Ministry for Primary Industries
Manatū Ahu Matua

Resource Management (National Environmental Standards for Plantation Forestry) Regulations 2017

User Guide

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New Zealand Government

Growing and Protecting New Zealand

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Contents

Page

List of tables

List of figures

1 Introduction

1.1 PURPOSE OF THIS DOCUMENT

This user guide is a manual for interpreting and implementing the ***Resource Management (National Environmental Standards for Plantation Forestry) Regulations 2017*** (the NESPF). It supports the implementation of the NESPF by providing information and guidance on the regulations and is specifically targeted at regional councils, territorial authorities, and the forestry industry as the primary users of the NESPF.

The NESPF are regulations made under the Resource Management Act 1991 (RMA) that provide a nationally consistent set of standards to manage the environmental effects of *plantation forestry activities*. This guide provides:

- An overview of how the regulations work;
- An overview of roles and responsibilities under the NESPF;
- An overview of the *plantation forestry activities* covered by the regulations;
- An explanation of key concepts and requirements in the NESPF;
- Detailed guidance on the permitted activity conditions and requirements for each of the eight core *plantation forestry activities*; and
- Guidance on the permitted activity conditions and requirements relating to three ancillary activities and the general provisions in the NESPF.

Note that terms that are defined in Regulation 3 of the NESPF or in specific regulations have been identified in *italics* in this User Guide and are explained further as relevant.

National environmental standards (NES) are regulations made under the RMA. They are binding on local authorities and a local authority must observe NES (section 44A(7) of the RMA) and enforce the observation of the NES to the extent to which their powers enable them to do so (section 44A(8)). Appendix A provides a more detailed overview of NES.

1.2 STRUCTURE OF NESPF GUIDANCE

This NESPF User Guide is the primary guidance document to assist in interpreting the regulations. In addition to this User Guide, Ministry for Primary Industries (MPI) has developed two sub-guides: the <NESPF Plan Alignment Guidance> and <NESPF Consenting and Compliance Guidance>. These sub-guides are intended to assist users with specific tasks such as aligning their regional and district plans with the NESPF, and monitoring compliance of activities permitted under the NESPF. Hyperlinks are used throughout this document to help users navigate to more detailed information in the sub-guides.

MPI has also worked with councils and the forestry industry to develop guidance on forestry management practices to support the implementation of the NESPF. These 'Forest Practice Guides' provide specific guidance on common forestry management practices and can be used to meet the performance-based conditions in the NESPF. They can also be used in the development of management plans to explain the practices a forester will use for various operations. The Forestry Practice Guides will be available on the New Zealand Forest Owners Association website: https://www.nzfoa.org.nz/ Foresters may also draw on practices in existing council and industry guidance to comply with the NESPF.

The general structure of the NESPF guidance documents and supporting industry guidance is shown in Figure 1.

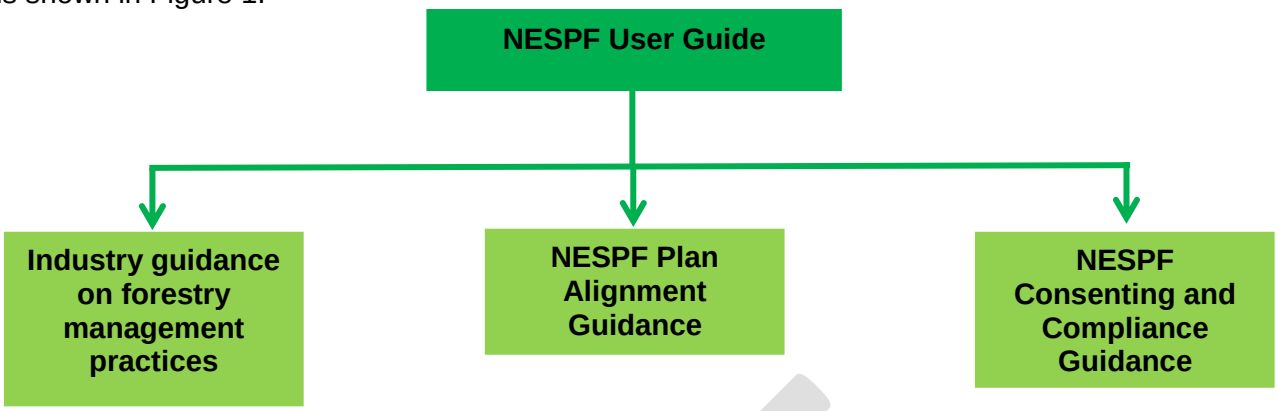

Figure 1: Structure of the NESPF guidance documents.

1.3 OVERVIEW OF THE NESPF

The policy objective of the NESPF is to:

> *'Maintain or improve the environmental outcomes associated with plantation forestry activities nationally; and*
>
> *Increase the efficiency and certainty in the management of plantation forestry activities under the RMA'.*

The provisions in the NESPF are intended to achieve this policy objective through:

- Providing **nationally consistent provisions (including specified permitted activity conditions)** for the management of *plantation forestry* activities under the RMA;
- Establishing rules that **permit plantation forestry activities where it is efficient and appropriate to do so**, and where the activities will not have significant adverse effects on the environment;
- Requiring **resource consent for activities where the environmental risk is higher** and more site-specific oversight is needed, or where permitted activity conditions cannot be complied with; and
- **Allowing plan rules to be more stringent**[1] than the NESPF to protect locally significant and sensitive environments, and to give effect to certain national instruments.

The NESPF provides a nationally consistent set of provisions to manage eight core *plantation forestry activities* that extend the full forestry life cycle (Part 2, Subparts 1-8). The NESPF also manages three ancillary forestry activities (Part 2, Subpart 9), and includes general provisions that apply to all *plantation forestry activities* (Part 2, Subpart 10).

The permitted activity conditions in the NESPF include:

- **Conditions** to avoid, remedy, or mitigate adverse environmental effects from *plantation forestry activities* (e.g. setback requirements, implementation of erosion and sediment control measures);
- Requirements to prepare, and comply with, **management plans** for *earthworks*, *forestry quarrying* and *harvesting* to enable site specific environmental risks to be identified and managed up-front;

[1] Under section 43B of the RMA, a rule is more stringent where it prohibits or restricts an activity that the standard permits or authorises. This may be through a restrictive activity status and/or more restrictive conditions.

- Requirements to give **notice to regional councils and territorial authorities** of the commencement of certain *plantation forestry activities* (*afforestation, earthworks, river crossings, forest quarrying, harvesting*) to enable risk-based compliance monitoring to be undertaken where appropriate; and
- **Risk assessment tools** that are incorporated by reference into the NESPF (the *Erosion Susceptibility Classification*, *Wilding tree risk calculator*, and Fish Spawning Indicator), which enable location specific assessments of risk to be undertaken in relation to erosion, wilding conifer spread, and *fish spawning*.

The NESPF generally takes precedence over rules in regional and district plans. However, Regulation 6 of the NESPF allows more stringent plan rules to prevail over the NESPF in certain circumstances. These circumstances are limited to when plan rules:

(a) Give effect a freshwater objective developed to give effect to the National Policy Statement for Freshwater Management (NPSFM) and any of policies 11, 13, 15 and 22 of the New Zealand Coastal Policy Statement 2010 (NZCPS);

(b) Recognise and provide the protection of - *outstanding natural landscapes and features* and *significant natural areas* and matters of national importance under section 6(b) and 6(c) of the RMA*;* and

(c) Manage specific unique and sensitive environments identified in a regional policy statement, regional plan, or district plan (*geothermal areas*, *karst geology*, and areas with separation point granite soils) and certain protect sources of human drinking water supply[2].

There are also certain activities and effects related to *plantation forestry* that are not regulated under the NESPF and continue to be managed under the relevant regional or district plan (e.g. effects on cultural and historic heritage, effects of logging trucks on public roads). The <NESPF Plan Alignment Guidance> provides more detailed guidance on where plan rules may be more stringent than the NESPF, and activities and effects not regulated under the NESPF.

1.4 STRUCTURE OF USER GUIDE

This NESPF User Guide is structured as follows:

- ***Section 2:*** provides an overview of how the NESPF regulations work;
- ***Section 3:*** outlines roles and responsibilities of the forestry industry and councils under the NESPF;
- ***Section 4:*** provides guidance on key concepts used throughout the NESPF;
- ***Section 5:*** provides an overview of the eight core *plantation forestry activities* regulated by the NESPF and guidance to interpret key permitted activity conditions and requirements for each activity;
- ***Section 6:*** provides guidance on the ancillary activities regulated under the NESPF; and
- ***Section 7:*** provides an overview of general provisions in the NESPF that apply to all *plantation forestry activities*.

[2] If the rule manages activities conducted within 1 km upstream of the abstraction point of a drinking water supply for more than 25 people where the water take is from a water body or *forestry quarrying* activities conducted over a shallow water table (less than 30 m below ground level) that is above an aquifer used for a human drinking water supply.

2 Overview of Regulations

2.1 PLANTATION FORESTRY ACTIVITIES REGULATED BY THE NESPF

Regulation 3 (interpretation) defines *plantation forest* and *plantation forestry* as follows:

> ***'plantation forest** or **plantation forestry** means a forest deliberately established for commercial purposes, being—*
>
> *(a) at least 1 ha of continuous forest cover of forest species that has been planted and has or will be harvested or replanted; and*
>
> *(b) includes all associated forestry infrastructure; but*
>
> *(c) does not include—*
>
> *(i) a shelter belt of forest species, where the tree crown cover has, or is likely to have, an average width of less than 30 m; or*
>
> *(ii) forest species in urban areas; or*
>
> *(iii) nurseries and seed orchards; or*
>
> *(iv) trees grown for fruit or nuts; or*
>
> *(v) long-term ecological restoration planting of forest species; or*
>
> *(vi) willows and poplars space planted for soil conservation purposes'*

The definition of a *plantation forest* is not restricted by cadastral boundaries or ownership/management arrangements. A *plantation forest* includes associated *forestry infrastructure* which is all structures and facilities required for the operation of the *plantation forest*[3]. In some cases, this *forestry infrastructure* may be located outside the boundary of the *plantation forest* but necessary for the operation of the forest (e.g. a *river crossing* and *forestry track* providing access to the *plantation forest*).

Regulation 5(1) sets out the activities regulated under the NESPF. Regulation 5(2) makes it clear that in addition to the regulations for each plantation forestry activity, foresters must also comply with the general provisions in subpart 10 of Part 2 where relevant to be permitted. *Plantation forestry activity* is defined in the NESPF as follows:

> *"**plantation forestry activity** means any activity regulated under subparts 1 to 9 of Part 2 of these regulations that is conducted in plantation forestry"*

The eight core *plantation forestry activities* regulated under the NESPF are all defined in Regulation 3 (Interpretation) and these definitions are outlined in Table 1. It is important to understand the scope of each *plantation forestry activity* as defined in the NESPF and what it includes and excludes. Section 5 of this User Guide provides more detailed information on each of these *plantation forestry activities.*

Table 1: Definition of eight core plantation forestry activities regulated under the NESPF.

Regulated *plantation forestry activity*	**Definition in the NESPF**
Afforestation (regulations 8 - 17)	(a) *means planting and growing plantation forestry trees on land where there is no plantation forestry and where plantation forestry harvesting has not occurred within the last 5 years; but*

[3] Forestry infrastructure is defined in NESPF as *"**forestry infrastructure** means structures and facilities that are required for the operation of the forest, including forestry roads, forestry tracks, river crossings, landings, fire breaks, stormwater and sediment control structures, and water run-off controls".*

Regulated *plantation forestry activity*	Definition in the NESPF
	(b) does not include vegetation clearance from the land before planting
Pruning and thinning to waste (regulations 18 - 21)	*means pruning plantation forest trees and thinning to waste involving the selective felling of plantation forest trees within a stand where the felled trees remain on site*
Earthworks[4] (regulations 22 - 35)	*(a) means disturbance of the surface of the land by the movement, deposition, or removal of earth (or any other matter constituting the land, such as soil, clay, sand, or rock) in relation to plantation forestry; and* *(b) includes the construction of forestry roads, forestry tracks, landings and river crossing approaches, cut and fill operations, maintenance and upgrade of existing earthworks, and forestry road widening and realignment; but* *(c) does not include soil disturbance by machinery passes, forestry quarrying, or mechanical land preparation*
River crossings (regulations 36 - 49)[5]	*(a) means a structure that is required for the operation of a plantation forest and provides for vehicles or machinery to cross over a water body; and* *(b) includes an apron and other structures and materials necessary to complete a river crossing; but* *(c) does not include a stormwater culvert or a culvert under a forestry road or forestry track*
Forestry quarrying (regulations 50 - 61)	*(a) means the extraction of rock, sand, or gravel for the formation of forestry roads and construction of other plantation forestry infrastructure, including landings, river crossing approaches, abutments, and forestry tracks,—* *i. within a plantation forest; or* *ii. required for the operation of a plantation forest on adjacent land owned or managed by the owner of the plantation forest; and* *(b) includes the extraction of alluvial gravels outside the bed of a river, extraction of minerals from borrow pits, and the processing and stockpiling of material at the forest quarry site; but* *(c) does not include earthworks, mechanical land preparation, or gravel extraction from the bed of a river, lake, or other water body*
Harvesting (regulations 62 - 71)	*(a) means felling trees, extracting trees, thinning tree stems and extraction for sale or use (production thinning), processing trees into logs, or loading logs onto trucks for delivery to processing plants; but* *(b) does not include—* *i. milling activities or processing of timber; or* *ii. vegetation clearance of vegetation that is not plantation forest trees*

[4] Note Regulation 3 also provides definitions for *forestry roads, forestry tracks, landings* and *maintenance and upgrade of existing earthworks* which are relevant to this definition.

[5] Note Regulation 3 also provides definitions for a number of types of *river crossings*, including *apron, battery culvert, culvert, drift deck, ford, single* culvert and *temporary river crossing.*

Regulated *plantation forestry activity*	Definition in the NESPF
Mechanical land preparation[6] (regulations 72 - 75)	*(a) means using machinery to prepare land for replanting trees, including root-raking, discing, ripping, roller crushing, clearing slash, and mounding the soil into raised areas; but* *(b) does not include—* *i. the creation of alternating drains and planting mounds using a V-shaped blade attached to the front of a bulldozer; or* *ii. earthworks or forestry quarrying*
Replanting (regulations 76 - 81)	*means the planting and growing of plantation forestry trees on land less than 5 years after plantation forestry harvesting has occurred*

2.2 ANCILLARY ACTIVITIES AND GENERAL PROVISIONS

2.2.1 Ancillary activities

Part 2, subpart 9 of the NESPF regulates three activities that are ancillary to the eight core *plantation forestry activities*. These ancillary activities are all understood by reference to the definitions in Regulation 3 (Interpretation) as summarised in Table 2. Section 6 of this User Guide provides guidance on the ancillary activities.

