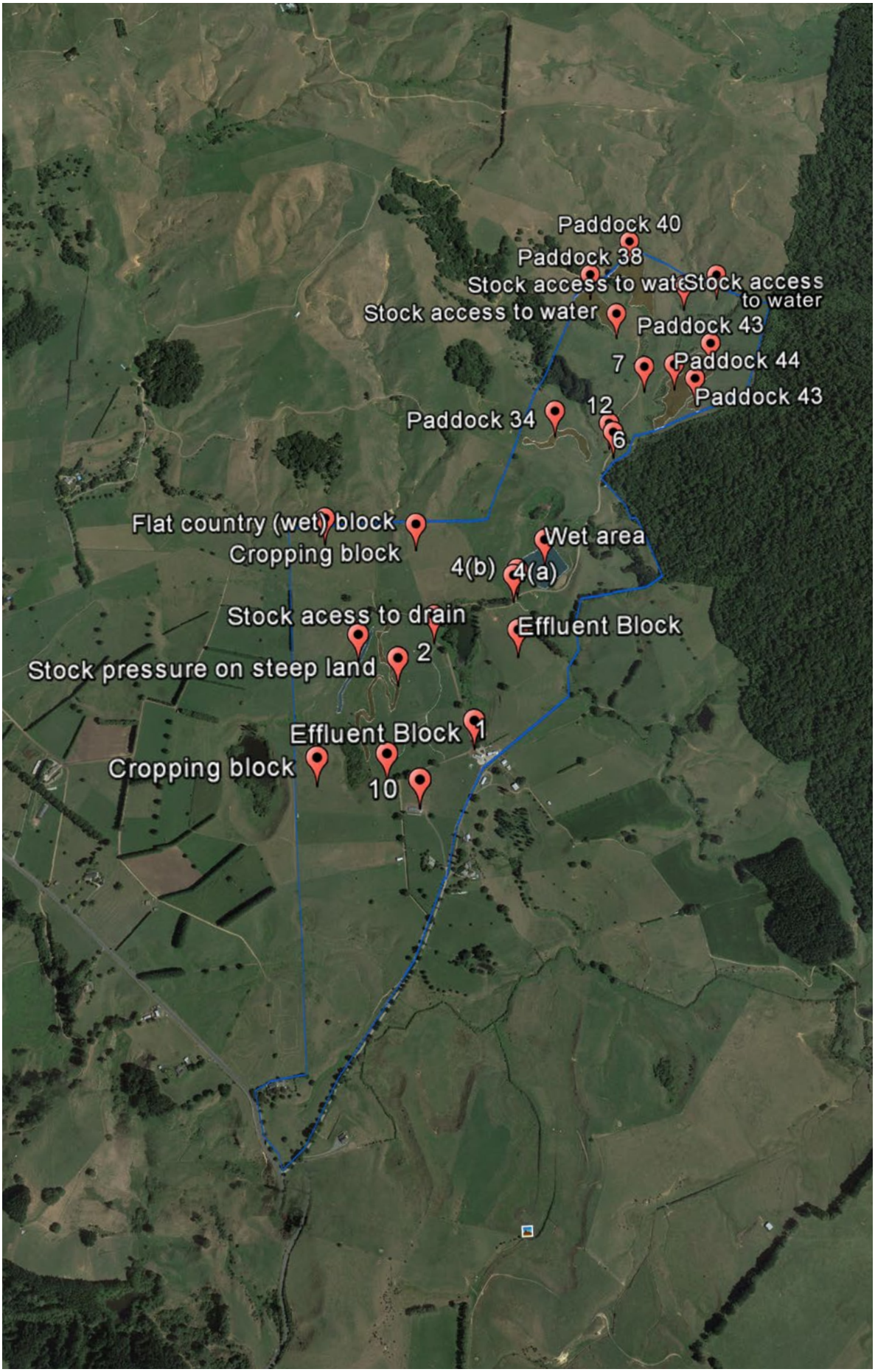
2.2.1 Additional information to consider including in a farm map

It may be helpful to add other items to the farm map if they help to identify risks, critical farm system considerations or potential improvement opportunities. It's a good idea to include more rather than less while doing the farm walk, and then select the key things to go into the final map later.

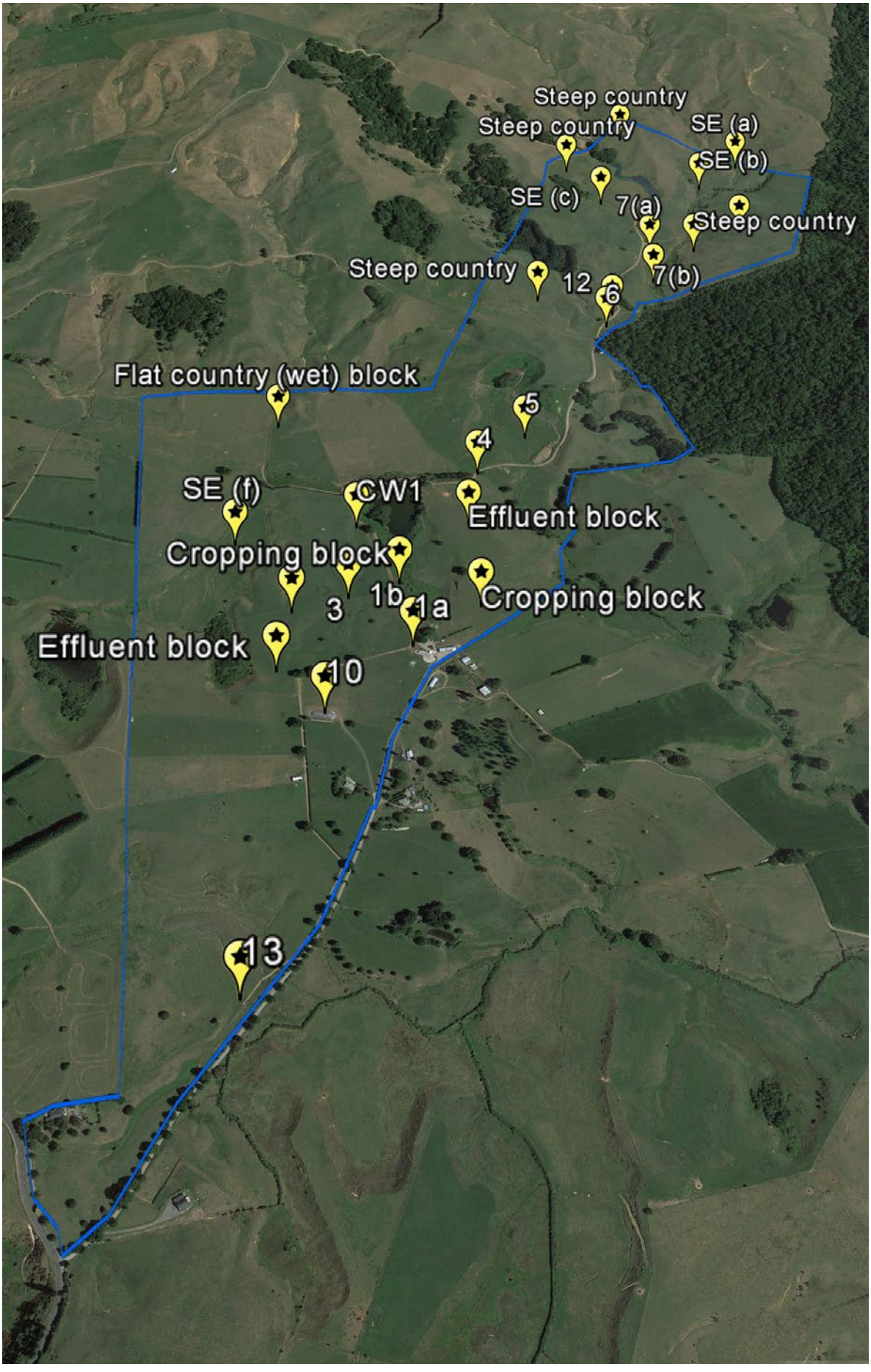
When choosing what to show on the final farm map(s), the overriding considerations should be:

- farm management (blocks or LMUs)
- risks
- opportunities (especially identify opportunities for trapping contaminants before they reach water)
- planned actions (including enhancements, where appropriate)
- actions or mitigations already completed (e.g. bush fencing, sediment traps)

Risk Map


Paddock 40
Paddock 38
Stock access to wat
Stock access to water
Stock access to water
Paddock 43
7
Paddock 44
Paddock 43
12
Paddock 34
6
Flat country (wet) block
Cropping block
Wet area
4(b)
4(a)
Stock acess to drain
Effluent Block
Stock pressure on steep land
2
Effluent Block
1
Cropping block
10

Actions Map


Steep country
Steep country
SE (a)
SE (b)
SE (c)
7(a)
Steep country
Steep country
12
6
7(b)
Flat country (wet) block
5
4
SE (f)
CW1
Effluent block
Cropping block
3
1b
1a
Cropping block
Effluent block
10
13

2.3 FARM STORY

It is important to consider the objectives and goals of the farming family or business when developing an FEP. This optional section provides an opportunity to include information about the farm, such as the farm business and work already undertaken. It is up to the farmer to decide what information, if any, to include here.

It is best to consider what is of greatest importance to the person (or people) who runs the farm on a daily basis and the person (or people) who makes the budget decisions. This will help to keep these considerations in mind while completing the FEP.

There may be past or current actions and activities that would be considered property enhancements/improvements that will have contributed to environmentally sustainable activities. This is an opportunity to note those.

TELL US ABOUT YOUR PROPERTY. INCLUDE:

History
Interesting features
Potential goals
Any concerns/worries

3rd generation farm. Brought in separate pieces and currently spread across 3 titles.

Backs onto Te Tapui scenic reserve.

Would like to increase productivity of the farm whilst reducing the environmental output from the property.

Further improvements to on-farm biodiversity.

Improve production from specific paddocks on the property (paddocks 17 & 28)

Management of steep land is a concern. Does it produce enough for it to be viable to farm off?

TELL US ABOUT THE WORK YOU HAVE ALREADY DONE. INCLUDE:

Work you have done to protect infrastructure
Work you have done to improve stock health
Work you have already done which has protected or improved water quality
Work you have done to improve biodiversity

95% of all waterways on-farm are fenced

Extensive planting of riparian areas and wetland areas (25,000 plants so far)

Starting to use poplar poles on steep country and considering reversion/permenant retirement in some areas

New effluent pond and stand-off pad constructed (2018)

Noticeable increase in birdlife around farm and at home

Projects going forward include more wetland restoration and improvement of mai mai's on duck pond.

2.4 WHOLE FARM RISK OVERVIEW

In this section, consider the entire farm to determine risk factors that apply to it as a whole. The risks considered in this section should also relate to the overall sub-catchment risks and targets defined in PPC1 (see Appendix 3.4).

These whole farm risks and mitigations will be used to guide decision making in the farm planning sections further on.

CATCHMENT NUTRIENT PRIORITIES			
Consider the sub-catchment nutrient priorities in your sub-catchment when identifying risks and actions. You can find this information in the FEP Guidelines. Circle one or more.			
Nitrogen	Phosphorus	Sediment	Bacteria

FARM SYSTEM AND INTENSITY
Description of farm system and intensity, including fertiliser and supplementary feed inputs. Description of cultivation, cropping and pasture renewal practices. N, P, sediment and bacteria.
Identified risks i. Catchment priorities are sediment and bacteria. Finishing heavy cattle on rolling to steep hill country. Break feeding winter fodder crops creates sediment and bacteria loss risk. ii. Catchment priority is nitrogen. Intensive dairy system with high-above average N leaching.

SOIL TYPE	TOPOGAPHY	CLIMATE
Description of how soil type and land use contributes to risk of contaminant loss.	Description of how topography and land use contribute to risk of contaminant loss.	Description of climate, drought and frequency of flood events, and how this may influence the risk of contaminant loss.
Identified risks Soils are heavier in the valleys and lower points of the stream gullies. Some hillfaces are prone to slumping/slipping when wet, especially when breeding stock are held for longer than usual during wet weather. Best areas for heavier stock in winter are rolling to flatter tops still holding ash-based soils.	Identified risks Cattle are mostly run across farm in accordance with topography and suitability of land use. Steeper areas currently run mostly sheep with some breeding stock, with the idea that these will be retired in time. The easier land is used for break-feeding winter crops in winter and then regrassed to carry stock leading into sales.	Identified risks Rainfall and temperatures fairly similar across whole farm. Some south-facing paddocks remain wet most of winter and are likely to slip/slump if stock are held too long. Heavy rain from northeast can increase likelihood of flood events and during late summer/autumn stock grazing in gully paddocks are needing to be fenced away from flood prone areas.

2.5 FARM BLOCK DESCRIPTION

Farm or OVERSEER blocks, or Land Management Units (LMUs), are areas of land that can be farmed or managed in a similar way because of underlying physical similarities. They can represent a static snapshot of how land is currently used, or an insight into how land could be used if all physical opportunities were realised.

Defining blocks could be based on:

- land uses, both current and any proposed
- management systems (differing stocking rates, stock types, or seasonal grazing differences on different areas of the farm)
- effluent application areas
- irrigated areas
- milking platforms
- run offs
- cropping areas
- breeding blocks
- finishing
- differing fertiliser regimes.