Table 2: Ancillary activities regulated under NESPF.

Regulated ancillary activity	Explanation and relevant definitions
Slash traps (regulations 83 - 92)	***slash trap*** *means a structure set in a river, on the bed of a river, or on land to trap slash mobilised by water* Definitions also of relevance: ***slash*** *means any tree waste left behind after plantation forestry activities* ***slash trap*** *means a structure set in a river, on the bed of a river, or on land to trap slash mobilised by water*
Indigenous vegetation clearance (regulations 93 - 94)	'Indigenous vegetation clearance' is not a defined term, the concept is understood by a combination of the following definitions: ***indigenous vegetation*** *means vegetation that is predominantly vegetation that occurs naturally in New Zealand or that arrived in New Zealand without human assistance* ***vegetation clearance—*** *(a) means the disturbance, cutting, burning, clearing, damaging, destruction, or removal of vegetation that is not a plantation forest tree; but* *(b) does not include any activity undertaken in relation to a plantation forest tree*
Non-indigenous vegetation clearance (Regulation 95)	*'Non-indigenous vegetation clearance'* is not a defined term in the NESPF. It is ***'vegetation clearance'*** (as defined above) which does not involve the clearance of ***'indigenous vegetation'*** or the clearance of *plantation forest* trees (which is *harvesting* under the NESPF).

[6] Note Regulation 3 also provides definitions for a number of the methods referred to in the definition of mechanical land preparation including *discing*, *ripping*, and *roller crushing*.

2.2.2 General provisions

The NESPF also contains general provisions that apply to all *plantation forestry activities* regulated under the NESPF where relevant. These general provisions are found in subpart 10 of Part 2 as follows:

- Discharges, disturbances, and diversion (Regulation 97);
- *Noise and vibration* (regulations 98 - 99);
- Dust (regulations 100 - 101);
- Indigenous bird nesting (regulations 102 - 103); and
- *Fuel* storage and refuelling (regulations 104 - 105).

Section 7 of this User Guide provides guidance on the general provisions in the NESPF.

2.3 HOW THE REGULATIONS WORK

2.3.1 A risk-based permitted activity approach

The NESPF codifies established good forestry management practices through permitted activity conditions. *Plantation forestry activities* will generally be permitted where the permitted activity conditions are complied with unless the activity is in a higher risk area – as determined by the risk management tools incorporated by reference in the NESPF[7].

Management plans must be prepared for *earthworks* and *forestry quarrying* (above specified thresholds) and *harvesting* (in accordance with the specifications in Schedules 3 and 4 of the NESPF) and those *plantation forestry activities* must be carried out in accordance with the management plan. This approach requires foresters to take a proactive approach to identifying site-specific environmental risks and developing appropriate management responses when planning and undertaking their *plantation forestry activities*.

Foresters will need to obtain resource consent where NESPF permitted activity conditions cannot be complied with and/or where the risk of adverse environmental effects indicates the need for site-specific oversight based on the risk management tools. Depending on the level of risk, resource consent will be required as either (section 87A of the RMA):

(a) A controlled activity – consent must be granted and any consent conditions imposed by the consent authority are limited to matters that control is reserved over, as specified in the NESPF; or

(b) A restricted discretionary activity – where consent can be granted or declined. The powers of the consent authority in considering the application and imposing any consent conditions are restricted to the matters over which discretion is restricted, as specified in the NESPF; or

(c) A discretionary activity – where consent may be granted with conditions or declined based on an assessment of all relevant matters under the RMA. This activity status only applies under the NESPF to *river crossings* not within the classes listed in Regulation 49 or when conditions relating to the disturbance of bed of a lake or river, or disturbance of a *wetland* are not complied with (regulations 97(8) and (9)).

Figure 2 illustrates the risk-based approach under the NESPF and how the risk management tools determine whether resource consent is required.

[7] The three tools are the Erosion Susceptibility Classification (ESC), the *Wilding Tree Risk Calculator* and the Fish Spawning Indicator. Discussed in more detail in Section 2.5 below.

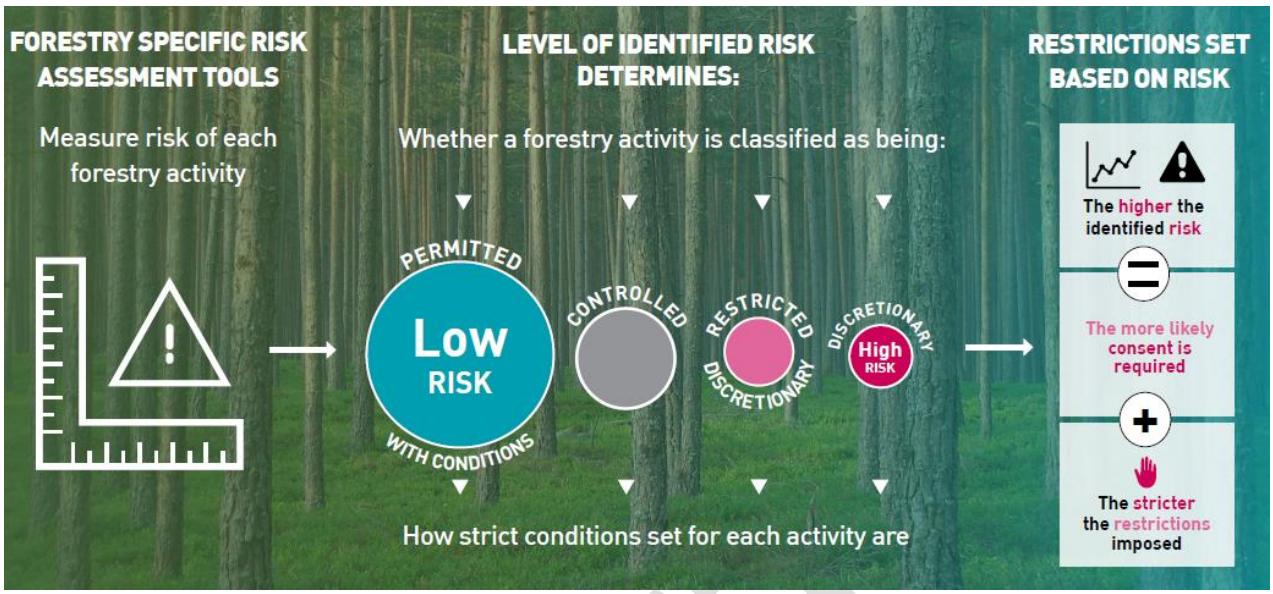

Figure 2: Application of NESPF risk management tools to determine activity status.

2.3.2 Understanding how the regulations work

The provisions of the NESPF that apply to *plantation forestry* operations will depend on the nature of the *plantation forestry activity*, where it is located, and how many activities are involved. The NESPF specifies what local authority has functions in relation to each NESPF regulation to provide certainty and avoid potential duplication in implementation of the NESPF. The functions of each council are set out in first regulation of each sub-part of Part 2, titled '*Functions for this subpart'.*

In certain circumstances, the relevant plan provisions will also apply to *plantation forestry activities.* This will generally be where a more stringent plan rule applies to the activity and that rule meets the requirements of Regulation 6 (plan rules may be more stringent). For example, where the activity is located within an *Outstanding Natural Feature or Landscape* and there are rules restricting *plantation forestry activities* (such as *afforestation* or *earthworks*) within that feature or landscape. In some situations, the *plantation forestry activity* may also have effects that are not dealt with in the NESPF (e.g. adverse effects on a heritage site) and these effects will continue to be managed through the relevant plan[8].

The main steps to determine the provisions in the NESPF that apply to a *plantation forestry activity* and whether the activity is permitted or requires a resource consent are summarised in Figure 3. Section 5 also provides flow diagrams specific to each *plantation forestry activity* to determine whether a resource consent is required.

[8] Section 43A(5)(b) of the RMA enables plan rules to deal with effects of an activity that are different to those dealt with in the terms and conditions in NES.

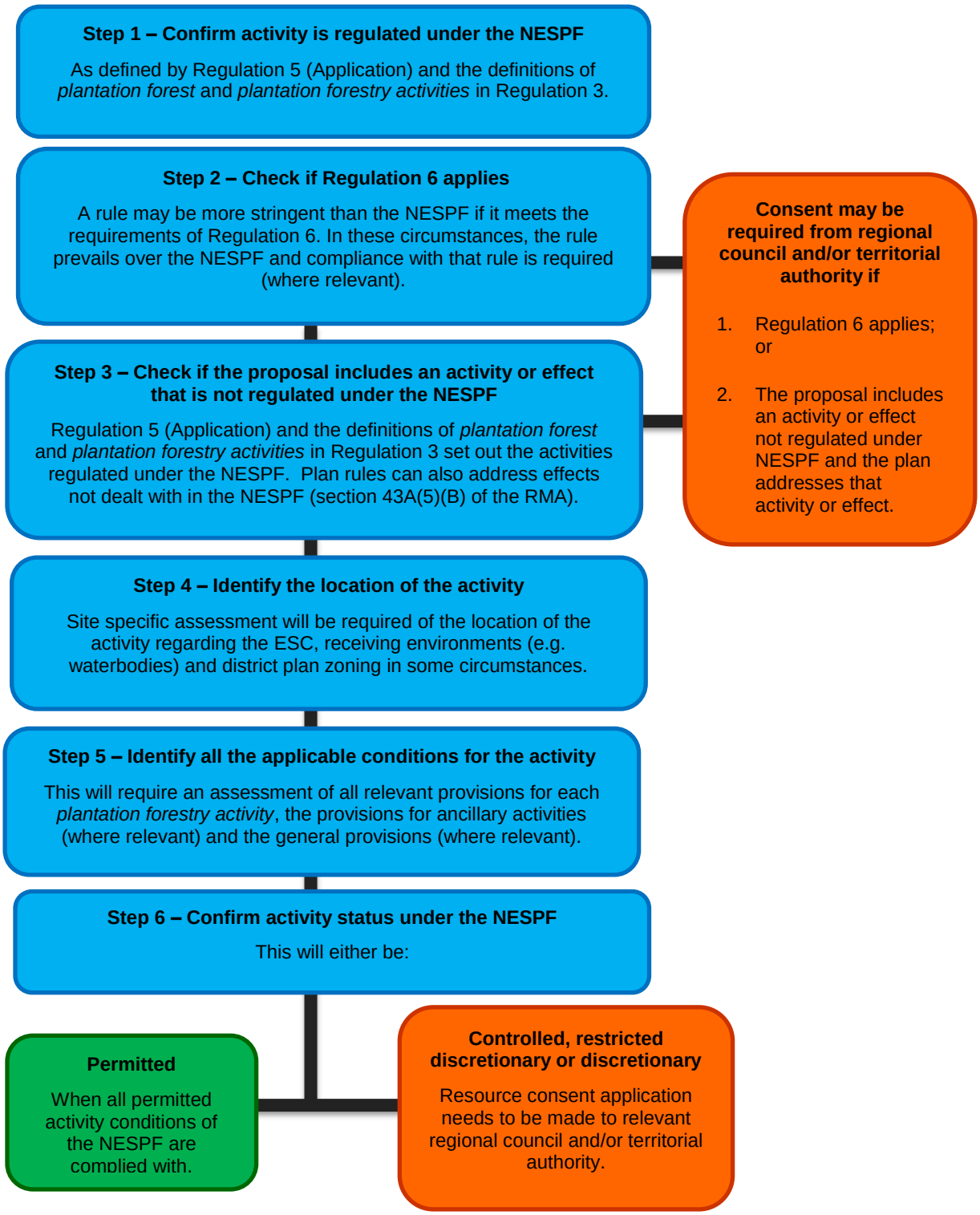

Figure 3: Steps to determine whether a plantation forestry activity complies with the NESPF or requires a resource consent.

2.4 MANAGEMENT PLANS

The NESPF requires management plans to be prepared for *earthworks and forestry quarrying* (above specified thresholds) and *harvesting* to ensure site-specific environmental risks are identified and managed upfront. There are three types of management plans required under the NESPF:

- Forestry *earthworks* management plan (Regulation 27 – Schedule 3);
- Quarry erosion and sediment management plan (Regulation 59 – Schedule 4); and
- Harvest plan (Regulation 66 – Schedule 3).

The *earthworks*, *forestry quarrying* and *harvesting* activity must be undertaken in accordance with the management plan and the plan must be in place before the activity begins.

Schedules 3 and 4 of the NESPF set out specifications (information requirements) for the management plans which are based on established industry management practices. Where *harvesting* is proposed on *orange zone* or *red zone,* it must be accompanied by a forestry earthworks management plan or a combined *earthworks* and harvest plan can be prepared where appropriate to reduce administrative effort (Regulation 66(4)).

The level of detail provided in each management plan should be proportionate to the nature of the *plantation forestry* operations, the site-specific risks present, and potential adverse environmental effects. While management plans need to be tailored to the site and activity, the standard information requirements in the NESPF schedules will assist both foresters and councils to focus on the likely environmental risks and how to manage these appropriately.

Section 3.1.6 of this guide provides general information on the responsibilities for NESPF management plans. <Section 5.3 of the NESPF Consenting and Compliance Guide> provides more detailed guidance on preparation, requesting and reviewing management plans, and *material amendments* to management plans.

2.5 RISK ASSESSMENT TOOLS

The NESPF includes three risk assessment 'tools' that are incorporated by reference[9] into Schedule 2 of the NESPF:

- *Erosion Susceptibility Classification*;
- *Wilding tree risk calculator*; and
- Fish Spawning Indicator.

These 'tools' are spatial databases and guidelines that enable site-specific assessments of risk to be undertaken for erosion, *wilding conifer* spread, and *fish spawning*. This provides a site-specific approach to manage the potential adverse effects of *plantation forestry activities*, including requiring a resource consent to be obtained where risks exceed acceptable thresholds.