Also incorporate biophysical aspects such as:

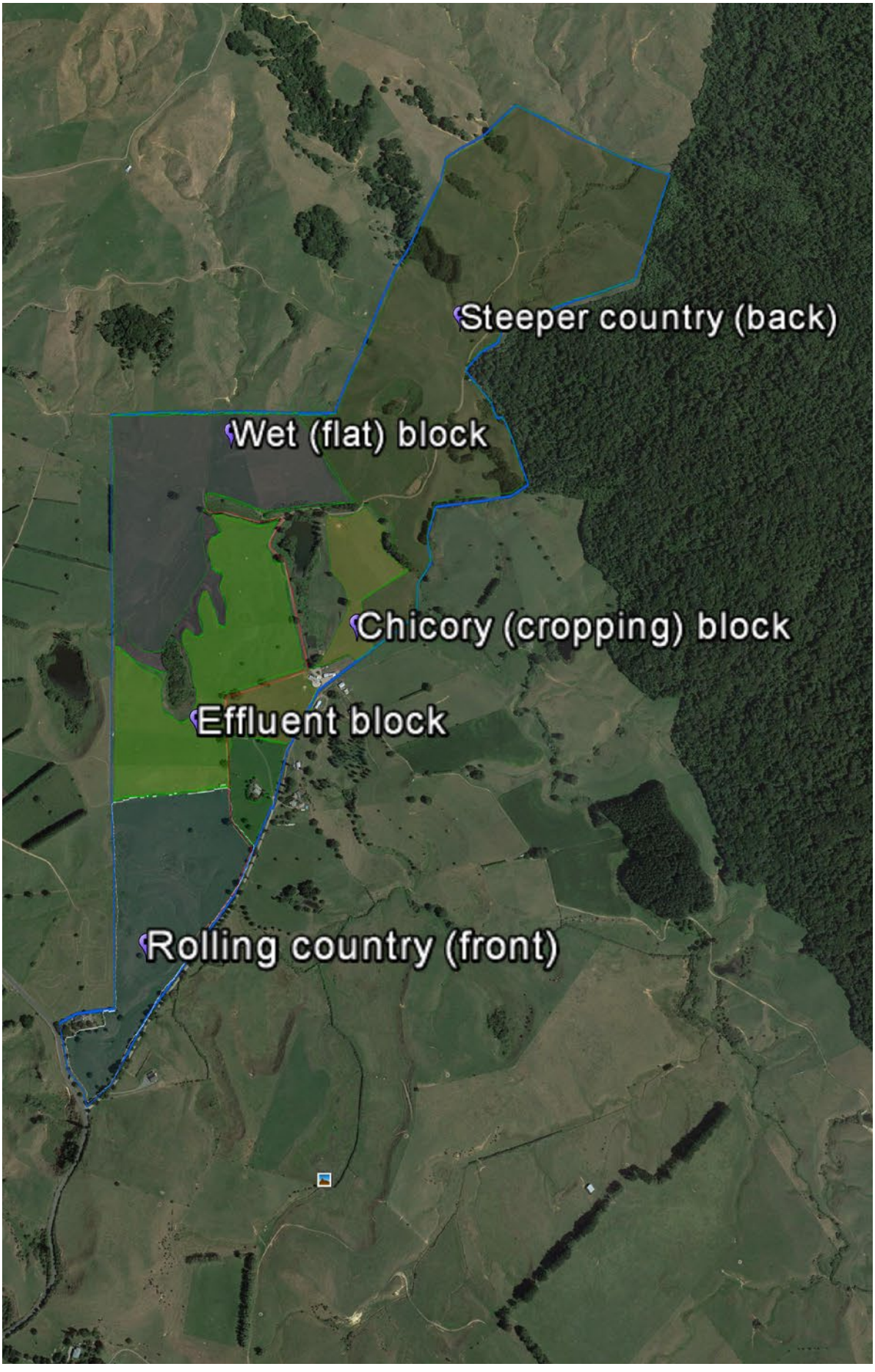
- soil order
- topography, OVERSEER blocking (LRI, WRC GIS data, or LIDAR)
    i. Flat - rolling 0-15 degrees
    ii. Easy Hill 16-25 degrees
    iii. Steep Hill > 26 degrees
- hill country
- riparian areas
- wetlands
- forestry
- grazed scrubland
- soil conservation land improvement areas, other covenanted retirement areas including QE II protected areas (WRC GIS data).

The blocking exercise may have already been completed in setting up the farm's OVERSEER file, or alternatively the blocking exercise may identify OVERSEER blocks for nutrient budgeting.

Use the tables to describe the factors above for each block. When identifying mitigations or farm system changes required, number these and include them in the Risk and Actions so that they become a part of the overall plan for the farm.

Identify any strengths and weaknesses that might be caused by specific blocks or uses of blocks. For example, a cultivation block may have the weakness that the cultivation activity is increasing the risk of sediment loss, but its strength is that it is the most suitable block for cultivation due to its relatively flat contour and proximity to infrastructure. For each block, highlighting these strengths and weaknesses can help to inform the types of risks that the CFEP might need to be conscious of, and also inform the conversation about suitability of land-uses.

LMU Map


Steeper country (back)
Wet (flat) block
Chicory (cropping) block
Effluent block
Rolling country (front)

2.6 INFRASTRUCTURE MANAGEMENT

The purpose of this section is to inform the assessment of risks associated with the management of effluent and freshwater infrastructure. Where appropriate, these risks may be identified in the actions table (see section 2.8 of this guide).

2.6.1 Effluent system

EFFLUENT SYSTEM
POND VOLUME
Give the volume of storage
POND SEALING EVIDENCE
Does the pond have an artificial liner? If not, it is at risk of leaking and a drop test is the only way to be sure of this
DAIRY YARD EFFLUENT CONTAINMENT
Yes or no
WOOLSHED EFFLUENT CONTAINMENT
Yes or no
STOCK YARD EFFLUENT CONTAINMENT
Yes or no
STANDOFF PAD/WINTERING BARN OR ANIMAL HOUSING
Are these present and is the effluent from them directed into the effluent treatment system?
STABLES/YEARLING BOXES
Description of effluent management
SOLIDS OR SLUDGE STORAGE, SEPARATION AND APPLICATION
Describe how these are carried out
EFFLUENT APPLICATION MANAGEMENT, IRRIGATOR TYPE
Add
IRRIGATION RATE, SCHEDULING
Provide details of how effluent is applied to land
EFFLUENT IRRIGATION AREA (HA)
Add

2.6.2 Freshwater irrigation

FRESHWATER IRRIGATION
AREA IRRIGATED (HA)
Add
TYPE OF IRRIGATOR
Add
WATER SOURCE
Surface or bore
WAIKATO REGIONAL COUNIL CONSENT
Consent number
WATER METER
If yes, what type?
APPLICATION DEPTH AND UNIFORMITY
Add
METHOD(S) OF SCHEDULING AND CALCULATING IRRIGATION REQUIREMENTS
Provide details on how irrigation is applied
OTHER INFORMATION
Any other considerations or risks relating to the irrigation system, methods or equipment

2.7 NUTRIENT MANAGEMENT

This information will be provided by the certified farm nutrient advisor (CFNA). The 75th percentile figure will not be available until the completion of registration and submission of Nitrogen Reference Points. Farms that have nitrogen leaching exceeding the 75th percentile for their Freshwater Management Unit will be required to reduce that leaching to within the limit by 1 July 2026. This information will be pre-populated in the template through the submission of NRPs, and the only addition will be information about the 75th percentile.

If the farm NRP sits above the 75th percentile, the N leaching value (kg N/ha/yr) and reduction sought will be noted in the FEP. Any actions put in place to reduce nitrogen output to or below the 75th percentile should be outlined and marked as high priority in the Risks and Actions.

The phosphorus information expected in this guide relates to information associated with soil tests across blocks. This information will be input into the table and compared to the agronomic optimum levels of phosphorus in specific soil types (Fertiliser Association Code of Practice for Fertiliser Application). Phosphorus levels above the optimum increase the risk of losing phosphorus.

2.8 FARM ENVIRONMENT PLAN RISKS AND ACTIONS

The FEP identifies what the risks are on farm (noting their location on the farm map), what actions will be done (if appropriate) and when they will be completed. The identification, assessment and prioritising of risks on the farm is critical to successful completion of this step.

2.8.1 Filling out the Risks and Actions table

During the farm walk, note each location with a number and enter it into the action ID column. Select the risk and contaminant of concern from the table in 2.9.1. Note that the list of risk types is provided for the purpose of standardising data collection and catchment modelling. Where possible, use these to describe risks, but if an identified risk is not included in the list then it is OK to enter other terms.

Select an action or actions to address each risk and, using the prioritisation assessment matrix and description in Section 2.8.2, schedule when the actions will be completed. Note that stock exclusion must be completed within three years of the date when the FEP is due, and no later than 1 July 2026. Farms with nitrogen losses above the 75th percentile must include action(s) to reduce losses to within the 75th percentile by 1 July 2026.

2.8.2 Risk assessment and prioritisation

The Risk and Actions table organises the risks identified on-farm.

PPC1 requires that FEPs use a tailored risk-based approach when defining mitigations. This is highlighted in Section 2 of Schedule 1 (Requirements for Farm Environment Plans). PPC1 also requires that risk assessments take into account the water quality targets identified for each sub-catchment. If sediment and bacteria are the matters of greatest concern in the catchment, then it is expected that the FEP risk assessment should focus on identifying the sources of those contaminants.

It is important to prioritise the risks so that effort can be targeted where it will achieve the greatest benefit.

It is important to note that this approach anticipates that there will be differences between FEPs (including mitigations) because they will be influenced by the farming system, landowner knowledge and the biophysical properties of the farm.

The CFEP, informed by the landowner, will assess the risk and decide the appropriate scale, location, type and timing of mitigation actions. Mitigations (existing and future) will be identified in the farm map in the FEP.

Existing mitigations influence the risk assessment via many of the considerations listed below. It may help to imagine the same scenarios on-farm without pre-existing mitigations and how that might have influenced the risk assessment. It is therefore important that meaningful recognition of good work already done by farmers is provided throughout the FEP development process. Schedule 1 of PPC1 also outlines actions that must be identified and implemented. These include minimum setbacks for cultivation and stock exclusion from all permanently flowing/holding waterbodies.

Risk-based approach

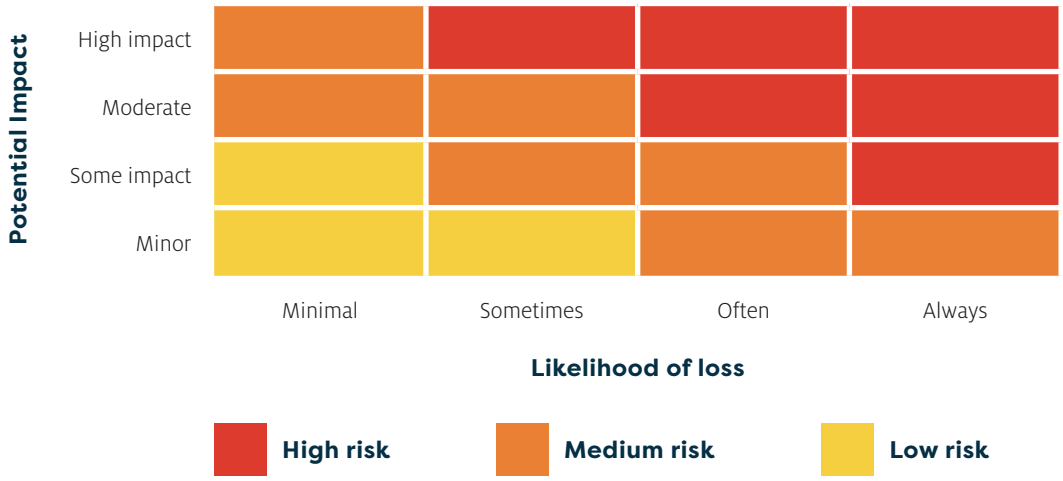
Risk is a product of the following:

a. Potential impact of contaminants
b. Scale of contaminant loss (may include cumulative losses)
c. Likelihood of contaminants being "lost" to the environment (General Farm Biophysical Factors table on page page 21)
    i. Distance to and/or ease of access to waterways from a contaminant source (including via groundwater)
    ii. Farm biophysical features, including soil type (erodibility), slope, aspect and rainfall
    iii. Other mitigations (intentional or not) already in place (e.g. riparian planting or race cut-offs).

The following risk assessment matrix table will assist with the prioritisation of risks identified in the FEP. There is an expectation that the CFEP will utilise their professional judgement and work with the landowner to better understand their property when making the required assessments, using Figure 1 alongside the FEP template as a guide.

The matrix assesses the potential impact of losses of contaminants in comparison with the likelihood that these losses do occur. For example, a stream crossing at the bottom of a slope might be considered to have a moderate impact of contaminant loss, but the likelihood of contaminant loss is often and therefore the overall assessment is high risk.

Figure 1: Risk matrix showing low, medium and high risk examples



Changes in risk profile

The FEP will need to be flexible and reviewable to allow for changes in farm risk as a result of substantial changes to on-farm management practices and/or the farm system, and changes to the biophysical properties of the farm, such as overland flow paths, erosion, etc. Such changes may result in an increase or decrease in the farm risk profile, which in turn may influence the scale, location, type/form and timing of mitigations in the FEP.

Guide to using the risk matrix

STEP 1

Identify the risk

Use the tables in 2.9 to guide the identification and naming of risks. Risks will be identified when assessing a farm using the farm map or during the farm visit. It is important that all risks are referenced on the farm map.