2.5.1 Erosion Susceptibility Classification

A key component of the NESPF is the *Erosion Susceptibility Classification* (ESC)[10]. To develop the ESC, all land in New Zealand was assessed to determine its erosion risk for

[9] Schedule 1AA of the RMA enables written material to be incorporated into a national environmental standard in whole or in part and this material has legal effect as part of the standard.

[10] Defined in the NESPF as "*erosion susceptibility classification means the system that determines the risk of erosion on land across New Zealand based on environmental characteristics, including rock type and slope, and that—(a) classifies land into the following 4 categories of erosion susceptibility according to level of risk: low (green), moderate (yellow), high (orange), and very high (red); and (b) is provided in the electronic tool referred to in item 1 of Schedule 2 (http://www.mpi.govt.nz/growing-and-producing/forestry/overview/national-environmental-standards-for-plantation-forestry/erosion-susceptibility-classification/).*

plantation forestry as a basis for applying appropriate levels of control, including requiring resource consent to be obtained for certain *plantation forestry activities* on high or very high-risk ESC land.

All land in mainland New Zealand (excluding areas that have been severely modified – e.g. urban towns, quarries) have been classified as one of four ESC zones, and each zone is defined in Regulation 3 (interpretation). Land zoned green (low) and yellow (moderate) have lower erosion risk and *plantation forestry activities* are permitted on this land, provided other relevant conditions are complied with. Areas zoned *orange zone* (high) and *red zone* (very high) have higher levels of erosion risk.

Table 3 below shows the erosion risk rating for each zone and identifies where the ESC introduces a requirement for resource consent under the NESPF.

Table 3: ESC zones and resource consent requirements under NESPF.

ESC Zone	***Green zone***	***Yellow zone***	***Orange zone***	***Red zone***
Risk rating	Low risk	Moderate risk	High risk	Very high risk
Consent requirement	N/A	N/A	*Earthworks* (on a slope of 25 degrees or more and that exceed the thresholds in Regulation 24(2)(c)) *Forestry quarrying* (in *earthflow terrain*) *Mechanical land preparation* (where the land slope is 25 degrees or more, the subsoil is affected, and the area covered by the mechanical land preparation activity is greater than 2 ha in a calendar year)[11]	*Afforestation* (where the land proposed for *afforestation* is greater than 2 ha in any calendar year) *Earthworks* (that exceed the thresholds in Regulation 24(2)(d))[12] *Forestry quarrying* *Harvesting* (where the land is *Land Use Capability Class 8e* and it involves more than 2ha of *harvesting* in any 3-month period) *Mechanical land preparation* (where the land slope is 25 degrees or more, the subsoil is affected, and the area covered by the mechanical land preparation activity is greater than 2 ha in a calendar year) *Replanting* (where the land proposed for *replanting* is greater than 2 ha in any calendar year)

The ESC webpage[13] provides more detailed information on the ESC and how to access the ESC database.

[11] The land slope must be 25 degrees or more, the land must be subsoil affected, and the preparation area greater than 2 ha in a calendar year. Otherwise the activity will be permitted (if all other permitted activity conditions are met).

[12] The *earthworks* must be either in: 1) *Orange zone* with side cutting over 3m or side cutting over 100m continuous length and deposition of 100m³ or more of spoil/fill in any 3-month period; or 2) *Red zone* with side cutting over 2m or side cutting over 50m continuous length and deposition of 100m³ or more of spoil/fill in any 3-month period.

[13]Refer: https://www.mpi.govt.nz/growing-and-*harvesting*/forestry/national-environmental-standards-for-plantation-forestry/erosion-susceptibility-classification/

2.5.2 Wilding tree risk calculator

The *wilding tree risk calculator* is defined in Regulation 3[14] and referenced in the permitted activity conditions for *afforestation* and *replanting*. The purpose of the calculator is to identify and manage the risk of *wilding conifer* spread before planting is carried out. The *wilding tree risk calculator* is available at www.wildingconifers.org.nz, and is incorporated by reference into the NESPF (item 2, Schedule 2). The *wilding tree risk calculator* sets out the factors to be considered when calculating the risk of *wilding conifer* spread as follows:

- The type of species being planted;
- How palatable the species is to grazing animals;
- Where the trees are in relation to the prevailing wind;
- Downwind land use; and
- Proximity to existing forests.

The *wilding tree risk calculator* takes these factors into account to produce an overall score. Any score of 12 or higher means that resource consent is required for *afforestation* as a restricted discretionary activity. *Replanting* will also require resource consent as a restricted discretionary activity where *replanting:*

- Is a different *conifer species* from the trees most recently harvested on the land;
- Has a *wilding tree risk calculator* score of 12 or higher; and
- That score is higher than the score of the trees most recently harvested on the same land proposed for *replanting.*

The calculator must be used in accordance with the *wilding tree risk guidelines* by a '*suitably competent person'.* A '*suitably competent person'* for the purpose of using the *wilding tree risk calculator* is defined in the NESPF and explained further in section 5.1 – *afforestation*. The calculator score must be completed no more than 6 months before notice is given for *afforestation* or no more than 6 months before *replanting* is carried out.

2.5.3 Fish Spawning Indicator

The Fish Spawning Indicator is used to manage the timing of *plantation forestry activities* that involve disturbance of the bed of a lake or a *wetland* in *fish spawning* locations. Spawning periods vary depending on the fish species and its location. The Fish Spawning Indicator is tool to help councils and foresters plan forestry operations by showing where and when fish that are sensitive to bed disturbance are spawning.

The Fish Spawning Indicator forms a key part of the permitted activity conditions for Regulation 97 – discharges, disturbances and diversions. It is to be used in all situations where a *plantation forestry activity* will involve the disturbance of the bed (or vegetation in the bed) of a *perennial river* or lake, or disturbance of a *wetland*. The Fish Spawning Indicator was specifically designed to be used with Regulation 97 of the NESPF. Its application for purposes other than the NESPF needs to be carefully considered and may not be appropriate.

The Fish Spawning Indicator groups fish species and their spawning periods into two sensitivity classes:

[14] Defined as "*Wilding Tree Risk Calculator means the document DSS 1, "Calculating Wilding Spread Risk From New Plantings" in Appendix One of the document referred to in item 2 of Schedule 2 (Guidelines for the use of the Decision Support System "Calculating Wilding Spread Risk From New Plantings"), as used in conjunction with those guidelines".*

- **Group A** – salmonids or species with a conservation status of 'threatened' or 'at risk'; and
- **Group B** – species with a higher sensitivity to disturbance.

The Fish Spawning Indicator must be used by a *'suitably competent person',* which is defined in Regulation 97(6) of the NESPF. The *suitably competent person* can determine whether the fish species identified in the Fish Spawning Indicator are actually present where the disturbance will occur.

The Fish Spawning Indicator webpage[15] on the MPI website provides more information on how to use the indicator.

2.6 WHEN PLAN RULES MAY BE MORE STRINGENT THAN THE NESPF

Plan rules that are more stringent than a NES may only prevail where the NES expressly states that the rule may be more stringent (section 43B(1)). A plan rule is more stringent than a NES if it prohibits or restricts an activity that the NES permits or authorises (section 43B(2)).

The NESPF will generally take precedence over rules in regional and district plans to achieve a more consistent approach to managing *plantation forestry activities* under the RMA. However, there will be specific situations where conflict with other national direction needs to be avoided and flexibility is required for council rules to protect locally significant and sensitive environments.

Therefore, the NESPF allows plan rules to be more stringent than the NESPF in the following circumstances:

- **National instruments** – where a rule gives effect to a freshwater objective developed to give effect to the NPSFM or gives effect to any of policies 11, 13, 15, or 22 of the NZCPS;
- **Matters of national importance** – where a rule recognises and provides for the protection of *outstanding natural features and landscapes* from inappropriate use and development, or the protection of *significant natural areas*; and
- **Unique and sensitive environments** – where a rule manages activities in Separation Point granite soils (in a *green, yellow* or *orange zone*), *geothermal areas, karst geology* or protects sources of human drinking water[16]**.**

These circumstances are deliberately specific. This provides certainty for foresters and councils about where more stringent plan rules prevail over the NESPF and ensures that nationally consistent management of *plantation forestry activities* is still achieved.

When councils propose new rules that are more stringent than the NESPF, section 32(4) of the RMA requires councils to examine whether this is justified in the circumstances of the region or district.

It is good practice for councils to make it clear in their plans where a more stringent plan rule prevails over the NESPF under Regulation 6. This can be done through an amendment to the plan to reference to the NESPF (section 44A(6) of the RMA) and by providing information (e.g. factsheets) and guidance to plan implementers and users on where plan rules will still apply to *plantation forestry activities*. This is important to provide certainty to foresters and assist council staff to implement the NESPF consistently and correctly. The <NESPF Plan

[15] Refer: https://www.mpi.govt.nz/growing-and-*harvesting*/forestry/national-environmental-standards-for-plantation-forestry/fish-spawning-indicator/

[16] Only if the rule manages activities conducted within 1 km upstream of the abstraction point of a drinking water supply for more than 25 people where the water take is from a water body or *forestry quarrying* activities conducted over a shallow water table (less than 30 m below ground level) that is above an aquifer used for a human drinking water supply.

Alignment Guidance> provides more detailed information on where plan rules may be more stringent than the NESPF.

2.7 RELATIONSHIP WITH OTHER LEGISLATION AND REGULATIONS

Plantation forestry activities regulated under the NESPF may continue to be subject to other legislation and regulations, and these obligations continue to apply in addition to the NESPF[17]. Both councils and foresters need to be aware of their continuing responsibilities under other legislation and instances where the compliance with other legislation is also required. This section provides an overview of selected legislation and regulations of particular relevance to *plantation forestry activities*.

2.7.1 Biosecurity Act 1993

The Biosecurity Act 1993 provides the legal framework to keep harmful organisms out of New Zealand and to manage pests that have been established in New Zealand through national and regional pest management plans. A forester must still fulfil their obligations under the Biosecurity Act 1993 in addition to the requirements of the NESPF. This is reflected in the Biosecurity Act 1993 provisions that deal with the relationship it and other Acts, including the RMA[18].

With respect to *plantation forestry*, the biggest area of potential overlap between the Biosecurity Act 1993 and NESPF is the management of *wilding conifers*. Currently some councils manage the spread of *wilding conifers* through rules in their Regional Pest Management Plans under the Biosecurity Act 1993 and rules in their RMA plans.

Rules in Regional Pest Management Plans can continue to manage the spread of *wilding conifers*, provided there is no conflict with the NESPF. If there is a genuine conflict between the rules in a Regional Pest Management Plan and the NESPF regulations, then the NESPF would prevail pursuant to section 69(1) of the Biosecurity Act 1993.

2.7.2 Treaty settlement legislation

Treaty settlement legislation has been enacted in many parts of New Zealand and the Office of Treaty Settlements leads the process for negotiating the settlement of iwi and hapū historical grievances against the Crown under the Treaty of Waitangi. Treaty settlement legislation interacts with the RMA in various ways, from statutory acknowledgement areas requiring consideration during RMA notification assessments on a resource consent application through to agreements over freshwater management influencing the freshwater provisions in regional plans.

A key feature of many Treaty of Waitangi settlements is the establishment of natural resource arrangements, which enable iwi and hapū to have a more effective role in resource management. Treaty settlements may place obligations on local authorities that influence how they exercise their functions under the RMA. When implementing the NESPF, local authorities will still need to give effect to any relevant Treaty settlement obligations.

For example, the following pieces of Treaty settlement legislation relating to the Waikato and Waipa Rivers prevail over any conflicting provisions in national policy statements and can also be more stringent than any NES:

[17] Section 23 of the RMA states that compliance with the RMA does not remove the need to comply with all other applicable Acts, regulations, bylaws, and rules of law.

[18] Section 7(2) of the Biosecurity Act 1993 provides that the Act must not be construed so as to affect or derogate in any way from the provisions of the RMA (except to the extent provided in section 7A and expressly amended by section 168(1)).

- Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010 (refer section 12(4));
- Ngāti Tūwharetoa, Raukawa and Te Arawa River Iwi Waikato River Act 2010 (refer section 13(4)); and
- Ngā Wai o Maniapoto (Waipa River) Act 2012.

Under these Acts, if there is a rule in a plan for the purpose of giving effect to the Waikato River Authority's Vision and Strategy and it is more stringent than the NESPF, that rule will prevail.

2.7.3 Heritage New Zealand Pouhere Taonga Act 2014

The purpose of the Heritage New Zealand Pouhere Taonga Act 2014 (HNZPTA) is to "*promote the identification, protection, preservation, and conservation of the historic and cultural heritage of New Zealand*". Under the HNZPTA, an 'archaeological authority' (consent) is required from Heritage New Zealand if any activity is likely to modify or destroy pre-1900 archaeology.

The HNZPTA states that an archaeological authority must be obtained where it is '*known or suspected'* that a pre-1900 site of human activity would be affected. The HNZPTA requirements apply in addition to any RMA controls and are not affected by the NESPF. It is important that foresters are aware of the requirements in the HNZPTA because work must stop immediately if an archaeological site is discovered during a *plantation forestry activity* (e.g. *earthworks*) and an archaeological authority is not in place. For more information on the HNZPTA requirements, see the Heritage New Zealand website[19].

2.7.4 Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011

The Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NESCS) commenced on 1 January 2012 and provide a nationally consistent set of planning controls and soil contaminant values. The NESCS ensures that land affected by contaminants in soil is appropriately identified and assessed before the activities specified in the NESCS are carried out and, if necessary, the land is remediated or the contaminants contained to make the land safe for human use.

Under the NESCS, land is considered to be potentially contaminated if an activity or industry on the Hazardous Activities or Industries List (HAIL) has been, is, or is more likely than not to have been undertaken on that land. *Plantation forestry activities* may be located on land affected or potentially affected by soil contaminants. In these situations, the requirements of the NESCS must be met in addition to the NESPF requirements. For more information, see the NESCS webpage on the Ministry for the Environment website[20].

[19] Refer: http://www.heritage.org.nz/about-us/heritage-new-zealand-pouhere-taonga-act.

[20] Refer: http://www.mfe.govt.nz/land/nes-assessing-and-managing-contaminants-soil-protect-human-health/about-nes

3 Roles and Responsibilities under the NESPF

3.1 COUNCIL RESPONSIBILITIES

This section provides an overview of council responsibilities under the NESPF which relates to their obligations under section 44A(7) and (8) to observe the NESPF and enforce that observation to the extent that their powers enables them to do so. More specific guidance is provided in the <NESPF Plan Alignment Guidance> and <NESPF Consenting and Compliance Guidance>.