STEP 2

Risk assessment

The assessment of risk takes into consideration some general biophysical factors outlined on the next page. These factors are assessed in the matrix, and the location of the risk is likely to impact the likelihood of the contaminant loss (e.g. a risk situated away from a waterway is going to be less likely to lose contaminants into the water than a risk on the edge of a waterway).

The risk assessment uses a standard risk matrix with the colours yellow, orange and red outlining the low risk, medium risk and high risk values for each site.

STEP 3

Overall risk value

The overall risk value takes into consideration both the likelihood of loss occurring and the potential impact of the loss. Using the risk matrix will help establish where the risk sits in regards to its overall risk value. The overall risk helps the farmer and CFEP consider whether an action is needed, and the priority of that action. This prioritisation will then go on to inform suitable time frames for actions, e.g. actions for high risk items should be prioritised.

STEP 4

Prioritisation

Generally the highest risks should have actions prioritised first, however, these actions must be reasonably achievable. Therefore, the scale of works (including funding) should be considered in the timing of actions.

PPC1 does not require that all identified risks have associated actions, however, all risks should be recorded in the Risks and Actions table. Council generally expects that risks identified as high will have actions, and low risks may not.

STEP 5

Identify appropriate actions

The considerations of actions includes:

- Is the action necessary?
- Does the action/mitigation reduce contaminant(s) risk (i.e. is the action currently understood to be good industry practice)?

The extent and type of mitigation requires the use of the CFEP's professional judgement. PPC1 works on the following premise: farms contributing proportionally larger amounts of contaminants will be expected to undertake a greater number (or more substantial actions) than those contributing a smaller amount. The focus of a mitigation action on a particular contaminant will be informed by the expected sub-catchment improvements in water quality (PPC1 Table 3.11.1).

STEP 6

Identify mitigation

The mitigation will take into account the level of risk and the type of contaminant(s) which need to be mitigated. Part of this needs to be an assessment of whether the size or scale of the action will have an impact on the risk which has been identified, i.e. assess whether the scale of the mitigation will reduce the amount of contaminant being lost. It is important that the wording is clear so that there is no confusion about the action(s) that needs to be undertaken. See Sections 2.9.2 and 2.9.3 for more guidance.

General farm biophysical factors that increase the loss of contaminants to waterways

Proximity of farming activity to waterways – due to likelihood of run off reaching waterways

Farming activities/intensity

Soil type – less cohesive soils increase risk of erosion

Slope – generally the greater slope farmed, the greater the risk of losses

Rainfall and rainfall variation pattern – the higher the rainfall and the greater the variation pattern, the greater the nitrogen loss and the greater the risk of erosion and run off losses

Season – more nutrients are generally lost during autumn and winter when soils are wetter, rainfall is higher and plant uptake is lower

Adverse weather conditions (e.g. storm events, drought)

Stock type and grazing intensity – heavier stock grazing and higher stocking rates lead to increased risk of nutrient, sediment and bacterial losses from farming. Additionally, grazing of crops in situ increases the likelihood of nutrient losses

Cultivation – deeper, more extensive and more frequent cultivation increases the likelihood of loss of sediment and phosphorus to waterways

Soil nutrient status – soils with nutrients above agronomic optimum have increased risk of loss of those nutrients. Additionally, the ability of the soil to retain nutrients is also a factor

Layout, design and maintenance of tracks and races – these can concentrate water flows and enable transport of sediment and dung into waterways.

2.9 POTENTIAL RISKS

2.9.1 Potential risks + contaminant of concern table

Use this table to identify risks on the farm. Where the relevant risk is not outlined, please state "Other" and include notes/ commentary.

STOCK EXCLUSION FROM WATERBODIES

POTENTIAL RISK	CONTAMINANT OF CONCERN
Stock entering waterway/ waterbody	Bacteria, sediment
Streambank erosion	Sediment, phosphorus
Susceptibility to flooding	Sediment, phosphorus, bacteria
Inadequate plantings	Sediment, phosphorus
Overland flow path exit points	Bacteria, sediment, nitrogen, phosphorus
Narrow margins unable to capture nutrients or prevent erosion	Sediment, phosphorus, bacteria

SETBACKS AND RIPARIAN MANAGEMENT

POTENTIAL RISK	CONTAMINANT OF CONCERN
Streambank erosion	Sediment, phosphorus
Stream size and susceptibility to flooding	Sediment, phosphorus, bacteria
Inadequate plantings	Sediment, phosphorus
Overland flow path exit points	Bacteria, sediment, nitrogen, phosphorus
Narrow margins unable to capture nutrients or prevent erosion	Sediment, phosphorus, bacteria
Narrow margins unable to capture nutrients or prevent erosion	Sediment, phosphorus, bacteria

CULTIVATION MANAGEMENT

POTENTIAL RISKS	CONTAMINANT OF CONCERN
Cultivation on slopes	Sediment, phosphorus
Cultivation in ephemeral waterways	Sediment, phosphorus
Continual cultivation in same blocks/paddocks	Sediment, nitrogen
Non-use of cover crops	Nitrogen, sediment, phosphorus
Use of full/high tillage methods	Sediment, phosphorus, nitrogen

FRESHWATER IRRIGATION MANAGEMENT

POTENTIAL RISKS	CONTAMINANT OF CONCERN
Soil compaction	Nitrogen, sediment
Increased leaching of nutrients	Nitrogen
Overland flow	Bacteria, sediment, nitrogen, phosphorus

EFFLUENT MANAGEMENT

POTENTIAL RISKS	CONTAMINANT OF CONCERN
Insufficient storage	Bacteria, sediment, nitrogen, phosphorus
Gear not maintained/serviced	Bacteria, sediment, nitrogen, phosphorus
Irrigator depth not tested	Bacteria, sediment, nitrogen, phosphorus
Existing discharge consent	Bacteria, sediment, nitrogen, phosphorus
Unsealed ponds/containment areas	Bacteria, sediment, nitrogen, phosphorus
Irrigation occurring on wet soils	Bacteria, sediment, nitrogen, phosphorus
Stone/sand trap cleanings stored away from sealed pads	Bacteria, sediment, nitrogen, phosphorus
Insufficient irrigation application area	Bacteria, sediment, nitrogen, phosphorus

APPROPRIATE LAND USE AND GRAZING MANAGEMENT

POTENTIAL RISK	CONTAMINANT OF CONCERN
Pugging damage increases risk of run off	Sediment, phosphorus, bacteria, nitrogen
Cultivation on slopes	Sediment, phosphorus
Heavy stock on slopes	Bacteria, sediment, nitrogen, phosphorus
Use of sacrifice areas	Bacteria, sediment, nitrogen, phosphorus
Over-grazing of pasture/crops	Bacteria, sediment, nitrogen, phosphorus
Use of winter crops	Bacteria, sediment, nitrogen, phosphorus
Stock tracking/treading around fence lines	Bacteria, sediment, nitrogen, phosphorus
Hillside erosion	Bacteria, sediment, nitrogen, phosphorus

CRITICAL SOURCE AREAS

POTENTIAL RISKS	CONTAMINANT OF CONCERN
Drainage to waterways from hard surfaces	Bacteria, nitrogen, phosphorus
Proximity of infrastructure to waterways	Bacteria, nitrogen, phosphorus
Run off from tracks and races	Sediment, bacteria, phosphorus
Track design and surface material	Sediment, bacteria
Frequency of track use	Bacteria, sediment, nitrogen
Approaches to crossings	Sediment, bacteria
Stream size and susceptibility to flooding	Sediment, phosphorus
Inadequate plantings	Sediment, phosphorus, bacteria
Overland flow path exit points	Bacteria, sediment
Narrow margins unable to capture nutrients or prevent erosion	Sediment, bacteria, phosphorus

2.9.2 Action types (generic)

The identified actions need to be specific enough that the person carrying them out (often the farm manager) is clear about what is intended, remembering that the action may not be due for two or three years. This clarity is also needed by council to assess the FEP as a part of a consent application. Guidance on writing good mitigation actions is provided in Appendix 3.2.1.5.

The actions outlined in the tables below are examples of the 'types' of actions that are likely to be utilised in these areas. They are NOT the only actions that can be undertaken, and where other techniques will be used, please select "Other" and clearly detail actions and provide notes/commentary. The standardisation of language is to enable catchment communities to more easily tell a comprehensive story of the work being undertaken. It will also enable better catchment monitoring and modelling to show what difference is being made as a result of those actions.

When populating the Risks and Actions table in the template, it is important to identify which actions are required (to be assessed in the consent applications) and which are above requirement (i.e. something the farmer wants to do). The CFEP should be able to help a farmer identify which of the categories is suitable for an action.

The type of risk should inform the type of action. Examples of the types of risks can be found on the previous pages.

Stock exclusion from waterbodies

- Install waterway fencing
- Install wetland fencing
- Install stock-water reticulation
- Construct new crossing
- Install temporary fencing
- Provide shade and shelter away from stream
- Undertake alternative mitigations for land over 25° (not already mentioned)
- Other

Setbacks and riparian management

- Install waterway fencing
- Install wetland fencing
- Undertake alternative mitigation for land over 25° (not already mentioned)
- Construct new crossing
- Install temporary fencing
- Other

Cultivation management

- Implement appropriate cultivation techniques
- Implement suitable detainment technique
- Implement suitable fertiliser application timings
- Use suitable and correctly calibrated machinery type
- Other

Appropriate land use and grazing management

- Implement appropriate stock management
- Implement appropriate grazing management
- Use stand-off/feed pad facilities
- Implement appropriate cultivation techniques
- Permanent retirement of land
- Seasonal retirement of land
- Implement detainment techniques
- Use appropriate crop grazing strategies
- Pole planting
- Other

Effluent management

- Use suitable effluent application techniques
- Manage effluent solids
- Undertake soil moisture checks before effluent applications
- Manage effluent storage levels
- Manage water use levels
- Regular maintenance of effluent application equipment
- Other

Critical source areas

- Install waterway fencing
- Install wetland fencing
- Install new crossing structure
- Regular tracks and race maintenance
- Install erosion control structures (hard)
- Install erosion control mitigations (soft)
- Implement appropriate stock management
- Implement appropriate grazing management
- Permanent retirement
- Install detainment structure
- Other

2.9.3 On-farm action/mitigation (specific)

After the on-farm action has been selected, the CFEP and farmer will need to provide more details about the action they want to do at a specific point or location. These boxes provide prompts for this conversation and will be part of the electronic version of the FEP template, but also allow space to further define what this action will look like in the CFEP's or farmer's own words.

STOCK EXCLUSION FROM WATERBODIES UP TO 25°

- Install new fencing around waterway
- Install new fencing around wetland
- Install new crossing structure (bridge/culvert)
- Other

STOCK EXCLUSION FROM WATERBODIES EXCEEDING 25°

- Install reticulated water to provide stock water
- Fence and plant permanently wet areas
- Use temporary electric fencing when stock are in paddock
- Restore downstream receiving wetland
- Construct downstream receiving wetland
- Increase riparian setbacks
- Riparian planting where stock exclusion exists
- Wetland or detainment structures/sediment trap
- Install culverts or bridges at regular stock crossings
- Shade provided away from waterways
- Plant spaced poplars or other poles
- Provide wallows for deer away from stream
- Plant trees on steeper slopes
- Change grazing strategy to reduce contaminant loss risk
- Other

SETBACKS AND RIPARIAN MANAGEMENT

- Riparian planting
- Install fence away from waterway to allow for additional grass filter strip
- Install fence away from waterway to allow for wider buffers in riparian areas
- Install deer wallows away from waterways
- Install sediment capture post wallow area
- Install detention structures
- Install erosion control plantings in riparian zone
- Install stock crossings on races and farm tracks.
- Install in-stream sediment traps
- Other

Minimum grazing setbacks up to 25°

- New fencing around waterway
- New fencing around wetland
- Use temporary electric fencing where appropriate
- Other
- Minimum cultivation setbacks to ensure sediment loss
- Other

Minimum cultivation setbacks to ensure sediment loss

- Other

CRITICAL SOURCE AREAS (CSA)

- Temporary fencing to remove stock from the area during high risk periods
- Detain water during wetter periods
- Wetland planting to slow sediment movement and encourage nutrient uptake
- Permanent retirement of suitable CSAs
- Reduce the pugging of areas adjacent to waterways
- Increase width of riparian margin
- Encourage grass filter strip with weed management
- Fence and plant any springs and exclude stock
- Exclude stock from permanent wet and boggy areas
- Other

Tracks, races and stock crossings

- Relocate tracks further away from waterways
- Install cut-off drains into paddocks
- Grass filter strips
- Construct drainage holding/containment areas from tracks or races
- Shape/contour to direct drainage to suitable areas
- Install bunds on culvert crossing and bridges to divert run off away from waterway
- Plant diversion and detainment areas
- Other

Yards, races, underpasses, stock camps, feed-out areas

- Control run off from yards races
- Control run off from livestock crossing structures
- Control and contain run off from underpasses
- Control run off from stock camps
- Control and contain run off from feed-out areas
- Utilise standoff pads/feed pads
- Remove build-ups of effluent from culvert crossing and bridges
- Install bunds on approaches to culvert crossings and bridges
- Install sumps and concrete lining into the bottom of underpasses
- Move water troughs and gateways away from water flow paths
- Locate key farm infrastructure such as bridges and underpasses
- Other