3.1.1 Regional council and territorial authority functions under NESPF

The NESPF identifies whether the regional council and/or territorial authority has functions in relation to each regulation in the NESPF. This is set out in first regulation of each sub-part of Part 2, titled '*Functions for this subpart'*. This reflects the respective functions of regional councils and territorial authorities under sections 30 and 31 of the RMA and will help to avoid confusion and potential duplication in administration of the regulations.

In some cases, the relevant regional council and territorial authority both have responsibilities for the same permitted activity condition (e.g. the wilding tree risk and control condition for *afforestation* and *replanting*. However, for most *plantation forestry activities*, (i.e. *pruning and thinning to waste, earthworks*, *river crossing*, *harvesting*[21], and *mechanical land preparation*) it is the regional council that has functions for the NESPF regulations and territorial authorities have no role.

Table 4 below summarises the permitted conditions for each core *plantation forestry activity* that regional councils and territorial authorities have functions for. Section 5 provides guidance on how to interpret these permitted activity conditions.

Table 4: Regional council and territorial authority functions for NESPF permitted activity conditions.

Regulated Activity	Territorial Authority Functions	Regional Council Functions
Afforestation	Permitted conditions relate to: • Notice; • Wilding tree risk and control; • *Significant natural areas* and *outstanding natural features and landscapes*; • *Visual amenity landscapes;* and • *Setbacks.*	Permitted conditions relate to: • Notice; • Wilding tree risk and control; • *Significant natural areas* and *outstanding natural features and landscapes*; and • *Setbacks.*
Pruning and thinning to waste	Permitted activity – no conditions.	Permitted condition relates to *slash* management.
Earthworks	Permitted activity – no conditions.	Permitted conditions relate to: • Notice; • *Sediment*; • Forestry *earthworks* management plan; • Operation;

[21] The only territorial function condition in relation to *harvesting* is the notice condition.

Regulated Activity	Territorial Authority Functions	Regional Council Functions
		• *Setbacks;* • Fill and *spoil*; • *Sediment* and *stormwater control measures*; • Stabilisation; and • Roads, tracks, and landings
River crossings	N/A	Permitted conditions relate to: • Notice; • Effects on other structures and users; • Passage of fish; • Erosion and sediment discharge from use; • Maintenance; • Location; • Contaminant discharges and depositing organic matter; • Flow calculations; and • Conditions specific to various classes of *river crossings*.
Forestry quarrying	Permitted conditions relate to: • Notice; • Visibility; • *Setbacks*; and • Traffic management.	Permitted conditions relate to: • Notice; • *Setbacks;* • Deposition, stabilisation, and restoration; • *Sediment and stormwater control measures*; • Aquifers; and • Quarry erosion and sediment management plan.
Harvesting	Permitted conditions relate to notice.	Permitted conditions relate to: • Notice; • *Sediment;* • Harvest plan; • Ground disturbance; • Disturbance of margins of water bodies and the coastal marine area; and • *Slash* and debris management.

Regulated Activity	Territorial Authority Functions	Regional Council Functions
Mechanical land preparation	Permitted activity – no conditions.	Permitted conditions relate to: • Methods; • *Sediment;* and • *Setbacks*.
Replanting	Permitted conditions relate to: • *Setbacks*; and • Wilding tree risk and control.	Permitted conditions relate to: • *Setbacks*; and • Wilding tree risk and control.

3.1.2 Plan alignment and removing duplication and conflict

Sections 44A, 43B and 44A of the RMA outlines the relationship between NES and plan rules (including proposed rules). These sections require that local authorities identify rules in their plan(s) that duplicate or conflict with a provision in NES and remove that duplication or conflict *"as soon as practicable after the date the NESPF comes into force"* (section 44A RMA). These changes can be made without using the Schedule 1 process and councils may also choose to amend their plans to include references to the NESPF.

Once a council has amended its plan, there should be no confusion between the plan rules and the NESPF provisions in relation to *plantation forestry activities*. Refer to the <NESPF Plan Alignment Guidance> for detailed guidance on the plan alignment process.

3.1.3 Compliance monitoring

Local authorities are required to observe NES and enforce that observation to the extent that their powers enable them to do so (section 44A(7) and (8) of the RMA). In most cases, the NESPF enables *plantation forestry activities* to be undertaken as permitted activities, provided specified conditions are met. Observation of the NESPF will therefore often require monitoring of permitted activities to ensure the relevant conditions are complied with. It may also involve the processing and issuing of certificates of compliance in accordance with section 139 of the RMA.

While the NESPF allows most *plantation forestry activities* to be undertaken as permitted activities, this is not expected to significantly increase the compliance monitoring workload of councils. Councils should continue to decide which permitted activities should be monitored based on risk of non-compliance and adverse environmental effects. This risk-based approach to monitoring compliance under the NESPF is explained in the <NESPF Consenting and Compliance Guidance>.

The RMA was amended by the Resource Legislation Amendment Act 2017 so that it now enables councils to charge for monitoring any specified permitted activities in a NES, where the NES expressly empowers them to do so (section 43A(8) of the RMA). Councils may fix charges payable by a person who carries out a permitted activity for the monitoring of that activity, if they are empowered to charge for it by an NES (section 36(1)(cc) of the RMA).

Some *plantation forestry activities* regulated under the NESPF present a higher risk of adverse environmental effects where permitted activity conditions are not met. These activities should be prioritised for compliance monitoring by councils. Part 3 (Regulation 106) of the NESPF (local authority charges for monitoring permitted activities) provides that the local authority responsible may charge for monitoring the following permitted activities:

- *Earthworks;*
- *River crossings;*

- *Forestry quarrying*; and
- *Harvesting*.

Councils are not required to fix charges for monitoring these four specified permitted activities under the NESPF but may do so if they choose to. The <Section 3 of the NESPF Consenting and Compliance Guidance> provides more guidance on setting charges for monitoring permitted activities under the NESPF.

3.1.4 Consent processing

From 1 May 2018, councils will be required to process resource consents for *plantation forestry activities* under the NESPF in the following circumstances (or a combination of these):

- The NESPF states that resource consent is required. This may be due to the location of the *plantation forestry activity* with respect of the ESC or the inability to comply with a permitted activity condition(s). Where a resource consent is required under NESPF, the NESPF clearly sets out the matters that control is reserved over, and that discretion has been restricted to when making a decision, and imposing any consent conditions[22]; or
- A more stringent plan rule applies to the *plantation forestry activity,* that rule requires resource consent for the activity, and the rule meets the requirement of Regulation 6 (e.g. undertaking *earthworks* in an *Outstanding Natural Feature and Landscape*); or
- A district or regional plan rule requires resource consent and it deals with effects of *the plantation forestry activity* that is not regulated under the NESPF (e.g. non-compliance with a district plan rule relating to historic heritage).

The <section 6 of the NESPF Consenting and Compliance Guidance> provides more guidance on processing consents under the NESPF.

3.1.5 Receiving notice of plantation forestry activities

The relevant council must be provided with notice of certain *plantation forestry activities* as follows:

- **Regional council only**: *earthworks*, *river crossings*; and
- **Regional council and territorial authority:** *afforestation*, *forestry quarrying*, *harvesting*.

The purpose of the requirement to provide notice of these *plantation forestry activities* is to inform councils of these activities and enable them to undertake compliance monitoring where appropriate. Notice also enables the regional council to request a copy of the management plan when these are required to be prepared for *earthworks, forestry quarrying* and *harvesting*.

Generally, notice must be provided at least 20 and no more than 60 working days before the date the activity is planned to begin. However, where *earthworks*, *forestry quarrying* or *harvesting* is ongoing (for example, as part of a sustained yield operation), notice is to be provided annually (Regulations 25(2)(c), 52(2)(b), 64(2)(c)). There are also different timeframes for *salvage operations* for *earthworks* (2 days before *earthworks*) and *harvesting* (before *harvesting* begins).

It is good practice for councils to give formal recognition of when they receive notice, which should also include confirmation that the relevant notice condition has been complied with.

[22] The exception being the two types of discretionary activities under the NEPSF - *river crossings* not within the classes listed in Regulation 49 or when conditions relating to the disturbance of lake or river beds or *wetlands* are not complied with (regulations 97(8) and (9)).

Councils may also choose to set up a dedicated email address or similar to receive notice of all *plantation forestry activities* within their region/district.

More detailed guidance on the notice requirements in the NESPF is provided in <section 5.2. of the NESPF Consenting and Compliance Guidance>.

3.1.6 Management plan receipt and review

The NESPF requires management plans to be prepared for:

- *Earthworks* that involve more than 500m² of soil disturbance in any 3-month period;
- *Forestry quarrying* where the material being extracted exceeds 200m³ in a calendar year; and
- *Harvesting.*

The relevant regional council must be given notice of these activities and the regional council may request a copy of the management plan. If requested, the NESPF conditions state that the management plan must be provided to the regional council within 5 working days of the date on which the management plan must be in place (i.e. at least 15 working days before the activity is undertaken). Foresters are also required to advise the regional council of *material amendments* to management plans. This gives the regional council the opportunity to request a copy of the amended management plan. Territorial authorities have no functions in relation to the NESPF management plans.

An overview of the role of foresters and regional councils in developing, providing, receiving and reviewing NESPF management plans is provided in Table 5 below.

Table 5: Overview of management plan preparation, receipt and review.

Type of management plan	Relevant regulation(s)	Foresters role	Regional council role
Forestry *Earthworks* Management Plan	25(3), and 27 and Schedule 3	• If the NESPF requires a management plan, foresters must complete a management plan before the activity is undertaken which contains the relevant details required by the NESPF; • If the NESPF requires a management plan, foresters must inform council that a management plan is required at the same time as they give notice of the activity;[23] • The management plan must be provided if council requests it in writing; • If requested, the management plan must be provided to council within 5 working days of the date by	• Once council receives notice from a forester that a management plan is required, council may request a copy of the management plan in writing. Alternatively, council may decide not to request a copy of the management plan; • Council may require that the management plan is provided annually; • If a forester informs council that they have made *material amendments* to their management plan, council may request a copy of the amended management plan.
Quarry Erosion and Sediment	52(3), and 59 and Schedule 4		

[23] Specific notice of the requirement for a harvest plan is not required to be sent to council as all *harvesting* activities require a harvest plan.

Management Plan		which the management plan must be in place (timeframe varies for each activity); • Council must be advised of any *material amendments* to the management plan and a copy of the amended management plan must be provided to council on request; and • If a management plan is required, the activity must be carried out in accordance with that plan.	Where the council requests a management plan, then the expectation is that these will generally be assessed to determine whether the information requirements in the relevant schedule have been met.
Harvest Plan	64(3), and 66 and Schedule 3		

The obligations for foresters to develop management plans and provide these to the relevant regional council on request are mandatory. Conversely, regional councils do not have any obligations to receive and review management plans. Regional councils need to decide whether to receive and review a particular management plan on a case by case basis after receiving notice of the *plantation forestry activity* (e.g. due to its size, location, site specific environmental risks). Similar to the notice requirements above, it may also be beneficial for councils to set up a dedicated email address or portal to receive all NESPF management plans.

<Section 5.3 of the NESPF Consenting and Compliance Guidance> provides more detailed information on the NESPF management plan preparation and review process, and *material amendments* to management plans.

3.2 INDUSTRY RESPONSIBILITIES

3.2.1 Compliance with the NESPF

Foresters will be required to comply with the requirements of the NESPF from 1 May 2018. Before a *plantation forestry activity* commences, foresters will need to check the NESPF to assess what permitted activity conditions they need to comply with, and whether compliance can be achieved, or whether a resource consent is required.

Foresters are responsible for determining whether a *plantation forestry activity* is permitted prior to carrying out the activity. This may involve preparing documentation such as management plans and/or giving the relevant council notice of that activity before it begins. Confirming compliance may also involve discussions with the relevant council and often this can be beneficial to provide certainty to both parties.

If a resource consent is required under the NESPF, foresters will need to prepare a resource consent application and submit it to the relevant council(s). The NESPF generally includes focused matters of control and discretion when resource consent is required. These matters provide guidance on the effects that need to be assessed as part of any consent application. <Section 6 of the NESPF Consenting and Compliance> guide provide more detailed information on resource consents under the NESPF.

3.2.2 Existing and future activities – understand the relationship between NESPF, existing consents and existing use rights

An important consideration for foresters in complying with the NESPF is the distinction between existing and future planned activities as there are different legal relationships that apply. For future planned activities that have not commenced prior to 1 May 2018, these will need to comply with the relevant regulations in the NESPF and any local rules that may apply under Regulation 6 (where plan rules may be more stringent).

Section 43B(5)-(9) of the RMA sets out the relationship between existing activities (consented and other lawfully established activities) and the NESPF. In most cases, existing forestry activities will generally fall into one of the following categories:

- **Forestry activities authorised by resource consents granted prior to 3 August 2017**: resource consents granted prior to the gazettal of the NESPF (3 August 2017) will prevail over the NESPF (section 44B(5)-(6A) of the RMA). This relationship applies until the term of the consent expires and/or the authorised extent of works has been undertaken.
- **Forestry activities authorised by resource consents granted after 3 August 2017**: the relationship between resource consents being processed when NESPF was gazetted and the NESPF is determined by the date the notification decision was made on the application (section 43B(7) of the RMA):
    - If the decision on notification was made prior to 3 August 2017, the resource consent prevails
    - If the decision on notification was made after to 3 August 2017, the NESPF prevails over the resource consent. The activity can continue until 1 May 2018 then it will need to be reconsidered under the NESPF requirements.
- **Lawfully established activities (unconsented) that require a resource consent under NESPF due to a regional council regulation:** the standard existing use rights provision in section 20A apply in this situation under section 43B(9) of the RMA. Essentially, these activities can continue provided:
    - **The** the activity was lawfully established prior to NESPF coming into force;
    - The effects of the activity are "*the same or similar in character, intensity and scale*" as existed prior to the NESPF coming into force; and
    - A resource consent is applied for within 6 months of the NESPF coming into force.

  Therefore, there is a six-month window from 1 May to 1 November 2018 for foresters to apply for any regional consents that are required as a result of the NESPF coming into force.
- **Lawfully established activities (unconsented) that require a resource consent under NESPF due to a territorial authority regulation:** the standard existing use rights provision in section 10 apply in this situation. These existing use rights continue provided the tests in section 10 are meet: 1) the activity was lawfully established prior to NESPF coming into force; 2) the effects of the activity are *"the same or similar in character, intensity and scale*"; and 3) the use of land has not been discontinued for a period of more than 12 months.

<Section 2 of the NESPF Consenting and Compliance Guide> should be referred to understand these relationships in more detail as there are other requirements and scenarios that foresters need to be aware of.

3.2.3 Understanding where local rules might apply

As outlined in section 2.6, the NESPF allows plan rules to be more stringent than the NESPF in certain circumstances. Foresters will need to be aware of when a more stringent rule applies to their *plantation forestry activity* which may require discussions with the relevant council(s). The <NESPF Plan Alignment Guidance> provides detailed guidance on where plan rules may prevail over the NESPF.

There are also certain effects and activities related to forestry that are not regulated under the NESPF. These will continue to be managed under the relevant plan and in some cases also under other legislation (e.g. effects on cultural and historic heritage). Guidance on

activities and effects not regulated under the NESPF is also provided in the <NESPF Plan Alignment Guidance>.

If a forester is unsure whether any regional or district plan rules apply to their activity, they should contact the relevant council(s) for advice prior to undertaking any activity.

3.2.4 Preparing management plans

As outlined in Section 2.4, the NESPF requires the preparation of management plans for *earthworks* and *forestry quarrying* (above certain thresholds) and *harvesting* to enable site-specific risks to be identified and managed upfront. Foresters are required to prepare management plans in accordance with Schedules 3 or 4 of the NESPF.

Management plans must identify the site-specific risks of the activity on a map and identify what techniques the forester will use manage those risks. Foresters can draw on existing council and industry guidance when deciding which management practices they will use to manage the adverse effects of their proposed activity and meet the requirements of the NESPF. They can also draw on the Forestry Practice Guides that have been developed by MPI and the forestry industry which will be available on the Forest Owners Association website: https://www.nzfoa.org.nz/. These guides can be used to show the appropriate management techniques for site-specific environmental risks required as part of the NESPF management plans. However, it is up to foresters to decide which techniques they will adopt in their management plans.

<Section 5.3 of the NESPF Consenting and Compliance Guidance> provides more detailed information on the NESPF management plan preparation and review process, and *material amendments* to management plans.

4 Key concepts

There are a number of concepts, conditions and requirements that appear in multiple NESPF regulations. This section provides guidance on how to interpret these key concepts, in addition to the specific guidance on each *plantation forestry activity* and the general provisions in Sections 5-7 of this User Guide. The key concepts and requirements addressed in this section are:

- Activities located on multiple Erosion Susceptibility Classification (ESC) zones –bundling;
- The 2ha threshold certain *plantation forestry activities* on higher risk ESC land;
- *Setbacks*;
- Calculating slope of land;
- Adjoining and adjacent;
- Ownership and management;
- *Urban areas*;
- *Sediment, stormwater* and *water runoff control devices*;
- Water quality standards for *sediment* discharges; and
- Annual Exceedance Probability (*AEP*) mapping.

4.1 ACTIVITIES LOCATED ON MULTIPLE ESC ZONES –BUNDLING

It will be very common for a *plantation forest* to cover multiple ESC zones.

Where resource consent is required for a *plantation forestry activity* because part of the activity is located on *orange zone* or *red zone* land and the activity exceeds the relevant thresholds, then a **resource consent is only required for that part of the activity that falls within the ESC zones requiring consent (not the part that is permitted)**. In most cases, this will be straightforward to determine based on the ESC spatial dataset.

For example, *afforestation* may be proposed for a large area of land that is predominately green and *yellow zone* but there are also two areas of land which are *red zone* that have a continuous area of over 2ha. In this situation, resource consent is only required for the *red zone* land and the rest of the activity is permitted (provided the relevant permitted activity conditions are complied with).

There may also be situations when *harvesting* in multiple ESC zones within a single *plantation forest* may be a permitted activity, a controlled activity and a restricted discretionary activity. *Harvesting* could be located partly in *orange zone*, *red zone*, and *red zone* with *Land Use Capability Class 8e*. This would mean that *harvesting* is a permitted activity (*orange zone* where all the relevant conditions are complied with), a controlled activity (*red zone*)[24] and a restricted discretionary activity (*red zone Land Use Capability Class 8e*) in different parts of the *plantation forest*. A resource consent application would be required for the *harvesting* operation on the *red zone* and the *red zone* with *Land Use Capability Class 8e*.

There may be other situations when foresters apply for multiple consents at one time which have a different activity status. For example, a *harvesting* activity may require consent as a controlled activity but may also involve *earthworks* and the formation of a *river crossing* that

[24] Where it involves more than 2ha of *harvesting* in any 3-month period.

both require resource consent as a restricted discretionary activity. In this scenario a forester is likely to seek resource consent for all three activities under the NESPF at the same time.

In this scenario, there is some discretion to 'bundle' activities in such circumstances and apply the more restrictive activity status. This is done when multiple elements of the same proposal require consent and for, processing and decision-making purposes, those consents are 'bundled' by the consent authority and are considered together, rather than split up artificially[25]. However, case law[26] had emphasised that this approach to 'bundle' applications with different activity status is not appropriate where:

- One of the consents sought is for a controlled activity or restricted discretionary activity and where the scope of the consent authority's discretion in respect of one or more of the consents is relatively restricted; and
- The effects of exercising the two consents would not overlap or have consequential or flow-on effects on matters to be considered on the other application.

These tests could be met under the NESPF as the matters of control and discretion in the NESPF are relatively confined and specific, and the effects of some types of activities do not have much overlap.

<Section 6 of the NESPF Consenting and Compliance Guide> provides more detailed guidance on resource consents under the NESPF, including 'bundling' and global consents.

4.2 THE 2-HECTARE THRESHOLD

The NESPF uses a 2-hectare (2ha) threshold on *red zone* land to determine whether the following activities are permitted or whether a resource consent is required:

- *Afforestation* within a calendar year *(*Regulation 9(2)(b) and 16(2)(b));
- *Harvesting* within a 3-month period (Regulation 63(2)(b) and 70(3)(b));
- *Mechanical land preparation* within a calendar year (Regulation 73(2)(d) and 75(1)(b)); and
- *Replanting* within a calendar year (Regulation 77(2) and 80(1)).

For example, *afforestation* is a permitted activity in a *red zone* if the land being planted is '*2ha or less in any calendar year*' (and all other relevant permitted activity conditions are complied with). Resource consent is required as a restricted discretionary activity where the area proposed to planted in the *red zone* is greater than 2ha in a calendar year.

The purpose of this threshold is to permit a very small extent of an activity within a higher risk ESC zone where resource consent would otherwise be required. This is most likely to occur where most of an activity is in lower ESC risk zone(s) but a small amount extends into an adjacent higher risk *red zone* land.

The NESPF does not specify how to measure the 2ha threshold but there are two aspects to consider:

a) ***What land area is being considered – does this relate to legal land parcels or a plantation forest?***

The 2ha threshold for the activity applies to a **continuous 2ha area of *red zone* land within a single *plantation forest***, irrespective of whether the forest is made up of numerous land

[25] Note that this can also apply even if the consents are required by different plans as long as there is the requisite overlap between the plans - *Newbury Holdings Ltd v Auckland Council* [2013] NZHC 1172 and *Hamilton v Far North District Council* [2015] NZEnvC 12.

[26]Refer *South Park Corporation Ltd v Auckland City Council* [2001] NZRMA 350, *Urban Auckland Society for the Protection of Auckland City and Waterfront Inc v Auckland Council* [2015] NZRMA 235, and *North Canterbury Gas Ltd v Waimakariri District Council* EnvC A217/02 *2*

parcels and/or different land owners. The definition of *plantation forest* is not restricted by cadastral boundaries or ownership/management arrangements.

b) ***How the 2ha is spatially defined –does the area need to be continuous?***

The 2ha threshold is a continuous area of the activity on *red zone* land consistent with the definition of plantation forest in Regulation 3 of the NESPF, which refers to a forest as being a *"continuous forest cover of forest species*".

4.3 SETBACKS

Setbacks are a proven method to mitigate the adverse effects of *plantation forestry activities* on sensitive ecosystems, water bodies and adjacent land uses, and are a permitted activity condition used throughout the NESPF. The term *'setback'* in the NESPF is defined as:

> '*the distance measured horizontally from a feature or boundary that creates a buffer within which certain activities cannot take place'*.

It is common practice to measure *setbacks* as the distance from two things at their closest point (e.g. from a planted boundary of a *plantation forest* to stream edge) and it is expected that this approach will be applied to the *setbacks* in the NESPF. The NESPF includes *setbacks* within both regional council and territorial authority functions which are explained further below.

4.3.1 Regional council

Setbacks within regional council functions are included in the NESPF for *afforestation*, *earthworks*, *forestry quarrying*, *mechanical land preparation* and *replanting,* and for *fuel* storage and refuelling in the general provisions. These *setbacks* primarily relate to the distance from *plantation forestry activities* to different types of water bodies – including *perennial rivers*, lakes, *wetlands*, outstanding freshwater bodies, water bodies subject to Water Conservation Order, and the coastal marine area.

Neither the NESPF nor the RMA contain guidance on how to define the edge of water bodies. Many councils have existing methods to determine the spatial extent of different water bodies and it is expected that councils will continue to define edges of waterbodies as they do currently.

Perennial rivers

The NESPF includes different setbacks from *perennial rivers* with a *bank full channel width* of less than 3m and *perennial rivers* with a *bank full channel* width of 3m or more. The following NESPF definitions in Regulation 3 are important when considering and measuring setbacks to *perennial rivers:*

> ***bankfull channel width*** *means the distance across a river channel formed by the dominant channel-forming flow with a recurrence interval seldom outside a 1 to 2-year range (measured at a right angle to the channel flow)*
>
> ***perennial river*** *means a river that is a continually or intermittently flowing body of freshwater, if the intermittent flows provide habitat for the continuation of the aquatic ecosystem.*

Figure 4 from the Bay of Plenty Regional Land and Water Plan (Operative, 2008) shows how to measure the *bankfull channel width* of rivers.

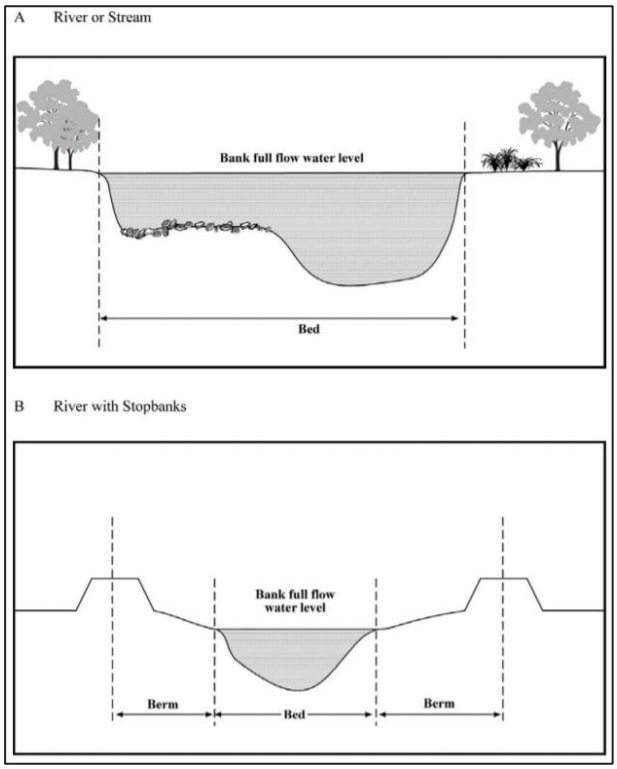

Figure 4: Bankfull channel width measurement examples (source: Bay of Plenty Regional Land and Water Plan (Operative, 2008)

Lakes

The term 'lake' is not defined in the NESPF. However, it is defined in the RMA as '*a body of fresh water which is entirely or nearly surrounded by land'.* Most regional plans tend to rely on this definition without further explanation as the boundary of a lake is usually easy to identify. The water levels in lakes may fluctuate seasonally, but the boundary of the lake should be measured from the water high point on the lake's shore or bank.

Wetlands

The definition of *wetland* in the NESPF is the same as the RMA definition of *wetlands* – '*includes permanently or intermittently wet areas, shallow water, and land water margins that support a natural ecosystem of plants and animals that are adapted to wet conditions'.* Often the edges of *wetlands* are harder to define than other waterbodies as their boundary can respond significantly to changes in rainfall throughout the year and include intermittent wet areas.

Outstanding freshwater bodies

Outstanding freshwater bodies are generally identified to give effect to Objective A2 of the NPSFM. These waterbodies are defined in the NESPF as:

> ***outstanding freshwater body*** *means a freshwater body that—*
>
> *(a) is identified in a regional policy statement or regional plan as having outstanding values, including any ecological, landscape, recreational, or spiritual values, however described; and*
>
> *(b) is identified in the policy statement or plan by its location, including by a map, a schedule, or a description of the area*

This definition is consistent with the definition in the NPSFM, with additional specificity on how the areas need to be identified in regional policy statements and plans for the *setbacks* to apply. *Outstanding freshwater bodies* are usually clearly defined in regional plans and policy statements, either through a spatial map or detailed written description of the location

and extent of the *water body*. The *setback* should be measured from the boundary of the *outstanding freshwater body* (however defined in the relevant regional plan or policy statement) to the closest edge of the relevant *plantation forestry activity*.

Water bodies subject to Water Conservation Order

Water bodies subject to Water Conservation Orders[27] are not typically mapped in regional plans – instead they are defined in an Order of Council. A full list of water bodies subject to Water Conservation Orders (and links to the relevant Order in Council) can be found on the Ministry for the Environment website[28]. Some Water Conservation Order application documents contain maps that may help with defining the extent of the *water body*, although the description of the *water body* in the Order in Council takes precedence.

If a *plantation forestry activity* is proposed in close proximity to a *water body* subject to a Water Conservation Order, the *setback* measurement should be from the boundary of that *water body* to the closest edge of the relevant *plantation forestry activity*.