Hotspots

- Process silage to minimise moisture content and cover to prevent water ingress
- Line silage pits and any compost storage areas
- Contain/divert leachate to effluent system for application onto land
- Control run off from fertiliser storage areas and stock holding areas
- Ensure procedures are in place for recovery of spilt material (fertiliser and stock yard waste)
- Locate offal pits away from floodplains, wetlands and waterways
- Cover animal shelters and stock holding areas
- Locate fuel and chemical storage to reduce the risk of contamination
- Replace summer and winter sacrifice paddocks with sealed loafing pads
- Off-site removal of refuse
- Construct wetlands to further slow sediment movement and encourage nutrient uptake
- Other

APPROPRIATE LAND USE AND GRAZING MANAGEMENT

Matching land use to land capability

- Use Land Use Capability Survey Handbook (see appendix) to identify suitable land uses
- Fence and plant out unproductive steeper slopes
- Identify areas prone to pugging and keep stock off these areas during winter or during wet periods
- Adjust stock management practices to restore pasture coverage
- Change grazing practices to protect pasture coverage
- Complete a nutrient budget to identify and minimise sources of nutrient losses
- Replace summer and winter sacrifice paddocks with sealed loafing pads
- Utilise stand-off pads, feed pads and animal shelter
- Use temporary fencing to keep stock out of seasonally wet areas of the farm
- Move stock to the driest paddocks before wet weather
- Graze light stock only on effected areas
- Construct Sediment traps downstream of strip grazed areas
- Other

Identifying areas not suitable for grazing

- Retire areas identified as unsuitable grazing
- Establish production forestry blocks
- Establish or revert unsuitable grazing land to native forest
- Other

Maintenance of soil condition and pasture cover

- Avoid grazing heavy stock on steeper or more vulnerable soils
- Utilise cut and carry pasture management
- Graze heavy stock off farm during winter
- Graze crops and pasture towards waterways, rather than away from them
- Use controlled grazing regimes before and during high risk times
- Use off pasture facilities
- Plant deer fence lines to reduce pacing behaviour
- Separate deer mobs to reduce pacing
- Leave practical residuals for farm system and time of year
- Other

The appropriate location and management of winter forage crops and suitable management practices for strip grazing

- Actively manage grazing of winter forage crop areas
- Graze from top to bottom of paddock contour
- Avoid leaving stock on during wet periods
- Use cover crops immediately post-grazing the crop
- Re-sow crop areas as soon as possible
- Graze crops towards waterways, rather than away from them
- Maintain buffer strips on sloping cropping paddocks
- Minimise periods of exposed soil between harvest or grazing and re-sowing
- Avoid grazing crops when the soil is saturated
- Practice no tillage or minimum tillage
- Strip graze towards waterways
- Provide sediment trapping where necessary
- Other

NUTRIENT MANAGEMENT

Nitrogen management

- Apply nitrogen fertiliser in accordance with good management practice
- Do a whole farm nutrient budget
- Use precision fertiliser applications
- Use split fertiliser applications
- Vary sheep to cattle ratios
- Reduce number of older cattle
- Use cover crops immediately post-grazing the crop
- Reduce dairy stocking rate and increase milk production per cow
- Use off pasture facilities during at risk periods
- Plant deep rooting species of crops or pasture
- Soil test to assess soil nitrogen, and plan nitrogen fertiliser applications accordingly
- Use a certified (SpreadMark) fertiliser spreader
- Other

Phosphorus management

- Do a whole farm nutrient budget
- Undertake regular soil testing
- Apply fertiliser for agronomic optimum for Olsen P in soil
- Use precision fertiliser application techniques
- Only apply phosphorus fertiliser when soil or weather conditions are suitable
- Use cover crops immediately post-grazing the crop
- Use grass filter strips at the bottom of sloping paddocks
- Do not apply fertiliser into waterways or wet areas
- Use a certified (SpreadMark) fertiliser spreader
- Use non-soluble forms of P fertiliser
- Other

EFFLUENT MANAGEMENT

Reduce impact of effluent applications

- Export effluent solids to run off or cropping areas
- Increase land application area
- Ensure adequate effluent storage
- Increase storage volume and use deferred irrigation
- Utilise low rate effluent irrigation
- Avoid effluent irrigation when soils are at field capacity
- Ensure effluent from storage or applications do not enter waterways
- Ensure effluent irrigation equipment is regularly serviced and properly calibrated
- Apply effluent to pasture and crops at suitable depths, rates and times
- Minimise effluent volumes during milking/feeding times
- Monitor soil moisture deficit for effluent irrigation timing
- Store all sand trap cleanings on sealed pads prior to spreading
- Ensure the effluent system is designed and installed in accordance with the FDE Code of Practice
- Ensure staff are trained to properly manage effluent irrigation system
- Other

CULTIVATION MANAGEMENT

Reducing impact on slopes over 15°

Avoid cultivation of paddocks over 15°, if not appropriate consider a combination of the following:

- Utilise appropriate vegetated cultivation setbacks (minimum of 5m)
- Cultivate along contours on slopes
- Maintain vegetative cover on slopes over 15° within cultivated paddocks
- Establish autumn pastures early
- Graze crops and pasture towards waterways, rather than away from them
- Reduce soil cultivation by adopting minimum/strip tillage or avoid cultivation by direct drilling
- Time nitrogen and phosphorus application to meet crop demand
- Use split fertiliser applications
- Use slow release fertilisers
- Use drainage, silt traps or bunding to divert or temporarily hold overland flows
- Contour furrows to slow and intercept run off
- Use controlled traffic techniques and lower weight machinery
- Use cover crops to minimise periods of bare soils
- Other

Reducing impact of slopes less than 15°

- Use appropriate vegetated cultivation setbacks (minimum of 5m)
- Cultivate along contours on slopes
- Establish autumn pastures early
- Graze crops and pasture towards waterways
- Reduce soil cultivation by adopting strip tillage or direct drilling
- Time nitrogen and phosphorus application to meet crop demand
- Use split fertiliser applications
- Use slow release fertilisers
- Use drainage, silt traps or bunding to divert or temporarily hold overland flows
- Contour furrows to slow and intercept run off
- Use controlled traffic techniques and lower weight machinery
- Use cover crops to minimise periods of bare soils
- Other

FRESHWATER IRRIGATION MANAGEMENT

Strategies to reduce impact of freshwater irrigation

- Irrigate to avoid increased drainage and run off by not exceeding soil water infiltration rate
- Measure and record soil moisture and rainfall to develop a water budget
- Use the water budget to schedule irrigation
- Avoid irrigating beyond crop or pasture soil water demand
- Avoid irrigating in strong winds to avoid evaporation of irrigated water and possible damage to equipment
- Irrigate at night
- Consider shelter belts to reduce evaporation and evapotranspiration
- Ensure irrigators and pumps are maintained, have no leaks and are properly calibrated
- Ensure staff are trained to properly manage irrigation system
- Other

2.10 CHECKLIST

Use the Checklist to ensure that all necessary assessments in the FEP have been completed. That will help with approval of the FEP and in the granting of a consent.

- Nitrogen Reference Point assessment
- Stock exclusion assessment
- Riparian management assessment
- Cultivation management assessment
- Critical source area assessment

2.11 YOUR PLAN OF ACTIONS

The Plan of Actions table is used to summarise the FEP actions.

However, it is expected that many farms will identify a range of actions that go above and beyond the requirements of PPC1. There is a section in the table where these actions can be captured.

These 'other actions' could include riparian planting in an area which is expected to be fenced, going beyond the required actions (e.g. planting more poplar poles than specified), or improving on-farm biodiversity by using native shrub shelter-belts. These actions will not be considered when the FEP is assessed for completeness, but this highlights the other good work begin done by the farmer and may be helpful when applying for funding.

The actions identified as 'required' are those that will considered when the FEP is assessed against the policy expectations within PPC1. This will occur via the Certified Industry Scheme or resource consent application processes, and may result in changes to the FEP if necessary. See Appendix 3.2.1 for more on how council may assess the FEP in the context of the consent process as defined by the Resource Management Act.

3. Appendices

3.1 GLOSSARY

75th percentile nitrogen leaching value: The 75th percentile value (units of kg N/ha/year) of all the Nitrogen Reference Point values for dairy farming properties and enterprises within each Freshwater Management Unit and which are received by the Waikato Regional Council by 30 November 2020.

Arable cropping: means the following arable crops:

i. grain cereal, legume, and pulse grain crops

ii. herbage seed crops

iii. oilseeds

iv. crops grown for seed multiplication for use in New Zealand or overseas

v. hybrid and open pollinated vegetable and flower seeds and includes maize grain, maize silage, cereal silage, and mangels.

Best management practice/s: For the purposes of Chapter 3.11, means maximum feasible mitigation to reduce the diffuse discharge of nitrogen, phosphorus, sediment or microbial pathogens from land use activities given current technology.

Certified Farm Environment Planner: is a person or entity certified by the Chief Executive Officer of Waikato Regional Council and listed on the Waikato Regional Council website as a Certified Farm Environment Planner and has as a minimum the following qualifications and experience:

a. five years experience in the management of pastoral, horticulture or arable farm systems; and

b. completed advanced training or a tertiary qualification in sustainable nutrient management (nitrogen and phosphorus); and

c. experience in soil conservation and sediment management.

Certified Farm Nutrient Advisor: is a person certified by the Chief Executive Officer of Waikato Regional Council and listed on the Waikato Regional Council website as a certified farm nutrient advisor and has the following qualifications and experience:

a. Has completed nutrient management training to at least intermediate level, and

b. Has experience in nutrient management planning.

Certified Industry Scheme/s: is a scheme that has been certified by the Chief Executive Officer of Waikato Regional Council and listed on the Waikato Regional Council website as meeting the assessment criteria and requirements set out in Schedule 2 of Chapter 3.11.

Commercial vegetable production: means the following vegetables grown in NewZealand for commercial purposes:

I. artichokes, Asian vegetables, beans, beetroot, boxthorn, broccoflower, broccoli, broccolini, Brussels sprouts, burdock, cabbage, capsicums, carrots, cauliflower, celeriac, celery, chilli peppers, chokos, courgettes, cucumbers, eggplant, Florence fennel, garland chrysanthemum, garlic, gherkins, herbs, Indian vegetables, kohlrabi, kumara, leeks, lettuces, marrows, melons, okra, parsnips, peas, puha, pumpkin, purslane, radishes, rakkyo, rhubarb, salad leaves, salsify, scallopini, scorzonera, shallots, silverbeet, spinach, spring onions, sprouted beans and seeds, squash, swedes, sweetcorn, taro, turnips, ulluco, watercress, witloof, yakon, yams, and zucchinis; potatoes, tomatoes, asparagus, onions and the hybrids of the vegetables listed in subparagraph i (of PPC1).

Cultivation: For the purposes of Chapter 3.11, means preparing land for growing pasture or a crop and the planting, tending and harvesting of that pasture or crop, but excludes:

a. direct drilling of seed.

b. no-tillage practices.

c. recontouring land.

d. forestry.

Dairy farming: means farming of dairy cows on a milking platform for milk production.

Diffuse discharge: For the purposes of chapter 3.11, means the discharge of contaminants that results from land use activities including cropping and the grazing of livestock and includes non-point source discharges.

Drain: For the purposes of Chapter 3.11, means an artificially created channel designed to lower the water table and/or reduce surface flood risk but does not include any modified (e.g. straightened) natural watercourse.

Drystock farming (7): means pasture grazing beef cattle, dairy animals grazed off a milking platform, sheep, and deer for meat, wool, or velvet production.

Edge of field mitigation/s: mitigation actions or technologies to reduce loss of contaminants from farm land by intervening at edge of field either on or off-farm, and includes constructed wetlands, sedimentation ponds and detention bunds.

Enterprise: means one or more parcels of land held in single or multiple ownership to support the principle land use or land which the principle land use is reliant upon, and constitutes a single operating unit for the purposes of management. An enterprise is considered to be within a sub-catchment if more than 50% of that enterprise is within the sub-catchment.

Escherichia coli (E. coli) (8): is a bacterium used as an indicator that faecal contamination of the water has almost certainly occurred, so pathogens may be present in the water (Pathogen: an organism capable of causing an illness in humans).

Farming Activities: For the purpose of Chapter 3.11, the grazing of animals or the growing of produce, including crops, commercial vegetable production and orchard produce but does not include planted production forest or the growing of crops on land irrigated by consented municipal wastewater discharges.

Farm Environment Plan/s: For the purposes of Chapter 3.11, means a plan developed in accordance with Schedule 1.

Five-year rolling average (9): means the average of modelled nitrogen leaching losses predicted by OVERSEER ® from the most recent 5 years.

Forage crop: means crops, annual or biennial, which are grown to be utilised by grazing or harvesting as a whole crop.

Good Management Practice/s: For the purposes of Chapter 3.11, means industry agreed and approved practices and actions undertaken on a property or enterprise that reduce or minimise the risk of contaminants entering a water body.

Livestock crossing structure: means a lawfully established structure installed to allow livestock to cross a water body.

Mahinga kai: the customary and contemporary gathering and use of naturally occurring and cultivated foods (also known as Hauanga kai).

Microbial pathogen/s (10): A microorganism capable of inducing illness in humans.

Milking platform: means that area devoted to feeding cows on a daily basis during the milking season.