In addition to the *setbacks* to Water Conservation Orders in the NESPF, section 43C of the RMA states:

- Water Conservation Orders that are more stringent than NES applying to water prevail over the relevant NES; and
- A more stringent NES applying to water will prevail over a Water Conservation Order.

Coastal marine area

The RMA defines the landward boundary of the coastal marine area as follows:

'the line of mean high water springs, except that where that line crosses a river, the landward boundary at that point shall be whichever is the lesser of—

(a) 1 kilometre upstream from the mouth of the river; or

(b) the point upstream that is calculated by multiplying the width of the river mouth by 5'

Coastal marine area *setbacks* should be measured from mean high water springs *(*MHWS) in accordance with the RMA definition. There is no single definitive method that can be used to measure MHWS as the approach taken needs to be customised to the individual location and take into account, amongst other things, the hydraulic gradient, the type and value of land concerned and the survey accuracy required[29]. Some regional councils have mapped MHWS for coastal planning purposes and can provide further guidance on how to measure MHWS if required. General guidance on determining MHWS can be found on the Land Information New Zealand website and in Baker and Watkins (1991) *"Guidance notes for the determination of Mean High Water Mark for land title surveys"* New Zealand Institute of Surveyors Professional Development Committee[30].

[27] 'Water Conservation Order' is defined in section 200 of the RMA but the definition does not assist with helping to define the boundaries of the *water body*.

[28]Refer: http://www.mfe.govt.nz/fresh-water/water-conservation-orders/existing-water-conservation-orders/table-water-conservation

[29] Determination of MHWS, Land Information New Zealand, refer: http://www.linz.govt.nz/data/geodetic-system/datums-projections-and-heights/vertical-datums/tidal-level-information-for-surveyors

[30] Refer: http://docs.niwa.co.nz/library/public/Baker1991.pdf

Significant natural area[31]

Setbacks from *significant natural areas* are required for *afforestation* and *replanting* as both a regional council and territorial authority *setback* as follows:

- *Afforestation* - a setback requirement of 10 metres from a *significant natural area* applies; and
- *Replanting* - new trees must not be planted in any area closer to the adjacent *significant natural areas* than the 'stump line'. The stump line is defined in Regulation 3 of the NESPF as *"points measured from the centre of the outer stumps of the plantation forestry trees previously harvested*".

The *significant natural area* setback should generally be measured from the boundary of the *significant natural area* as defined in the relevant plan or regional statement to the closest edge of the *plantation forest*. There may be instances when the *significant natural area* is not mapped and the boundary is not clear.

This is likely to be an issue when the relevant plan defines *significant natural areas* using significance criteria, as this form of identification is recognised in the *significant natural area* definition in the NESPF. In these instances, ecological advice or assessment may be required to determine the existence and boundary of the *significant natural area* and this should be discussed/confirmed with the relevant council.

4.3.2 Territorial authority

Setbacks within territorial authority functions are included in the NESPF for *afforestation*, *forestry quarrying*, and *replanting*. Setbacks for these activities should be measured from the stem of the nearest tree being planted for *afforestation*, the edge of the nearest quarry pit for *forestry quarrying*, and the 'stump line'[32] for *replanting*. The setbacks should generally be measured as follows:

(i) **Boundary of adjoining property** – to the cadastral boundary of the adjoining property that is not owned by the owner of the *plantation forest* or the land the *plantation forest* is located on (unless that adjoining property is also in *plantation forest*).

(ii) **Dwelling located on a different property from that of the *plantation forest*** –to the nearest exterior surface of a dwelling. Dwelling is defined in the NESPF as having the same meaning as the definition of dwelling house in the RMA, which can be used to assist interpretation[33].

(iii) **Shading** – refer section 5.1.10.

(iv) **Boundary of land zoned as a *papakainga* or an *urban area*** - to the closest boundary of the respective zone in a district plan.

(v) ***Significant natural area*** – refer to the regional council *significant natural area* setback section above.

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[31] Defined in the NESPF as "***significant natural area*** *means an area of significant indigenous vegetation or significant habitat of indigenous fauna that (a) is identified in a regional policy statement or a regional or district plan as significant, however described; and (b) is identified in the policy statement or plan, including by a map, a schedule, or a description of the area or by using significance criteria"*

[32] The stump line is defined in Regulation 3 of the NESPF as *"points measured from the centre of the outer stumps of the plantation forestry trees previously harvested*".

[33] Dwelling house is defined in the RMA as "*means any building, whether permanent or temporary, that is occupied, in whole or in part, as a residence; and includes any structure or outdoor living area that is accessory to, and used wholly or principally for the purposes of, the residence; but does not include the land upon which the residence is sited*".

4.4 CALCULATING SLOPE

The slope of the land is relevant for *earthworks* (regulations 24, 31 and 35) and *mechanical land preparation* (regulations 73 and 75). These regulations have a threshold for these two activities when they are carried out on land with a slope of over 25 degrees and over 35 degrees which will determine whether resource consent is required together with other factors (e.g. the location of the activity with respect to the ESC, volume of *earthworks*). There are two common ways to measure slope that may be used to *earthworks* and *mechanical land preparation:*

- Field measurement, using a clinometer or a smart phone; and
- GIS, using the GIS calculation capability from either topographic map information or LiDAR data.

Regulation 31 has different culvert diameter requirements for *forestry roads* and *forestry tracks* on steeper land. The purpose is to ensure that the roadside culverts have sufficient capacity to remove water that will reach the culvert in steeper areas. Measuring land slope under Regulation 31 therefore relates to the overall average slope of the site.

Regulations 24, 35, 73 and 75 have slope requirements that apply to activities potentially covering a much large area (i.e. the total amount of land where *earthworks* or *mechanical land preparation* are occurring). In these situations, a pragmatic approach is required. Generally, slope should be measured from the top of the ridgeline to the bottom of gully/stream, although this will vary depending on site specific factors.

4.5 'ADJOINING' AND 'ADJACENT'

The terms 'adjoining' and 'adjacent' are used throughout the NESPF in relation to nearby properties, *significant natural areas*, waterbodies, infrastructure etc. The terms 'adjoining' or 'adjacent' are not defined in the NESPF so it is important that councils and foresters have a consistent understanding of how to interpret these terms.

The term 'adjoining' is reasonably straightforward and applies to two things that are touching, or have a common joint or line[34]. The term 'adjacent' has been interpreted in different ways in a RMA context. For example, the Quality Planning website discusses how to interpret 'adjacent' as follows:

> *The term adjacent has a common meaning which is "close to, but/ not necessarily adjoining another site". The term adjacent has also been defined by the Courts as lying near or close; adjoining; continuous; bordering; not necessarily touching"*[35]*.*

The Courts have also commented that 'adjacent' is not a word to which a '*precise and uniform meaning is attached by ordinary usage*[36]*'* and that the '*degree of proximity required* [to be defined as 'adjacent'] *was held to be entirely a matter of circumstance*'[37]. This indicates that councils and foresters will need to use their judgement and consider the individual circumstances of each site when determining whether a property or feature is adjacent or not.

The key difference between adjoining and adjacent is that:

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[34] Merriam-Webster dictionary definition: https://www.merriam-webster.com/dictionary/adjoining .

[35] http://www.qualityplanning.org.nz/index.php/consents/to-notify-or-not, relying on case law from *Ports of Auckland v Auckland City Council* [1999] 1 NZLR 601.

[36] *Mayor Councillors and Citizens of the City of Wellington v Mayor Councillors and Burgesses of the Borough of Lower Hutt* [1904] AC 773, 775,

[37] *Ports of Auckland v Auckland City Council* [1999] 1 NZLR 601.

- 'Adjoining' expects that **two objects (usually properties or land parcels) will be physically touching;** and
- 'Adjacent' may include objects that touch but **may also include objects separated by a road, access strip or similar, or objects that are nearby[38].**

4.6 URBAN AREA

The NESPF permitted activity conditions refer to '*urban area'* in relation to the setbacks for *afforestation* (Regulation 14) and *forestry quarrying* (Regulation 54) and in the traffic management condition for *forestry quarrying* (Regulation 57). The NESPF does not apply to *forest species* within *urban areas* as this is excluded from the definition of *plantation forestry*. *Urban area* is defined in the NESPF as follows:

> *(a) means an area identified in a district plan or proposed district plan as being primarily zoned for residential, industrial, or commercial activities, together with adjoining special-purpose and open-space zones, however described; but*
>
> *(b) does not include an area zoned primarily for rural or rural-residential activities, however described.*

The types of *urban areas* referred to in this definition (e.g. residential, industrial, commercial) are the common types of urban zones found in district plans. The NESPF does not define these different types of urban zones so foresters and councils will need to determine how the zones in the relevant district plan fit with the NESPF definition of *urban area*.

The term 'however described' recognises that district plans use different terminology to describe zones. For example, a primarily residential zone may be referred to as 'Residential 1', 'Living Zone' or 'Large Lot Residential Zone'. A zone in a district plan therefore does not need to use the exact term 'residential', 'commercial' or 'industrial' to fall within the definition of *urban area* in the NESPF. The key test in the definition of *urban area* is the primary purpose of the zone which can usually be easily determined through the introduction section of the zone chapter and/or the zone objectives.

Table 6 summarises examples of zones in district plans that may fall within or outside the definition of '*urban area'* in the NESPF. These examples are current at the date of publication and each council will need to determine how the zones in their plan correspond with the definition of *urban area* in the NESPF.

Table 6: Examples of plan zones that are likely to fall within and outside the NESPF definition of urban area.

Plan	Example
Ashburton District Plan 2014 (operative in part)	The Residential C and D zones of the District Plan cover land at the rural/urban interface of Ashburton and other small towns in the district. Residential C: Medium-Low Density zone covers the outer, lower density suburban areas of the district, provides primarily for residential activities, and anticipates that the area will retain an open, planted character with high amenity levels for residents. Residential D: Low Density zone covers land that adjoins the urban edge of Ashburton and other small towns. It also provides primarily for residential activities and is an alternative residential environment to suburban living. Rural production activities are intended to remain a key feature of the zone, however, and it is identified as a 'rural-residential interface' area.

[38] Adjacent can mean 'near to – in the vicinity or neighbourhood of': *McBride v Wellington City Council* (28 July 2009) HC WN CRI-2009-485-44, and *Wellington City Council v McBride* (22 August 2007) HC WN CRI-2007-485-33.

	Under the NESPF, Residential C zone is likely to be considered an 'urban area', while Residential D zone is likely to be excluded as it is used primarily for rural-residential activities. The key differences are: • Residential C zones are located in urban areas, not 'interface' areas like Residential D zones. • Residential D zones also anticipate rural production activities, which means the zone has more a rural character.
Auckland Unitary Plan 2016 (operative in part)	The Unitary Plan has a 'Future Urban' zone, which is applied to rural land that is intended to be used for urban purposes at some point in the future. Urban residential development in this zone is a non-complying activity to discourage premature, unplanned urban development occurring prior to a full zoning plan change. As the primary purpose of the zone is to prevent urban development and allow the current rural activities to continue, the Future Urban zone is likely to be excluded from the definition of 'urban area' under the NESPF.
South Taranaki District Plan 2015 (proposed)	The District Plan has a 'Rural Industrial Zone' that covers existing large-scale industrial processing activities that depend on primary products or natural resources from the rural environment. Although some primary production activities may take place within these zones, the primary purpose is to provide for activities that are industrial in nature and the character of the zone is industrial rather than rural. As such, the 'Rural Industrial Zone' is likely to fall within the definition of 'urban area' under the NESPF.

4.7 OWNERSHIP AND MANAGEMENT

Several regulations refer to land that is in the same 'ownership' and/or 'management' of the *plantation forest* as a way of identifying land included in, or exempt from, a permitted activity conditions. While some regulations refer to the owner of the *plantation forest* or 'ownership', other regulations refer to land under the same or different 'ownership or management' from the land where the *plantation forestry activity* is occurring. The terms 'managed' or 'management' are used as a way of capturing land that is leased for *plantation forestry* but not owned by the *plantation forest* owner[39].

The exception is Regulation 14(1)(a), which states:

> *'Afforestation must not occur within 10 m of the boundary of an adjoining property that is not owned by the owner of the plantation forest or the land it is located on (unless that adjoining property is also plantation forest)'*

In effect, this has the same meaning as other regulations that refer to 'ownership or management'. In this situation, it is intended to ensure that the *setbacks* don't apply where the adjoining property is either owned by the owner of *plantation forest* or the land it is located on.

4.8 SEDIMENT, STORMWATER AND WATER RUNOFF CONTROL MEASURES

Regulations 31 (*earthworks*) and 56 (*forestry quarrying*) require *sediment control measures, stormwater control measures* and/or *water run-off control measures* to be installed and maintained as a permitted activity condition. These controls are intended to avoid or mitigate adverse environmental effects and meet other performance based permitted activity conditions, such as those relating to the effects of sediment discharges in receiving water bodies. These devices are defined in Regulation 3 of the NESPF follows:

[39] Regulations 11(5)(b), 53, 54(1)(a), 54(2), 57(a), 79(6)(b), 98(2), 98(3) and 100(3).

***"Sediment control measures** means structures or measures to slow or stop water with sediment in it, so that the sediment will drop out of suspension before the water from the site reaches a water body';*

***Stormwater control measures** means structures or measures to manage stormwater on formed surfaces, to reduce the volume or velocity of water run-off so as to reduce its power to entrain sediment'; and*

***Water run-off control measures** means structures or measures to reduce the volume or velocity of water run-off and consequently reduce its power to entrain sediment.*

The most appropriate measure to stop or slow water and reduce sediment transport, and to reduce the velocity and volume of water run-off to avoid adverse effects on downstream waterbodies, will need to be determined on a case-by-case basis, with consideration given to site-specific factors such as topography, rainfall, the types of *sediment* and soils present.

There is a range of existing council and/or forestry industry guidance that provides detailed information on the different types of *measures* that can be used to manage *sediment*, stormwater and water run-off. MPI has worked with councils and industry to develop Forestry Practice Guides that will provide more detailed guidance on these measures, including design and construction considerations and how they may be used to meet the performance based conditions in the NESPF.

The sections below provide some examples of *sediment, stormwater and water run-off control measures.* **This list is not exhaustive,** and it will be up to foresters to determine what management practices they use to meet the requirements in Regulations 31 and 56.