Nitrogen Reference Point: The nitrogen loss number (units of kgN/ha/year) that is derived from an OVERSEER® use protocol compliant OVERSEER® file that describes the property or farm enterprise and farm practices in an agreed year or years developed by a Certified Farm Nutrient Advisor, using the current version of the OVERSEER® model (or another model approved by the Council) for the property or enterprise at the "reference" point in time.

Offset/s: For the purposes of Chapter 3.11 means for a specific contaminant/s an action that reduces residual adverse effects of that contaminant on water quality.

Point source discharge: For the purposes of Chapter 3.11, means discharges from a stationary or fixed facility, including the irrigation onto land from consented industrial and municipal wastewater systems.

Restoration: is the process of assisting the recovery of an ecosystem that has been degraded, damaged or destroyed. It is an intentional activity that initiates or accelerates an ecological pathway, or trajectory through time, towards a reference state consistent with Objective 1.

Setback: means the distance from the bed of a river or lake, or margin of a wetland. Interpreted as being from the edge of the watercourse where it normally flows (not the flood plain, and not from the centre of the watercourse).

Stock unit: means an animal that eats 6,000 mega joules of metabolisable energy per year, and is illustrated in the following stocking rate table.

STOCK CLASS	NUMBER OF STOCK UNITS PER ANIMAL	ANIMAL PERFORMANCE DEFINITION
Dairy bull	6.1	620kg Friesian breeding bull
Dairy cow	10.4	450kg F8J8 dairy cow producing 400kg MS
Dairy heifer 1-2 years age	5.1	F8J8 199 – 419kg Jul to Apr
Dairy heifer calf (weaned)	1.6	F8J8 110 – 199kg Dec to Jun
Beef bull	6.0	620kg Beef cross MA breeding bull
Beef cow	7.5	480kg MA Beef cross breeding cow calving at 96%
Bull 1-2 years age	6.8	Friesian bull 209kg to 535kg slaughter weight
Steer 1-2 years age	5.8	WF steer 203kg to 478kg slaughter weight
Heifer 1-2 years age	5.7	WF heifer 208kg to 420kg slaughter weight
Steer calf < 1 year (weaned)	2.7	WF steer 100kg to 203kg Dec to Jun
Bull calf < 1 year (weaned)		Fresian 100kg to 209kg bull Dec to Jun
Heifer calf < 1 year (weaned)	1.6	WF heifer 90kg to 208kg Dec to Jun
Ram	1.0	73kg Romney ram, 4.5kg wool
Adult ewe	1.01	63kg Romney MA ewe lambing at 126%, 4.5kg wool
Sheep 1-2 years of age	0.9	Romney hogget 46kg to 66kg, 4kg wool
Sheep <1 years of age (weaned)	0.5	Romney 26kg to 46kg from Dec to June, 2kg wool
Bucks & does <1 year (weaned)	0.5	OVERSEER default
Angora does	1.1	OVERSEER default
Feral does	0.9	OVERSEER default
Feral bucks & wethers	0.5	OVERSEER default
Stag	2.4	Red stag 200kg, 4kg velvet
Breeding hind	2.5	Red hind 110kg, 86% fawning
Hind 1-2 years age	1.2	Red hind 53kg – 75kg
Hind fawn (weaned)	1.0	Red hind 37kg – 53kg over 4 months, annualised to 12 months
Stag 1-2 years age	2.3	Red stag 55kg – 159kg over 12 months, 2kg velvet
Stag fawn (weaned)	1.1	Red stag 42kg – 55kg over 4 months, annualised to 12 months
Alpaca	0.8	OVERSEER default
Llama	1.6	OVERSEER default
Pony	6	OVERSEER default
Pony brood mare w/foal	8	OVERSEER default
Small hack	8	OVERSEER default
Small hack broodmare w/foal	10	OVERSEER default
Large hack	12	OVERSEER default
Thoroughbred	12	OVERSEER default
Large hack broodmare w/foal	14	OVERSEER default
Milking ewe	0.9	70kg ewe producing 50kg MS
Milking goat	1.8	80kg nanny producing 140kg MS

Sub-catchment: For the purposes of Chapter 3.11, means an area of land within the Waikato River catchment representing the contributing area draining to one of 74 (12) locations in the stream and river network, and used as the basic spatial unit for analysis and modelling.

Tangata whenua ancestral lands: means land that has been returned through settlement processes between the Crown and tangata whenua of the catchment, or is, as at the date of notification, Māori freehold land under the jurisdiction of Te Ture Whenua Maori Act 1993.

Woody vegetation: means indigenous vegetation, planted production forest, and any other non-pastoral vegetation (excluding weed species).

3.2 STATUTORY MATTERS

3.2.1 Statutory requirements

3.2.1.1 Statutory context

The council has responsibilities under the Resource Management Act 1991 (RMA) to give effect to the Act through regional policy statements and regional plans. The RMA is the primary legislation through which the regional policy statement and plan is developed to oversee the management of water quality. PPC1, as a chapter of the regional plan, was required to give effect to relevant legislation and central government national policy, including:

- The three River Acts that established the Vision and Strategy for the Waikato River (Vision and Strategy)
- The National Policy Statement for Freshwater Management 2014 (NPS).

The Vision and Strategy recognises the degraded status of the Waikato and Waipā Rivers, and requires that these be protected and restored so that it is safe to swim in and take food from over the entire length. This underpinned the community discussions through the Collaborative Stakeholder Group (CSG) about the desired future state of water quality. The NPS requires the setting of objectives, limits and targets. This included assessment against a National Objectives Framework that contains a standard list of values for swimming, fishing, etc. These formed the basis for the setting of water quality targets within PPC1.

3.2.1.2 PPC1

PPC1 contains objectives, policies (to implement the objectives) and rules (to implement the policies). For farms that require an FEP, the three most applicable rules are:

- Rule 3.11.5.3 – Permitted Activity Rule – Farming activities with an FEP under a Certified Industry Scheme (CIS)
- Rule 3.11.5.4 – Controlled Activity Rule – Farming activities with an FEP not under a CIS
- Rule 3.11.5.5 – Controlled Activity Rule – Existing Commercial Vegetable Production (CIS).

In the case of PPC1, Permitted Activity Rule 3.11.5.3 outlines equivalent expectations to the Controlled Activity rules (requiring resource consent). Usually, being a Permitted Activity would reflect a difference in relative risk and therefore a difference in the level of scrutiny applied. For example, a resource consent application would expect to be assessed against the relevant objectives and policies of the plan in addition to requirements of a rule, whilst a Permitted Activity would not. However, unlike other plans, PPC1 has been designed to include a CIS component whereby a similar level of scrutiny will be expected.

CFEPs are tasked with approving an FEP where it meets the requirements of Schedule 1 of PPC1. Schedule 1 contains the requirements for the content of FEPs, but does not specifically refer to any relevant objectives, policies or rules in PPC1. However, through the process of applying for resource consent or approval through a CIS, this assessment will be undertaken, and the CFEP should expect that amendments may be required to the FEP. Therefore, the CFEP should prepare an FEP with the relevant Objectives, Policies and requirements of the rules in mind.

CIS and council will ensure that FEP documents are consistent with the following Objectives, Policies and requirements of rules:

a. Actions put in place to ensure the achievement of short term (10%) water quality targets referred to in Objective 3 (see table 3.11-1 for short term sub-catchment targets)
b. The requirements and criteria in policy 2 (or 3 for commercial vegetable growing)
c. The requirements of Rules 3.11.5.3 – 5 (whichever is relevant).

Objective 3 recognises that the first step towards achieving the long-term water quality objectives of the Healthy Rivers/Wai Ora project is to get all farmers to implement actions that are currently understood to be good practice.

Policies 2 and 3 outline the expectation of a tailored, risk-based approach to reductions of contaminants through the FEP process (including NRP and stock exclusion). The focus is therefore on ensuring an FEP is generated that includes:

- The use of appropriate mitigation actions and time frames, and that these mitigation actions are completed within the time frames specified
- That farms contributing larger amounts of contaminants will be expected to undertake a greater number (or more substantial actions) than those contributing a smaller amount to achieve proportional reductions in contaminant losses
- That there is an expectation of equivalency between CIS and non CIS in the preparation and monitoring of FEPs.

The general requirements of rules 3.11.5.3-5 within PPC1 outline the requirement for farming activities to:

- Register with the Council
- Produce a NRP, submit this to council, and not exceed this value or reduce to a level by July 2026 for those above the 75th percentile NRP (per Freshwater Management Unit)
- Undertake stock exclusion of waterbodies
- Prepare an FEP and submit it to council, as per the priority catchment dates specified (Table.1)
- Complete FEP actions as per the time frames specified in the FEP
- The processes for reviewing/amending the FEP.

Table 1 FEP is to be provided to the council or an industry scheme as follows:

SUB-CATCHMENT PRIORITY	DUE DATE
Priority 1 sub-catchments listed in Table 3.11-2[1]	1 March 2022
Priority 2 sub-catchments listed in Table 3.11-2	1 March 2025
Priority 3 sub-catchments listed in Table 3.11-2	1 July 2026

[1] Includes properties or enterprises that exceed the 75th percentile N leaching value for the Freshwater Management Unit (FMU)

3.2.1.3 Operative Waikato Regional Plan

The existing Waikato Regional Plan contains rules such as earthworks, bridges, culverts and detention dams that may be relevant through the inclusion of actions within the FEP. The CFEP will perform an advisory role whereby there is an expectation that the farmer is appropriately informed of their obligations. For example, conditions of existing PA rules, when a resource consent may be required, and where external expertise may be needed, e.g. engineering and/or planning advice.

3.2.1.4 Consent application process

Rule 3.11.5.4 and 3.11.5.5 (Commercial Vegetable Production) requires the FEP to be provided to council at the time the resource consent application is lodged[2]. The FEP must be approved by a CFEP and be prepared in accordance with Schedule 1 of PPC1.

Providing the application contains all the necessary content, Controlled Activity resource consent applications must be granted and consideration is limited to the matters of control outlined in the relevant rules, which include the content of the FEP. Excluding Non-Complying Activity (land use change) consent applications, all applications under the relevant PPC1 rules will be processed without notification, and without the need for written approval of affected persons.

Council will provide the relevant template for lodgement of resource consent applications. However, council has yet to confirm the format for receipt of the application and associated FEP, e.g. electronic. Providing the FEP meets relevant PPC1 requirements, this RMA dictated process is expected to be reasonably quick and simple, and conditions of consent limited in scope. The primary delivery mechanism for environmental improvement on-farm is the FEP, not the conditions of a resource consent that authorises the activity.

There will likely be a deposit and administration fee associated with the lodgement and processing of an application. Council time spent processing the application is recovered from the applicant in the form of time-based cost recovery or fixed charges. However, decisions on the method(s) of cost recovery is subject to council Long Term Plan & Annual Plan processes. Therefore, it should not be assumed that current council process will apply to applications made under PPC1 in future.

[2] Not applicable to those farming activities who are members of a PA CIS (Rule 3.11.5.3).

(a) Changes/amendments to an existing FEP

The FEP is intended to be a practical tool for achieving environmental improvements on-farm. The inherent nature of farming demands flexibility. PPC1 anticipates that the FEP will be a living document and therefore will need to be flexible and reviewable to allow for changes in farm practices/farm system, economic constraints, and weather related challenges etc. The expectation is that the Certified Industry Scheme agreement or resource consent conditions will outline the process for accommodating this flexibility without the need to go through formal processes.

Amendments and/or changes to an FEP are still required to be approved by a CFEP and meet the requirements of Schedule 1 – Requirements for Farm Environment Plans. The CFEP is subject to ongoing audits to assess competency. Rule 3.11.5.3 outlines that the amended FEP needs to be provided to council within 30 days of its CFEP approved amendment. Beyond this, PPC1 does not specify the process by which this occurs. However, through Controlled Activity Rules 3.11.5.4 and 3.11.5.5 (CVP CIS) matters of control, council is able to include procedures for reviewing, amending and re-approving FEP documents. Therefore it is expected that for activities authorised by Rule 3.11.5.3, the procedures for review will also be outlined as part of any CIS requirements.

Triggers for reviewing an FEP may include (but are not limited to):

a. At the request of the farmer;
b. At the direction of council or Certified Industry Scheme;
c. Where a farmer transfers between Certified Industry Schemes or to a consented activity;
d. Where there has been a material change in risk on-farm that would require changes to the mitigation actions within the FEP.

The following questions and answers may be used as guidance when reviewing or changing the content of FEPs.

A farmer has requested an action be removed or changed. What can and can't I do?

Yes, a farmer can request for a particular action to be removed or changed. However, the changes should not allow for an increase in overall contaminant losses, that is the removal of an action may necessitate the inclusion of new actions or changes to existing ones (e.g. increase in scale/extent and or bringing forward other action dates).

A farmer has not completed an action within the FEP time frame. Can I retrospectively change the FEP action date?

No, if an action has not been completed in time, then priority should be given to completing it as soon as reasonably possible. Council has discretion as to what action it takes (if any) to facilitate the completion of actions. In most circumstances a minor delay will not make a material difference to contaminant losses.

A farmer had planned to complete a future action, but circumstances have meant this is no longer achievable within the existing time frame. Can the action date be changed?

Generally yes, this is likely to be common as forecasting the appropriateness and timing of actions is difficult. When setting action time frames, consideration must be given to how reasonably achievable the time frame is. Uncertainties such as weather-related events and market movements may make what was initially considered a reasonably achievable date not appropriate with hindsight. However, any changes will still need to be viewed through a "reasonableness" lens and should not result in the unreasonable extension of dates or erosion of mitigation extent, and may still require other actions be reprioritised or expanded to ensure contaminant losses to not increase.

A risk has been identified subsequent to the development of an FEP, e.g. mass movement. Do we need to update the FEP?

Generally, yes. However, the extent and timing (prioritisation) of existing actions may be appropriate to change when considering the task and contaminant being addressed, e.g. some existing FEP actions may no longer be necessary. Where the risk requires emergency works, priority should be given to addressing the risk over changing the FEP. Council understands that retrospective changes in these circumstances may be appropriate. The FEP may also contain some responsive or preventative mitigation actions.

Ongoing moderation through the use of calibration workshops with CFEP will help to find an appropriate balance as examples such as those above are raised. Council aims to be as supportive as we can when providing feedback and discussing specific examples.

3.2.1.5 Mitigation action writing

A key component of FEPs is that tailored risk assessments are undertaken, appropriate mitigation measures are identified, and that these inform a list of actions for the farmer.

FEPs are required to contain a description of the actions that will be undertaken in response to the risk assessment undertaken. This is reinforced in Section 4 of Schedule 1 (Requirements for Farm Environmental Plans) where it states the following:

"A description of the actions that will be undertaken in response to the risks identified in the risk assessment in 2 above (having regard to their relative priority) as well as where the mandatory time-bound actions will be undertaken, and when, and to what standard they will be completed."

Once a CFEP, with input from the farmer, has decided upon an appropriate mitigation measure, the CFEP and the farmer will prioritise the timing of the actions and write in a format that represents a clear and understandable commitment to completion of these actions.

Ultimately, the mitigation actions and the specified time frames must be reasonably achievable for the farmer in that they are not written in such a way that the farmer could not reasonably be expected to have completed them. The priority for the completion of mitigation actions should reasonably reflect the risk identified, higher risks being prioritised.

Should a farmer wish to prepare an FEP and start mitigation actions earlier than their priority catchment date, any completed mitigation actions will be recognised in their overall contaminant losses when submitting the FEP to council (including via the CIS).

FEP actions are similar to on-farm goals or targets, although they generally should not be seen as aspirational. The following acronym is frequently used in the setting of goals or targets:

- Specific
- Measurable
- Achievable
- Relevant
- Time-bound

When evaluating mitigation actions, the above acronym acts as a useful principle for assessing how adequate the wording of mitigation actions are.

The following general considerations also apply when generating mitigation actions:

1. Has the mitigation been written in plain English?
    a. Use clear understandable language. Avoid the use of archaic language or potentially confusing terms or technical jargon where possible.
    b. Avoid the use of adjectives such as "good" or "enough" as these are subjective.
    c. Be careful with punctuation as this can change the meaning of the mitigation.
    d. Keep sentence length and paragraphs to a minimum.
    e. Use numbered not bulleted lists.
    f. Use active tense verbs where appropriate such as "shall" or "must" and avoid "may", "should", "try" or "consider".

2. Does the mitigation actions specify exactly what is to be done, how, where and by when?
    a. Generally map references should provide appropriate location information. However, in some instances there may be more detail needed within the action.
    b. Some mitigation measures will be ongoing, preventative or responsive and may require an assessment by the farmer in response to weather events, seasonal changes etc. The best option is to be specific, e.g. instead of "summer" or "wet periods", try to provide specific months or rainfall events or between month x and month y.
    c. One-off mitigations will generally be easier to document within the FEP. In some instances it will be appropriate to detail the scale and design of the mitigation in some form, e.g. detention pond dimensions/volume, outlet height, and possibly frequency of maintenance, to ensure sufficient and effective detainment.
    d. Ensure any reference to documents, e.g. design standards, is clear (i.e. full title, author) and date stamped.
    e. Extensive conditions can be used where they apply across the whole farm so long as the scenario is specific, e.g. cultivation setback from waterways in FEP map or fertiliser use.

3. Does the mitigation action relate to the purpose of FEPs under PPC1?
    a. Mitigation actions are to address one or more of the 4 key contaminants (nitrogen, phosphorus, sediment and microbial pathogens). Actions contained within the FEP that relate to issues not covered by PPC1, e.g. greenhouse gas emissions, biodiversity related actions, will be considered out of scope. These may, however, be included as clear separate actions or goals for the farmer but will not form part of any compliance assessment undertaken of the farm.
    b. Where farms straddle the boundary of the Waikato and Waipā River Catchments, mitigations that are located outside of the catchment area are optional and cannot be subject to compliance assessments under PPC1.
    c. Optional mitigations (otherwise voluntary for farmer) are to be treated as per a) and b) above. Such actions cannot be considered when the CFEP approves the appropriateness of the contaminant reductions sought.

4. Other considerations
    a. Mitigation actions cannot require the agreement or compliance of a third party. Some farmers may wish to include information on who will undertake the actions within the farm. Actions assigned to external parties such as fertiliser companies do not make these parties culpable if the action has not been completed.
    b. The FEP actions cannot be used to authorise activities that would otherwise be subject to resource consent process to be authorised, are prohibited activities, e.g. untreated effluent discharges, or negate the need to comply with conditions of a permitted activity rule. Some actions such as establishing culverts, bridges, tracking and vegetation clearance may be necessary activities associated with mitigation actions as outlined in the FEP. Council would encourage contacting us or seeking advice from a suitably qualified person.
    c. Mitigation actions may be accompanied by a commentary or an advice note for the farmer and/or council.

3.2.2 Schedule 1 – Requirements for Farm Environment Plans

A Farm Environment Plan shall be prepared in accordance with the requirements of A below. The Farm Environment Plan shall be certified as meeting the requirements of A by a Certified Farm Environment Planner.

The Farm Environment Plan shall identify all sources of sediment, nitrogen, phosphorus and microbial pathogens, and identify actions, and timeframes for those actions to be completed, in order to reduce the diffuse discharges of these contaminants.

The Farm Environment Plan must clearly identify how specified minimum standards will be complied with.

The requirements set out in A apply to all Farm Environment Plans, including those prepared within a Certified Industry Scheme.

This schedule applies to all farming activities, but it is acknowledged that some provisions will not be relevant to every farming activity.

A. Farm Environment Plans shall contain as a minimum:

1. The property or enterprise details:
   a. Full name, address and contact details (including email addresses and telephone numbers) of the person responsible for the property or enterprise.
   b. Trading name (if applicable, where the owner is a company or other entity).
   c. A list of land parcels which constitute the property or enterprise:
      i. the physical address and ownership of each parcel of land (if different from the person responsible for the property or enterprise) and any relevant farm identifiers such as the dairy supply number, Agribase identification number, valuation reference; and
      ii. The legal description of each parcel of land.

2. An assessment of the risk of diffuse discharge of sediment, nitrogen, phosphorus and microbial pathogens associated with the farming activities on the property, and the priority of those identified risks, having regard to sub-catchment targets in Table 3.11-1 and the priority of lakes within the sub-catchment. As a minimum, the risk assessment shall include (where relevant to the particular land use):
   a. A description of where and how stock shall be excluded from water bodies for stock exclusion including:
      i. the provision of fencing and livestock crossing structures to achieve compliance with Schedule C; and
      ii. for areas with a slope exceeding 25° and where stream fencing is impracticable, the provision of alternative mitigation measures.
   b. A description of setbacks and riparian management, including:
      i. The management of water body margins including how damage to the bed and margins of water bodies, and the direct input of contaminants will be avoided, and how riparian margin settling and filtering will be provided for; and
      ii. Where practicable the provision of minimum grazing setbacks from water bodies for stock exclusion of 1 metre for land with a slope of less than 15° and 3m for land with a slope between 15° and 25° ; and
      iii. The provision of minimum cultivation setbacks of 5m.
   c. A description of the critical source areas from which sediment, nitrogen, phosphorus and microbial pathogens are lost, including:
      i. the identification of intermittent waterways, overland flow paths and areas prone to flooding and ponding, and an assessment of opportunities to minimise losses from these areas through appropriate stocking policy, stock exclusion and/or measures to detain floodwaters and settle out or otherwise remove sediment, nitrogen, phosphorus and microbial pathogens (e.g. detention bunds, sediment traps, natural and constructed wetlands); and
      ii. the identification of actively eroding areas, erosion prone areas, and areas of bare soil and appropriate measures for erosion and sediment control and re-vegetation; and
      iii. an assessment of the risk of diffuse discharge of sediment, nitrogen, phosphorus and microbial pathogens from tracks and races and livestock crossing structures to waterways, and the identification of appropriate measures to minimise these discharges (e.g. cut-off drains, and shaping); and
      iv. the identification of areas where effluent accumulates including yards, races, livestock crossing structures, underpasses, stock camps, and feed-out areas, and appropriate measures to minimise the risk of diffuse discharges of contaminants from these areas to groundwater or surface water; and
      v. the identification of other 'hotspots' such as fertiliser, silage, compost, or effluent storage facilities, wash-water facilities, offal or refuse disposal pits, and feeding or stock holding areas, and the appropriate measures to minimise the risk of diffuse discharges of contaminants from these areas to groundwater or surface water.
   d. An assessment of appropriate land use and grazing management for specific areas on the farm in order to maintain and improve the physical and biological condition of soils and minimise the diffuse discharge of sediment, nitrogen, phosphorus and microbial pathogens to water bodies, including:

i. matching land use to land capability; and

ii. identifying areas not suitable for grazing; and

iii. stocking policy to maintain soil condition and pasture cover; and

iv. the appropriate location and management of winter forage crops; and

v. suitable management practices for strip grazing.

e. A description of nutrient management practices including a nutrient budget for the farm enterprise calculated using the model OVERSEER in accordance with the OVERSEER use protocols, or using any other model or method approved by the Chief Executive Officer of Waikato Regional Council.

f. A description of cultivation management, including:

i. The identification of slopes over 15° and how cultivation on them will be avoided; unless contaminant discharges to water bodies from that cultivation can be avoided; and

ii. How the adverse effects of cultivation on slopes of less than 15° will be mitigated through appropriate erosion and sediment controls for each paddock that will be cultivated including by:

1) assessing where overland flows enters and exits the paddock in rainfall events; and

2) identifying appropriate measures to divert overland flows from entering the cultivated paddock; and

3) identifying measures to trap sediment leaving the cultivated paddock in overland flows; and

4) maintaining appropriate buffers between cultivated areas and water bodies (minimum 5m setback).

5) A description of collected animal effluent management including how the risks associated with the operation of effluent systems will be managed to minimise contaminant discharges to groundwater or surface water.

6) A description of freshwater irrigation management including how contaminant loss arising from the irrigation system to groundwater or surface water will be minimised.

3. A spatial risk map(s) at a scale that clearly shows:

a. The boundaries of the property; and

b. The locations of the main land uses(6) that occur on the property; and

c. The locations of existing and future mitigation actions to manage contaminant diffuse discharges; and

d. Any relevant internal property boundaries that relate to risks and mitigation actions described in this plan; and

e. The location of continually flowing rivers, streams, and drains and permanent lakes, ponds and wetlands; and

f. The location of riparian vegetation and fences adjacent to water bodies; and

g. The location of critical source areas for contaminants, as identified in 2 (c) above.

4. A description of the actions that will be undertaken in response to the risks identified in the risk assessment in 2 above (having regard to their relative priority) as well as where the mandatory time-bound actions will be undertaken, and when and to what standard they will be completed.

5. A description of the following:

a. Actions, timeframes and other measures to ensure that the diffuse discharge of nitrogen from the property or enterprise, as measured by the five-year rolling average annual nitrogen loss as determined by the use of the current version of OVERSEER , does not increase beyond the property or enterprise's Nitrogen Reference Point, unless other suitable mitigations are specified; or

b. Where the Nitrogen Reference Point exceeds the 75th percentile nitrogen leaching value, actions, timeframes and other measures to ensure the diffuse discharge of nitrogen is reduced so that it does not exceed the 75th percentile nitrogen leaching value by 1 July 2026, except in the case of Rule 3.11.5.5.

Vegetable growing minimum standards

Farm environment plans required under Rule 3.11.5.5 shall, in addition to the matters set out above, ensure the following matters are addressed.

NO	CONTAMINANT	VEGETABLE GROWING MINIMUM STANDARDS
1	Nitrogen, Phosphorus	Annual soil testing regime, fertiliser recommendations by block and by crop
2	Nitrogen, Phosphorus	Tailored fertiliser plans by block and by crop
3	Nitrogen, Phosphorus	Both (1) and (2) prepared by an appropriately qualified person
4	Nitrogen, Phosphorus	Annual calibration of fertiliser delivering systems through an approved programme such as Spreadmark/Fertspread
5	Soil/Phosphorus	As a minimum by block: an approved erosion and sediment control plan constructed in accordance with the Erosion and Sediment Control Guidelines for Vegetable Production June 2014
6	Nitrogen, Phosphorus	Documentation available for proof of fertiliser placement according to recommended instruction
7	Nitrogen, Phosphorus	Adoption and use of improved fertiliser products proved effective and available such as formulated prills, coatings and slow release mechanisms
8	Nitrogen, Phosphorus	Evidence available to demonstrate split applications by block/crop following expert approved practice relating to: • form of fertiliser applied • rate of application • placement of fertiliser • timing of application

3.2.3 Responsibility of farmers and CFEPs in FEP preparation and implementation

- Farmers have a responsibility to provide farm consultants with information they may have available regarding their property or enterprise that may be of relevance to the FEP preparation process that may not be available or visible at the time of the consultant visit (e.g. seasonal activities such as cropping or feed out areas).
- Farmers have the responsibility to complete the mitigation actions contained within the FEP within the agreed time frames.
- Farmers are expected to communicate any changes to the farm system and on the farm (e.g. recent erosion) that may necessitate a review of the FEP.
- At the point where the FEP is submitted with a consent application, the farmer must confirm that it accurately represents their farm system. By submitting the FEP with a consent application the farmer is committing to implement the actions within it.
- CFEPs have a responsibility to ensure the impartial evaluation of risks and recommendation of appropriate mitigations, as guided by this document.
- CFEPs are expected to work collaboratively with the farmer in the preparation of the FEP, recognising their knowledge of the property and giving due consideration the likely impact of mitigation actions on the farm system. However, environmental management, including water quality, should drive the discussions[1].