4.8.1 Silt fences

Silt fences are designed to intercept *sediment* laden run-off and filter out the larger components. They have a fence-like construction with a layer of filter fabric secured to it. Silt fences and the larger "super" silt fences are a short-term solution to reduce *sediment* until the site stabilises and vegetation re-establishes.

It may be appropriate to use silt fences:

- To reduce the risk of *sediment* entering waterways or other sensitive sites;
- In conjunction with *sediment* traps and ponds and low flow cut outs and flumes; and
- On low gradient sites or for confined areas where the contributing catchment is small, such as short steep batter fills and around very minor water courses.

Avoid using silt fences in channels or concentrated flow paths to capture sediment or reduce water velocity.

4.8.2 Sediment traps and soak holes

Sediment traps and soak holes are small structures that capture *sediment* laden runoff, reducing the amount of *sediment* that can enter waterways or sensitive sites. They are both constructed in a similar way but work differently:

- *Sediment* traps are used to help settle out heavier *sediment*-laden water before it is discharged; and
- Soak holes are constructed in porous soils like sand and pumice where *sediment* containing water can soak through them.

Within *plantation forests*, sediment traps and soak holes are generally located close to *forestry roads* and *landings*. They are part of the package of sediment and water controls techniques that increase the life of the road and reduce maintenance costs and potential sedimentation.

It may be appropriate to use *sediment* traps and soak holes:

- To help limit the movement of highly mobile *sediment;*
- To limit the risk of *sediment* entering waterways or other sensitive sites; and
- In conjunction with other *water run-off measures*, where necessary, such as at the start or end of water table drainage *culverts*, cut-outs, flumes or prior to silt fences.

Sediment traps and soak holes should be avoided where:

- They create safety hazards such as on blind areas of roads or too close to the road carriageway. On steep terrain adequate size cut-outs are difficult to construct near *culvert* mouths as they can encroach into the roadway; or
- The site doesn't allow for suitable construction. For example, where they increase the risk of bank collapse; or
- They are located within the annual flood flow of rivers.

4.8.3 Sediment retention ponds

Sediment retention ponds are larger versions of silt traps. They are used to settle out some of the moderate to fine *sediment* before it is discharged. These structures have capacity to hold large volumes of *sediment* laden water. Decanting earth bunds are a retention pond variant that use a pipe structure in the pond centre as an outlet.

It may be appropriate to use *sediment* retention ponds:

- Where *sediment* has the risk of entering waterways or other sensitive sites;
- To help limit the movement of highly mobile *sediment*; and
- In conjunction with other water control structures, where necessary, like at the start or end of water table drainage *culverts*, cut-outs, flumes or prior to silt fences.

Sediment retention ponds should be avoided where:

- They create safety hazards (e.g. if they are too close to the road carriageway); or
- The site doesn't have sufficient construction area, as they can be significant structures; or
- They are located within the annual flood flow of rivers; or
- Where geology and topography are unsuitable and construction of a retention pond could contribute to slope failure.

4.8.4 Water table drains

The purpose of a water table drain is to channel and direct water from cut banks or berms along the road to *culverts* or cut-outs. They should be used on *forestry roads* where water needs to be directed along them and can also divert water from across the road surface. This keeps the subgrade drier, which makes for a stronger *forestry road.*

Water needs to be regularly directed off the *forestry road* to stop water table drain scour. To help reduce scour, water tables can be rock-armoured and have check dams to assist in reducing water speed and potential for erosion.

4.8.5 Flumes

Flumes help to protect *fill* from erosion by conveying stormwater runoff to more stable ground. Flumes can be used to:

- Safely convey runoff from the top of a batter slope to the bottom;

- Prevent erosion from concentrated discharges on to the exposed slope face; and
- Direct water through additional sediment control structures such as *slash*, *sediment* traps or silt fences.

Forestry flumes are often made of half sections of *culvert* pipes. *Culvert* sock flumes are also used where standard fluming would not work effectively. Galvanised iron sheets are not suitable fluming as they are prone to failure, they don't bend to follow the land shape and increase the water speed.

4.8.6 Mulch

Spreading mulch made of bark, woody material or hay intercepts rain and protects the soil from sheet and rill erosion. Mulch also retains s soil moisture, which helps establish vegetative cover more quickly. It can be used in conjunction with grassing.

Use mulch where:

- An instant barrier is required to reduce surface erosion on sites where soil erosion is high risk and may cause problems to the site infrastructure or adversely affect receiving waterbodies; or
- Hydro seeding would be too costly; or
- Seasonal timing won't allow conventional sowing or hydro seeding methods; or
- Once road or track construction, water control, and erosion and sediment control structures are completed.

Avoid using mulch on steep and exposed *earthworks* where wind and rain may blow or wash the mulch away.

4.9 WATER QUALITY STANDARDS

Regulations 26, 56, 65, 74(6) and 90 are permitted activity conditions in the NESPF relating the effects of sediment discharges in receiving waters. These conditions require that the relevant *plantation forestry activities* must be managed so that it does not give rise to any of the following effects in receiving waters *'after reasonable mixing'*:

- Any conspicuous change in colour or visual clarity:
- The rendering of fresh water unsuitable for consumption by farm animals:
- Any significant adverse effect on aquatic life.

These standards have been adapted from section 70(1) of the RMA[40]. They are qualitative standards and there are no quantitative standards within the NESPF to assist with interpreting these conditions. This is due to the lack of information available at a national level to accurately apply numeric standards for diffuse discharges to all waterbodies in New Zealand. The NESPF also does not specify spatial and temporal parameters for 'reasonable mixing' as the appropriate reasonable mixing zone can vary depending on the type of receiving *water body.* For example, case law has noted that reasonable mixing is a question of fact in each case [41].

Many councils already have definitions of '*reasonable mixing'* in their plans and/or supporting guidelines. Similarly, some councils have defined what is deemed to be a '*conspicuous change'* in visual clarity, including through the use of quantitative parameters. However,

[40] Omitting the sections referring to conspicuous oil or grease films, scums or foams, floatable or suspended materials or objectionable odour as these are not relevant to plantation forestry activities.

[41] *Paokahu Trust v Gisborne District Council* (A162/08).

these have often been developed for point-source discharges of contaminants not usually present in waterbodies and vary from council to council. In the absence of quantitative parameters in the NESPF, it is expected that councils will continue to use their own definitions or guidelines to help interpret NESPF conditions relating to the effects of sediment discharges in receiving waters.

There is some case law to assist in the assessment of a "*conspicuous change in colour or visual clarify".* In *Maungaharuru-Tangitu Trust v Hawke's Bay Regional Council* [2016] NZEnvC 232, the Environment Court concluded that conspicuous does not simply mean visible but rather implies some higher degree of visibility. For the discharge to be conspicuous, the Court considered that it would need to catch the eye. However, the Court also recognised the problems with applying such a test due to the inherent subjectivity of this assessment and the potential for different perspectives depending on the position from which the discharge is viewed.

4.10 ANNUAL EXCEEDANCE PROBABILITY

Annual Exceedance Probability (*AEP*) is used in a number of conditions in the NESPF, such as:

- The condition for *pruning and thinning to waste* requiring *slash* to be removed from certain areas (Regulation 20(2));
- The design of single culvert *river crossings* (Regulation 46(1)); and
- *Slash* management during *harvesting* (Regulation 69(3)).

AEP is defined in the NESPF as follows:

> *'means the annual exceedance probability, which is the chance of a flood of a given size (or larger) occurring in any one year, usually expressed as a percentage'*

The *AEP's* expressed in the NESPF are either as a 2% or 5% threshold (depending on the regulation). *AEP* is the inverse of event frequency, so essentially represents a "one in fifty" or "one in twenty" year event. *AEP* is used to:

- Calculate an area of land that may be under water during a flood. This will generally be on a proxy basis, based on the observed levels of previous flood damage;
- Determine the size of a rainfall event, which will be assessed from rainfall records coupled with statistical analysis of intensity and duration to calculate event size; or
- Estimate flood flows which are required for the design of all *river crossings*, except fords, under Regulation 45 using one of the methods referred to in items 3, 4 and 5 of Schedule 2 (Regulation 45).

To calculate *AEP*, the National Institute of Water and Atmosphere (NIWA) provides an on-line tool: High Intensity Rainfall Design System (HIRDS). HIRDS offers landowners, planners and engineers more certainty about the frequency of high-intensity rainfalls, enabling them to better design stormwater drainage systems and other structures. The web-based programme can estimate rainfall frequency at any point in New Zealand and can estimate rainfall depths for different *AEP* events. The HIRDS tool can be found at the following webpage: https://hirds.niwa.co.nz/

5 GUIDANCE ON FORESTRY ACTIVITIES

Subparts 1-8 of Part 2 of the NESPF contain regulations setting out activity status, permitted activity conditions, and matters of control and discretion for eight core *plantation forestry activities*. This section provides an overview of each of these core *plantation forestry activities*, a summary of the permitted activity conditions and consent requirements, and guidance on key permitted activity conditions.

5.1 *AFFORESTATION* (REGULATIONS 8 - 17)

5.1.1 Overview of the plantation forestry activity

Afforestation is a regulated activity under Regulation 5(1)(a) of the NESPF. The NESPF regulations relating to ancillary activities (Part 2, subpart 9)[42] and the general provisions of the NESPF (Part 2, subpart 10) must also be complied with as relevant when undertaking *afforestation*.

Afforestation is defined in the NESPF as follows:

> *(a) means planting and growing plantation forestry trees on land where there is no plantation forestry and where plantation forestry harvesting has not occurred within the last 5 years; but*
>
> *(b) does not include vegetation clearance from the land before planting*

The *afforestation* regulations apply to new planting where there has been no previous *plantation forest* or where there was a previous *plantation forest* and 5 years has lapsed since the last harvest. The *replanting* regulations apply if less than 5 years has lapsed since the last harvest.

Planting forestry trees is usually done manually, although mechanical tree planters may be used where site conditions permit – which is typically low gradient, level terrain. In some cases, *vegetation clearance* may be required before *afforestation* can occur. *Vegetation clearance* prior to *afforestation* is not regulated under the NESPF and this continues to be managed under the relevant plan rules (Regulation 5(3)(a)).

5.1.2 Potential adverse environmental effects

Afforestation can have a variety of environmental benefits and some potential adverse environmental effects. The potential adverse effects are generally not related to planting but to the longer-term effects relating to the location in which the *plantation forest* is established. Potential adverse environmental effects from *afforestation* are:

- Soil slip erosion caused by the weight of trees established on steep sites with shallow soils;
- Landscape and amenity effects, such as shading, or modification of *outstanding natural features and landscapes*; and
- Potential for *wilding conifer* spread into vulnerable areas which can have adverse effects on landscapes and affect the productivity of other land uses.

[42] Slash traps, indigenous vegetation clearance, and non-indigenous vegetation clearance in subpart 9, Part 2 of the NESPF.

When establishing a new *plantation forest*, consideration of its location and design is also needed to avoid long-term environmental, safety and operational issues (e.g. the ability to safely harvest the crop with limited effects on neighbouring properties and receiving waterbodies).

Consideration of the future effects from *afforestation* is also a relevant consideration when *afforestation* of more than 2ha is proposed on *red zone* land (Regulation 17(4)). A key potential adverse effect in this respect relates to the potential for shallow landslides in severe storms after *harvesting* entraining stumps and *slash*, with the woody debris creating destructive debris flows.

5.1.3 Permitted activity and conditions

Afforestation is a permitted activity if:

- **Territorial authority** – regulations 10, 11, 12, 13, and 14(1) and (2) are complied with; and
- **Regional councils** – regulations 10, 11, 12, and 14(3) are complied with, in any:
    - Green, yellow or *orange zone*; or
    - *Red zone* where the land proposed for *afforestation* is 2ha or less in any calendar year.

A summary of the permitted activity conditions for *afforestation* is provided in Table 7. For the exact wording of the conditions, refer to the NESPF which can be accessed through the hyperlinks in in the table.

Table 7: Summary of permitted activity conditions for afforestation.

Condition	Territorial Authority	Regional Council
Notice (Regulation 10)	• Written notice must be given of proposed *afforestation* location, proposed setbacks, and planned start and end date of planting; and • Notice must be provided to council at least 20 and no more than 60 working days before the planned start date.	
Wilding tree risk and control (Regulation 11)	*Calculator* • The *wilding tree risk calculator* must be applied by a *suitably competent person* using *the wilding tree risk guidelines* when planting a *conifer species;* • *Afforestation* must not be carried out in an area with a *wilding tree risk calculator* score of 12 or more; and • The wilding tree risk calculation sheet and score must be supplied to council at the same time as notice is given and must have been completed no more than six months prior to notice. *Control measures* All wilding conifers must be removed at least every 5 years after *afforestation* if established in *wetlands* or *significant natural areas*: • On the same property as the *afforestation*; and • On adjacent properties under the same ownership or management as the property where the *afforestation occurs.*	
Significant natural areas and outstanding natural features and	*Afforestation* must not occur within a *significant natural area* or an *outstanding natural feature or landscape.*	

landscapes (Regulation 12)		
Visual amenity landscapes (Regulation 13)	*Afforestation* must not occur within a *visual amenity landscape* if rules in the relevant plan restrict *plantation forestry activities* within that landscape.	N/A
Setbacks (Regulation 14)	*Afforestation* must not occur: • Within 10m of any adjoining property boundary that is not owned by the owner of the *plantation forest* or the owner of the land the forest is located on (unless the adjoining land is also used for *plantation forestry*); or • Except in the case of a dwelling located on the same property as the proposed *afforestation*, within the greater of: ○ 40m of a dwelling; and ○ A distance where the forest species when fully grown would shade a dwelling between 10 am and 2 pm on the shortest day of the year, except where topography already causes shading. • Within 30m of the boundary of land zoned in a district plan as a ***papakāinga*** or *urban area;* or • Within 10m of a *significant natural area;* or • Where a *plantation forest* tree, when fully grown, could shade a paved public road between 10 am and 2 pm on the shortest day of the year, except where the topography already causes shading.	*Afforestation* must not occur within: • 5m of a: ○ *Perennial river* with a *bankfull channel* width of less than 3m; or ○ *Wetland* larger than 0.25ha. • 10m of a: ○ *Perennial river* with a *bankfull channel* width of 3m or more; ○ Lake larger than 0.25ha; or ○ *Outstanding freshwater body;* or ○ *Water body* subject to a water conservation order; or ○ *Significant natural area;* or • 30m of the coastal marine area.