[1] Clarification on FEP matters can be sought from Waikato Regional Council. Where mediation is considered necessary, Waikato Regional Council may be able to provide assistance.

3.3 GUIDANCE NOTES

Resource consent may be required for soil disturbance (shaping/contouring), roading, tracking and vegetation clearance, please contact the regional council for more information. Existing rules under the Waikato Regional Plan cover the use of feed pads (e.g. permeability) and associated effluent irrigation, please contact the regional council for more information.

Existing rules also cover the production and storage of compost, farm refuse, construction of wetlands and detainment structures, please contact the regional council for more information. In some circumstances it may be appropriate that no mitigation actions are specified.

3.3.1 Stock exclusion from waterbodies

STOCK EXCLUSION FROM WATERBODIES

PLAN PROVISION	GUIDANCE
The provision of fencing and livestock crossing structures to achieve compliance with Schedule C of PC1 (see also 2(b)(ii) below)	Where required (in the absence of an effective natural barrier), new fences must be installed to exclude cattle, horses, pigs and deer, and must be set back from the waterway to provide the following minimum grazing setbacks: vi. 1m from the edge of the water where adjacent land is under 15° vii. 3m from the edge of the water where land is between 15° and 25°. Setback means the distance from the edge of the bed of a river or lake, or margin of a wetland. Interpreted as being from the edge of the watercourse where it normally flows (not the flood plain, and not from the centre of the watercourse). Slope angle is estimated on a paddock basis as it is anticipated that topography and management options will change throughout a farm or along the length of a stream. The use of an inclinometer sighting from the stream to the top fence, or to the visible ridge if the fence is not visible from the stream, may be used. Several readings should be taken at different points to establish an average. Fences do NOT have to be permanent, they only have to exclude stock. Temporary fencing may be used as an alternative, for example areas within a floodplain regularly impacted by flooding. Existing fences as at 22 October 2016 are not required to be moved. However, as fences are replaced, the expectation is that new fences will comply with the minimum grazing setbacks outlined in Schedule C of PPC1. The date and manner of fencing/stock exclusion is to be specified in the FEP. The exclusion shall be completed within three years following the dates by which an FEP must be provided to the regional council but no later than 1 July 2026. The expectation in the plan is that the grazing setbacks are a minimum requirement and in many circumstances it may be appropriate that greater setbacks are used due to topographical and/or farming systems challenges posed by fencing off waterbodies.
	ADVICE NOTE
	Where the installation of fencing requires the use of benching, the provision of mitigations to address any potential soil loss shall be included (see critical source areas in potential risks Section 2.8.2.3). Resource consent may be required for soil disturbance, roading, tracking and vegetation clearance, please contact the regional council for more information. *Livestock are not permitted to enter or pass over the bed of a waterbody, except when using a livestock crossing structure. Exemptions from this includes feral animals and horses that are being ridden or led. Livestock crossing structures must be installed on all tracks and races where they cross waterways. Crossings should be designed to the regional council's Best Practice Guidelines for Waterway Crossings, and include provision for fish passage where required. Livestock crossing structures includes the use of fords and are subject to existing rules in the Waikato Regional Plan. Resource consent may be required for livestock crossing structures such as bridges, culverts and fords, please contact the regional council for more information.*

PLAN PROVISION	GUIDANCE
(i) For areas with a slope exceeding 25° and where fencing of waterbodies is impracticable, the provision of alternative mitigation measures.	Where the FEP identifies fencing to be impracticable, it should outline the reasons for that conclusion and must outline the mitigation measures to be employed on site as an alternative to stock exclusion. Typical alternative mitigations would include the provision of shade, shelter and reticulated stock water away from the waterbody. The scale, extent and nature of these mitigations will depend on the risk of contaminant losses. This may be informed by existing and future mitigations to be employed in the FEP, soil erodibility, slope, visible erosion, and existence of riparian planting, existing reticulation and/or stock crossing structures and stock class, etc. The expectation is that fencing is required unless it is impracticable to do so. Justification for such may generally be (but not limited to) situations where: i. fence construction on steep land may have unintended effects resulting from earthworks and soil disturbance that cannot be easily mitigated (i.e. environmental cost of fencing outweighs the benefit of doing so) ii. fencing is likely to come with significant impediments to water reticulation and grazing management changes iii. a fence is likely to move and break, or slide into the waterbody, because of land instability or other features of the landscape. If fencing is deemed impracticable, the expectation is that effects associated with stock access to waterbodies will be minimised through the implementation of appropriate mitigations.

3.3.2 Setbacks and riparian management

SETBACKS AND RIPARIAN MANAGEMENT

PLAN PROVISION	GUIDANCE
i. The management of waterbody margins including how damage to the bed and margins of waterbodies, and the direct input of contaminants will be avoided, and how riparian margin settling and filtering will be provided for.	For many FEPs, fencing and the inclusion of adequate grazing setbacks coupled with a description of management of the riparian area may suffice. However, there may be some localised areas where there is a high risk of direct input of contaminants as a result of farm management practices. These may include (but not limited to): • streambank erosion (may be a result of legacy issues with stock access or lack or riparian vegetation) • deer wallows in stream or adjacent to waterways • stormwater drainage from point sources on-farm such as races, underpasses, bridges, culverts and yards • the location of tomos as a direct means of discharge of contaminants from activities occurring within proximity of these features • stock crossing areas • persistent stock presence, i.e. where streams above 25° are not fenced.
	ADVICE NOTE
	Fenced waterway margins may create a weed risk. Therefore, it may be appropriate to include weed management in the FEP. Riparian planting can help to reduce the weed risk and enhance the biodiversity of the farm and the catchment. Such plantings are not a regulatory requirement and may be eligible for funding assistance.

PLAN PROVISION	GUIDANCE
ii. Where practicable the provision of minimum grazing setbacks from waterbodies for stock exclusion of 1m for land with a slope of less than 15° and 3m for land with a slope between 15° and 25°.	See 2(a)(i) above. Stock exclusion – new fencing must be set back from waterways 1m for land with a slope of less than 15° and 3m for land with a slope between 15° and 25°. Where the FEP identifies the setback distance to be impracticable, it should outline the reasons for that conclusion. The expectation in the plan is that the specified grazing setbacks are a minimum requirement and in many circumstances it may be appropriate that greater setbacks are used due to topographical and/or farming systems challenges posed by fencing off waterbodies. Setback means the horizontal distance from the edge of bed of a river or lake, or margin of a wetland. Interpreted as being from the edge of the watercourse where it normally flows (not the flood plain, and not from the centre of the watercourse – see Figure 2). As a guide, slope angle can be estimated on a paddock basis as it is anticipated that topography and management options will change throughout a farm or along the length of a stream and intermittent stock exclusion is undesirable. The use of an inclinometer sighting from the stream edge (bed) to the top fence, or to the visible ridge or hill slope within 50 m (whichever is closer) if the fence is not visible from the stream. Several readings should be taken at different points to establish an approximate average. Fences do NOT have to be permanent, they only have to exclude stock. Temporary fencing may be used as an alternative, for example areas within a floodplain regularly impacted by flooding or when any of the list animals for exclusion are present. Additionally, areas that are used for stock movement (e.g. races or movements required through un-fenced paddocks) do not require stock exclusion so long as the FEP includes a requirement that the stock will be actively driven and therefore only temporarily adjacent to any waterway. The locations of this activity should be identified in the FEP as a risk. Existing fences as at 22 October 2016 are not required to be moved. However, as fences are replaced, the expectation is that new fences will comply with the minimum grazing setbacks outlined in Schedule C of PPC1. The date and manner of fencing/stock exclusion is to be specified in the FEP. The exclusion shall be completed within three years following the dates by which an FEP must be provided to the regional council and no later than 1 July 2026.
	ADVICE NOTE
	Where the installation of fencing requires the use of benching, the provision of mitigations to address the potential soils loss may be required (see critical source areas – PPC1 Schedule 1(c)). Resource consent may be required for soil disturbance, roading, tracking and vegetation clearance, please contact the regional council for more information.
iii. The provision of minimum cultivation setbacks of 5m.	Irrespective of fencing setback, any cultivated area may be no closer than 5m from any waterway as defined in Schedule C of PPC1.
	ADVICE NOTE
	Non-tillage practices do not constitute cultivation and are not subject to this defined minimum setback (see PPC1 Part C definitions). However, the spraying and seeding of areas of land may result in bare soil and thus high risk contaminant loss areas that require identification and appropriately weighted mitigation actions such as setbacks, etc (see PPC1 Schedule 1 (2)(c)(ii)).
	Cultivation: means preparing land for growing pasture or a crop and the planting, tending and harvesting of that pasture or crop, but excludes: • direct drilling of seed • no-tillage practices • recontouring land (note that this activity may be subject to existing rules) • forestry (note that *this activity may be subject to existing rules).*

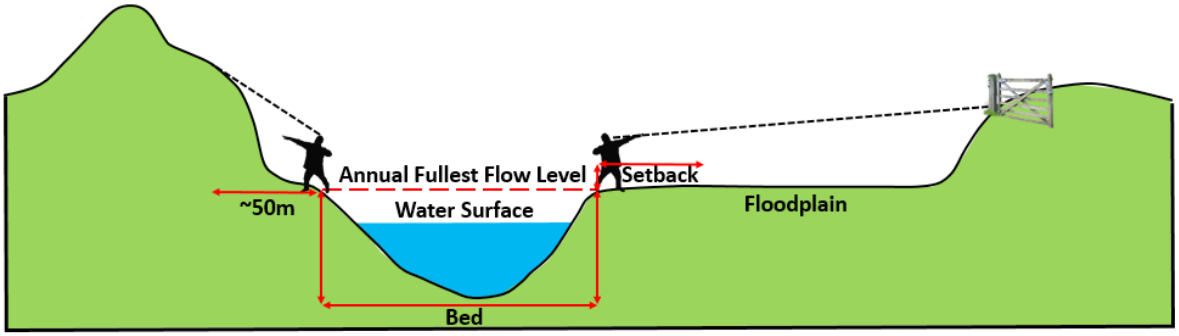


Figure 2 slope estimation guidance

3.3.3 Critical source areas

CRITICAL SOURCE AREAS

PLAN PROVISION	GUIDANCE
i. The identification of intermittent waterways, overland flow paths and areas prone to flooding and ponding, and an assessment of opportunities to minimise losses from these areas through appropriate stocking policy, stock exclusion and/or measures to detain floodwaters and settle out or otherwise remove sediment, nitrogen, phosphorus and microbial pathogens (e.g. detention bunds, sediment traps, natural and constructed wetlands)	All intermittent waterways, overland flow paths, and areas prone to flooding should be identified on the farm map (see Section 2.2). Losses from these areas are to be minimised through the implementation of appropriate stock management, stock exclusion, and/or water detainment systems (e.g. detainment bunds or constructed wetlands). Overland flow paths are areas where visible signs of water accumulation/movement on the ground surface is likely to occur. Such areas may be or lead to ephemeral waterways such as channels, drains or ditches, or where run off enters permanent waterways during rain events.
ii. The identification of actively eroding areas, erosion prone areas, and areas of bare soil and appropriate measures for erosion and sediment control and revegetation	Actively eroding areas, erosion prone areas and areas of bare soil should be identified (see Section 2.2). Prevent further erosion by retiring, stabilising and/or revegetating the damaged area. The appropriateness of mitigations undertaken will be influenced by the farm risk assessment (see Section 2.8.2). In some circumstances it may be appropriate that no mitigation actions are specified. Ongoing identification of high risk areas, and new areas of erosion, together with a specified response procedure for undertaking works to address erosion may be a more adequate provision to include in an FEP than to actively update the FEP document via a process set out in the resource consent or certified industry scheme terms and conditions.

iii. An assessment of the risk of diffuse discharge of sediment, nitrogen, phosphorus and microbial pathogens from tracks and races and livestock crossing structures to waterways, and the identification of appropriate measures to minimise these discharges (e.g. cut-off drains, and shaping)	As per Section 2.8.2, provide an assessment of risk of diffuse losses of contaminants from farm tracks, crossings and races. **ADVICE NOTE:** *Resource consent may be required for soil disturbance (shaping/contouring), roading, tracking and vegetation clearance, please contact the regional council for more information.* *In some circumstances it may be appropriate that no mitigation actions are specified.*
iv. the identification of areas where effluent accumulates including yards, races, livestock crossing structures, underpasses, stock camps, and feed-out areas, and appropriate measures to minimise the risk of diffuse discharges of contaminants from these areas to groundwater or surface water.	See Section 2.2. All areas where effluent accumulates must be identified and managed to minimise the diffuse discharge of contaminants. The appropriateness of mitigation actions undertaken to minimise the risk of diffuse discharges from these areas entering ground or surface waters will be influenced by the farm risk assessment (see Section 2.8.2). **ADVICE NOTE:** *Existing rules under the Waikato Regional Plan cover the use of feed pads (e.g. permeability) and associated effluent irrigation, please contact the regional council for more information.* *Resource consent may be required for soil disturbance (shaping/contouring), roading, tracking and vegetation clearance, please contact the regional council for more information.* *In some circumstances it may be appropriate that no mitigation actions are specified.*

v. the identification of other 'hotspots' such as fertiliser, silage, compost, or effluent storage facilities, wash-water facilities, offal or refuse disposal pits, and feeding or stock holding areas, and the appropriate measures to minimise the risk of diffuse discharges of contaminants from these areas to groundwater or surface water.	'Hotspots' on-farm must be identified. The appropriateness of mitigation actions undertaken to minimise the risk of diffuse discharges from these areas entering ground or surface waters will be influenced by the farm risk assessment (see Section 2.8.2). In some circumstances it may be appropriate that no mitigation actions are specified. See Section 2.2. 'Hotspots' on-farm may include (but not limited to): • fertiliser – fertiliser bunkers (storage) and loading areas • silage storage (pits and bails) • fuel and agri-chemical storage areas • compost storage areas • stock feeding and holding areas • effluent storage – sumps, ponds, tanks • farm dumps – green waste and on-farm refuse • offal pits/holes • farm quarries • vehicle washing areas • underpasses and bridges (see iv. above) • animal camps • feed storage. **ADVICE NOTE:** *Existing rules under the Waikato Regional Plan cover the use of feed pads and effluent ponds (e.g. permeability) and associated effluent irrigation. Existing rules also cover the production and storage of compost, farm refuse, construction of wetlands and detainment structures, please contact the regional council for more information.*

3.3.4 Appropriate land use and grazing management

APPROPRIATE LAND USE AND GRAZING MANAGEMENT

PLAN PROVISION	GUIDANCE
i. Matching land use to land capability	The method for assessing land use capability is contained in the Land Use Capability Survey Handbook that provides a whole farm assessment methodology. Although this is the most comprehensive assessment, there is no legal requirement for farm environment planners to complete such a survey for the purpose of compliance with PPC1. The capability of land use may be determined by using pasture and soil damage indices as a proxy, with prolonged damage to pasture cover and soil being an indication (under normal climatic conditions) of inappropriate land use, or overly intensive land use. An alternative method that provides an indication of whether land is being used beyond its capability is the pasture assessment modules of the Visual Soil Assessment (see appendix). If there is evidence of prolonged damage to pasture and soils, indicated in the VSA guide as being in poor condition, mitigations to avoid further damage and to remedy the damage should be included in the FEP.
PLAN PROVISION	**GUIDANCE**
ii. Identifying areas not suitable for grazing	Land use capability, again, may be used for ascertaining the suitability of land for grazing, albeit on a seasonal basis, or for land that would be suitable for permanent retirement. On Waikato farms, these areas will generally not be extensive, but rather small areas of very steep land, very wet land, land with very shallow soils and areas within or adjacent to gullies or riparian areas. As a general guide, these areas will be identified as not suitable for grazing if there is very slow recovery after grazing, if there is excessive erosion or soil slips and flows or areas that are wet for most of the year.
iii. Stocking policy to maintain soil condition and pasture cover	The stocking policy should not result in exceedance of the carrying capacity of the soil to the extent that pasture cover is compromised and soil condition is adversely affected, both short and long term.
iv. The appropriate location and management of winter forage crops, and v. Suitable management practices for strip grazing	Winter forage crops are located in suitable areas that will minimise the discharge of contaminants to water. Crops will also be managed to minimise the discharge of contaminants to water. Note that cultivation on land greater than 15o should be avoided.

3.3.5 Nutrient management practices

NUTRIENT MANAGEMENT PRACTICES

PLAN PROVISION	GUIDANCE
Nitrogen management	Nitrogen leaching does not exceed the Nitrogen Reference Point as measured by a five year rolling average. Nitrogen leaching is reduced at or below the 75th percentile if the NRP is above the 75th percentile for the FMU, by 1 July 2026. The Farm Environment Plan has regard to sub-catchment targets of nitrogen.
Phosphorus	The Farm Environment Plan has regard to sub-catchment targets of phosphorus, and all steps are taken to reduce the losses of phosphorus to water.

3.3.6 Cultivation management

CULTIVATION MANAGEMENT

PLAN PROVISION	GUIDANCE
i. The identification of slopes over 15° and how cultivation on them will be avoided; unless contaminant discharges to waterbodies from that cultivation can be avoided.	Land exceeding 15° should be identified (See Section 2.2) and excluded from cultivation unless contaminant discharges to waterbodies from that cultivation can be avoided. However, it may be more appropriate in some circumstances to identify specific paddocks where cultivation may occur and include the identification of any areas within these paddocks that exceed 15°. Slope angle may be estimated with the assistance of an inclinometer or the use of farm mapping software. To avoid contaminant discharges, the expectation is that the effects of the activity will be mitigated to the extent that they are no greater than that of non-cultivation methods in the same location or the effects associated with that same activity in the same location where areas >15° are excluded from cultivation. Cultivation: means preparing land for growing pasture or a crop and the planting, tending and harvesting of that pasture or crop, but excludes: • direct drilling of seed • no-tillage practices • recontouring land (note that this activity may be subject to existing rules) • forestry (note that this activity may be subject to existing rules).
ii. How the adverse effects of cultivation on slopes of less than 15° will be mitigated through appropriate erosion and sediment controls for each paddock that will be cultivated including by: a. assessing where overland flows enters and exits the paddock in rainfall events b. identifying appropriate measures to divert overland flows from entering the cultivated paddock c. identifying measures to trap sediment leaving the cultivated paddock in overland flows d. maintaining appropriate buffers between cultivated areas and waterbodies (minimum 5m setback).	Where the cultivated land is less than 15°, the FEP will detail the appropriate mitigations.

3.3.7 Effluent management

EFFLUENT MANAGEMENT

GUIDANCE

Collected animal effluent must be applied to land in accordance with Waikato Regional Plan rules 3.5.5.1 and 3.5.5.2 – Farm Dairy Effluent. This covers the storage requirements around pond permeability, and the nutrient and hydraulic loading rate of effluent applied to land. Discharges of untreated farm animal effluent to water is a prohibited activity.

The FEP is to describe the effluent system on site, including how it is managed, and an accompanying risk assessment.

ADVICE NOTE:

Existing rules under the Waikato Regional Plan cover the collection of animal effluent (ponds and feed-pad area) and associated effluent irrigation, please contact the regional council for more information.

The CFEP may consider the use of existing tools, such as any industry accepted storage calculators and other information available regarding pond leakage and/or design guidelines, when undertaking an assessment of risk associated with the management of farm animal effluent.

3.4 SUPPORT MATERIAL

Dairy Effluent Storage Calculator
www.dairynz.co.nz/environment/effluent/effluent-storage/dairy-effluent-storage-calculator-desc/

Dairy NZ Farm Enviro Walk
www.dairynz.co.nz/media/721533/FEW-checklist.pdf

Dairy NZ Guide to Managing Farm Dairy Effluent
www.dairynz.co.nz/media/2832537/farmers-guide-to-managing-fde.pdf

Dairy NZ Riparian Planner Tool
www.dairynz.co.nz/environment/waterways/riparian-planner/

Deer Industry NZ Environmental Management Code of Practice
https://deernz.org/deer-hub/farm-environment/environmental-management-code-practice#.WwJMbeYUncs

Farm Dairy Effluent Design Code of Practice
www.dairynz.co.nz/media/2793698/fde-design-standards-and-cop-2015.pdf

Farm Menus
www.farmmenus.org.nz/

Farmax
www.farmax.co.nz/

Fertiliser Association Code of Practice for Fertiliser Application
www.fertiliser.org.nz/Site/code_of_practice/best_management_practices_considerations/fertiliser_application/default.aspx

Fertiliser Association Code of Practice for Nutrient Management
www.fertiliser.org.nz/Site/code_of_practice/default.aspx

Foundation for Arable Research Farm Environment Plans
www.far.org.nz/research/environment/farm_environment_plans

Horticulture NZ Code of Practice for Nutrient Management
www.hortnz.co.nz/assets/Uploads/Code-of-Practice-for-Nutrient-Management-v-1-0-29-Aug-2014.pdf

Horticulture NZ Erosion and Sediment Control Guidelines for Vegetable Production
www.hortnz.co.nz/assets/Uploads/Auckland-Waikato-ES-Control-Guidelines-1-1.pdf

Industry Agreed Good Management Practices
www.ecan.govt.nz/publications/General/Industry_Agreed_GMPs_A5_Version2_Sept2015_FINAL.pdf

Irrigation NZ Farm Environment Plan
www.irrigationnz.co.nz/news-resources/irrigation-resources/farm-plans-asm/

Land and Environment Planning Guidelines
www.beeflambnz.com/lep

Land Management on Waikato Dairy Farms
www.dairynz.co.nz/environment/land-and-nutrient/land-management-guides/

Land Use Capability Survey Handbook
www.landcareresearch.co.nz/__data/assets/pdf_file/0017/50048/luc_handbook.pdf

Landcare Research S-Map
www.smap.landcareresearch.co.nz/home

NIWA Constructed Wetland Guide
www.niwa.co.nz/sites/niwa.co.nz/files/import/attachments/NZCW-guide4press_small.pdf

NZ Deer Farmers Landcare Manual
www.deernz.org/sites/dinz/files/NZ%20Deer%20Farmers%20Landcare%20manual%202012%20for%20web_0.pdf

NZ GAP
www.nzgap.org.nz/

NZ Landcare Trust Landcare Guide
www.landcare.org.nz/Landcare-Guide

NZ Pork Farm Environment Plan
www.nzpork.co.nz/nzporkservices/environmental-management

and *www.nzpork.co.nz/images/custom/enviropork_manual.pdf*

NZ Soil Conservation Technical Handbook
www.mfe.govt.nz/sites/default/files/soil-conserv-handbook-jun01.pdf

OVERSEER
www.overseer.org.nz/

Plant and Food Research, Trees for the Farm
www.poplarandwillow.org.nz/documents/Trees-for-the-Farm-Booklet.pdf

Pocket guide to determine soil risk for farm dairy effluent application
www.dairynz.co.nz/media/757892/fde_soil_risk_pocket_guide.pdf

Quality Planning, Conditions
www.qualityplanning.org.nz/index.php/consents/conditions

Spreadmark Code of Practice
www.ecan.govt.nz/publications/Plans/hinds-spreadmark-cop.pdf

Supply Fonterra Programme
www.fonterra.com/nz/en/sustainability+platform/sustainable+dairying/new+zealand/new+zealand

Sustainable Dairying Water Accord
www.dairynz.co.nz/media/3286407/sustainable-dairying-water-accord-2015.pdf

Sustainable Milk Plans
www.dairynz.co.nz/environment/in-your-region/waikato-environmental-policy/upper-waikato-sustainable-milk-project/

Visual Soil Assessment
www.landcareresearch.co.nz/publications/books/visual-soil-assessment-field-guide/download-field-guide

Waikato Regional Council Best Practice Guidelines for Waterway Crossings
www.waikatoregion.govt.nz/PageFiles/4998/TR0625R.pdf

Waikato Regional Council Farmers Guide to Permitted Activities
www.waikatoregion.govt.nz/PageFiles/1247/3892_Guide%20to%20permitted%20Activites%20Booklet_2014-WEB.pdf

Waikato Regional Council – For Farmers
www.waikatoregion.govt.nz/forfarmers/

Waikato Regional Council – Healthy Rivers/Wai Ora documents
waikatoregion.govt.nz/council/policy-and-plans/plans-under-development/healthy-rivers-plan-for-change/read-the-proposed-plan-change/

Waikato Regional Council – Sediment Retention Pond Factsheet
www.waikatoregion.govt.nz/assets/WRC/Environment/Natural-Resources/land-and-soil/earthworks-erosion/Earthworks-Sediment-Retention-Pond-factsheet-May2015-web.pdf

Waikato River Authority Planting Tool
www.waikatoriver.org.nz/the-wheel/

This information has been provided based on Waikato Regional Council's interpretation of the proposed plan. The proposed plan is at the early stages of the Schedule 1 process and the provisions are therefore likely to be subject to further change through that process. While Waikato Regional Council has exercised all reasonable skill and care in providing this information, council accepts no liability in contract, tort or otherwise, for any loss, damage, injury or expense (whether direct, indirect or consequential) arising out of the provision of this information or its use by you or any other party. Should you have specific concerns regarding the proposed provisions, we encourage you to make a submission and/or seek your own legal advice.

HE TAIAO MAURIORA	HEALTHY ENVIRONMENT
HE ŌHANGA PAKARI	STRONG ECONOMY
HE HAPORI HIHIRI	VIBRANT COMMUNITIES

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Healthy Rivers
PLAN FOR CHANGE
Wai Ora
HE RAUTAKI WHAKAPAIPAI

Waikato
REGIONAL COUNCIL
Te Kaunihera ā Rohe o Waikato