5.1.4 Determining whether a resource consent is required

The flow chart in

Figure 5 shows the process to determine whether *afforestation* requires resource consent, the activity status when resource consent is required, and whether consent is required from the relevant regional council and/or territorial authority. *Afforestation* is also required to comply with the ancillary activity regulations (Part 2, subpart 9) and the general provisions (Part 2, subpart 10) as relevant to be a permitted activity.

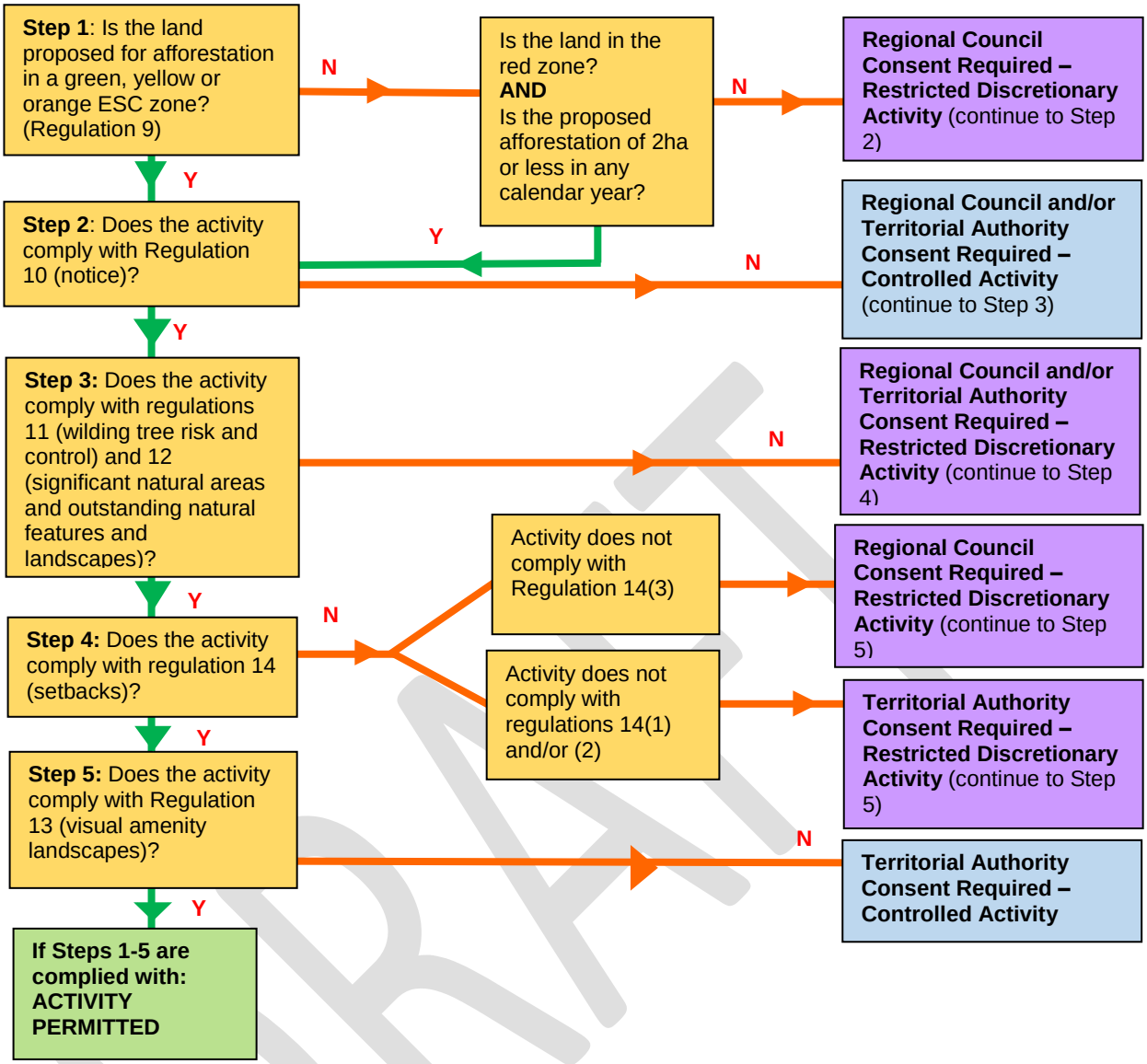

Figure 5 - Flow chart to determine when resource consent is required for afforestation.

5.1.5 Guidance on key regulations for *afforestation*

This section provides guidance on a selection of *afforestation* regulations to assist with interpretation and implementation.

5.1.6 Regulation 10 – notice

The relevant regional council and territorial authority must be provided with notice for *afforestation* at least 20 and no more than 60 working days before *afforestation* is planned to begin. This notice must be provided in writing and include the following information:

1. **Location of *afforestation***: this should include a legal description of the land that *afforestation* is to occur on, and/or a map showing the boundary of the area proposed to be planted; and
2. **Proposed *setbacks***: this must be accompanied by the description of how the *setbacks* were calculated. It should contain sufficient information to give the relevant councils

confidence that the *setback* conditions will be complied with (refer to section 4.3 for general guidance on calculating *setbacks*); and

3. **Timeframes for *afforestation***: dates that *afforestation* is planned to begin and end.

<Section 5.2. of the NESPF Consenting and Compliance Guide> provides more detailed guidance on the notice provisions in the NESPF, including formally receiving and acknowledging notice.

5.1.7 Regulation 11 – Wilding tree risk calculator and control

Regional councils and territorial authorities both have functions relating to Regulation 11 as each council has functions in relation to indigenous biodiversity (sections 30(1)(ga) and 31(1)(b)(iii)) of the RMA).

If *afforestation* meets all the permitted activity conditions in Regulation 11(1)-(3), foresters must provide the relevant regional council and territorial authority with a copy of the *wilding tree risk calculator* calculation sheet and score at the same time they provide them with notice under Regulation 10 (Regulation 11(4)). Both councils require this information to confirm compliance.

If *afforestation* does not meet any of the permitted activity conditions in Regulation 11, a resource consent is required from both councils as a restricted discretionary activity under Regulations 16(1) and 16(2)(a). In this situation, it is expected that regional councils and territorial authorities will work together to reduce duplication and focus their considerations on the *wilding conifer* risk effects most relevant to their respective RMA functions (e.g. biodiversity, landscape effects, effects on regionally significant land).

Calculator

An overview of the *wilding tree risk calculator* is provided in section 2.5.2 and the MPI webpage[43]. The *wilding tree risk calculator* must be used by a *suitably competent person* in accordance with the *wilding tree risk guidelines* to comply with Regulation 11(1)(b). For the purposes of completing the calculator, a *suitably competent person* is defined in the NESPF as:

> *'…a person with—*
>
> *(a) tertiary qualifications in silviculture and forest ecology and at least 2 years' experience in the field of silviculture; or*
>
> *(b) at least 5 years' experience in silviculture that includes forest establishment.'*

It is expected that most large forestry companies will have staff or contractors who will meet this definition and are capable of using the *wilding tree risk calculator*. For smaller operators or farmers seeking to establish woodlots, they may have to engage specialist assistance to complete the calculator.

Council staff should not use the calculator on behalf of foresters in the role of a *suitably competent person* as this is a conflict of interest (i.e. council staff should not act as both the original assessor and the consent authority determining compliance). However, qualified council staff may provide assistance and advice to foresters to help them comply with Regulation 11.

Foresters are required to submit a copy of the wilding tree risk calculation sheet to both the regional council and the territorial authority at the same time as they provide notice (Regulation 11(4)). If a council has concern about who carried the calculation out or how it has been carried out, the forester should be contacted to discuss the score and obtain further

[43] Refer: https://www.mpi.govt.nz/growing-and-harvesting/forestry/national-environmental-standards-for-plantation-forestry/wilding-tree-risk-calculator/

clarification where required. However, foresters have no obligation to recalculate or resubmit the score and sheet if they comply with the requirements in Regulation 11.

If the calculator score is 12 or over, resource consent will be required as a restricted discretionary activity from both the regional council and territorial authority. Both councils can only consider those matters that discretion is restricted to in Regulation 17(1) when processing the consent application and imposing any consent conditions. Regulation 17(1)(a), (b) and (d) are relevant as follows:

(a) *The level of wilding tree risk:* how will wilding trees affect the surrounding environment managed under each council's separate functions under sections 30 and 31 of the RMA? Are there any particularly sensitive receiving environments that would be adversely affected by *wilding conifers*?

(b) *The mitigation proposed to restrict wilding conifer spread, including the species to be planted:* are the mitigation options proposed fit for purpose or are there other options to reduce the risk?

(c) …[only relevant where Regulation 12 is not complied with because *afforestation* in located in a *significant natural area* or *outstanding natural features or landscapes*]…

(d) *The information and monitoring requirements:* will these enable the potential adverse effects of *wilding conifers* to be monitored as addressed in the future.

Control measures

Regulation 11(5) states:

> *All wilding conifers must be removed at least every 5 years after afforestation where established in wetlands or significant natural areas—*
>
> *i. on the same property on which the afforestation activity occurs; and*
>
> *ii. on any other adjacent properties under the same ownership or management as that of the property on which the afforestation activity occurs*

The purpose of this condition is to control the spread of *wilding conifers* into sensitive and valued receiving environments. Wilding conifer is defined in Regulation 3 as *"self-established conifer species tree resulting from seed spread from plantation forestry, shelter belts, amenity planting, or an already established wilding conifer species tree population".*

The 5-year timeframe is intended to provide some flexibility to foresters as to when these control measures are implemented and enables this to be tied in with other *plantation forestry activities* such as *pruning and thinning-to-waste*. It also recognises that wilding conifers can cone within 3 years so it is effective to remove within 5 years (generally the sooner they are removed the better).

The reference to all *wilding conifers* being 'removed' in Regulation 11(5) does not mean that a *wilding conifer* must be uprooted and entirely taken away, as this could adversely affect the *wetlands* and *significant natural area* they have established in. A *wilding conifer* can also be 'removed' by killing the tree (e.g. poisoning, felling) but leaving it in situ. This ensures its ability spread seeds is removed which is the main purpose of removing the *wilding conifer*. This may also be a preferable technique to physically removing the whole tree from the site for both environmental effect and cost reasons.

The condition is limited to *wilding conifers* on the same property or adjacent properties under the same ownership or management - the NESPF cannot require foresters to implement control measures on land in different ownership or management. It also only applies to the property and adjacent properties to where the *afforestation* activity has occurred.

In summary, the requirement to remove *wilding conifers* in Regulation 11(5) applies to *wilding conifers* that:

- Have established in a *significant natural area* or *wetland* (i.e. removing wildings from surrounding areas of land is not required); and
- Are on land that has the same ownership or management as the property *afforestation* is occurring; and
- Are on the same property as the *afforestation* activity or adjacent to that property. It does not apply to properties that may be part of the *plantation forest* but not adjacent to the *afforestation* activity (e.g. other properties within the *plantation forest* at different states of the forestry life cycle).

5.1.8 Regulation 12 – Significant natural areas and outstanding features and landscapes

Regulation 12 states '*Afforestation must not occur within a significant natural area or an outstanding natural feature or landscape*'. *Outstanding Natural Feature or Landscape* and *Significant Natural Area* are both defined in Regulation 3 of the NESPF and these are areas recognised under sections 6(b) and 6(c) of the RMA respectively.

Regulation 8 states that both regional councils and territorial authority have functions in relation to Regulation 12.

Where a resource consent is required because Regulation 12 is not complied with, the council's discretion in consideration of the application and imposition of any conditions is restricted to those matters set out in Regulation 17(1). Regulation 17(1)(c) the relevant consideration as follows:

> "the effects of *afforestation* on the values of the *significant natural area* or *outstanding natural feature or landscape"*.

5.1.9 Regulation 13 – Visual amenity landscapes

Regulation 13 states 'afforestation must not occur within a visual amenity landscape if rules in the relevant plan restrict plantation forestry activities within that landscape'. A visual amenity landscape is defined in Regulation 3 of the NESPF as:

> ***visual amenity landscape*** *means a landscape or landscape feature that—*
>
> *(a) is identified in a district plan as having visual amenity values, however described; and*
>
> *(b) is identified in the policy statement or plan by its location, including by a map, a schedule, or a description of the area*

Regulation 13 ensures that where a district plan has identified *visual amenity landscapes* and contains rules to restrict *plantation forestry activities* in these landscapes, resource consent is required for *afforestation*. This provides a level of protection and regulatory oversight for these landscapes. It is recognised that not all *visual amenity landscapes* would be adversely affected by *afforestation* and some plans do not restrict *plantation forestry activities* within these landscapes. Regulation 13 therefore only applies where there are rules in place to restrict *plantation forestry activities* within the identified landscape.

When determining which rules '*restrict plantation forestry activities within that landscape'*, an existing visual amenity landscape rule does not have to specifically refer to '*plantation forestry'* or '*plantation forestry activities'* to qualify. However, the rules do need to restrict a *plantation forestry activity* as defined in the NESPF (i.e. the activities in Part 2, subparts 1-9). The *plantation forestry activity* most likely to be restricted in a *visual amenity landscape* is *earthworks*. However, it is important to ensure that the *earthworks* rules are specific to the landscape and are not simply underlying zone *earthworks* rules. This equally applies to rules relating to any other *plantation forestry activity*.

If Regulation 13 is not complied with then resource consent is required as a controlled activity under Regulation 15(3). The matters of control in Regulation 15(4) allow territorial authorities to impose consent conditions as appropriate to manage the effects on the values of the *visual amenity landscape*. Any consent conditions imposed must be reasonable and cannot negate the consent being granted and there is extensive case law on this point[44]. The types of valid conditions that would allow *afforestation* to occur but mitigate the adverse effects of the *afforestation* on the values of the visual amenity landscape will necessarily be site specific. Conditions may focus on restricting planting in certain key areas of the landscape (e.g. a prominent ridgeline or within a viewshaft).

Table 8 below provides examples of district plan rules that restrict and do not restrict *plantation forestry activities* in a *visual amenity landscape*. These examples are current at the time of publication and district councils will need to determine how any *visual amenity landscape* in their plan meets the definition in the NESPF.

Table 8: Example of plan rules within visual amenity landscapes.

Plan	Example
Selwyn District Plan 2016 (Operative)	Visual amenity landscapes are identified spatially on the planning maps. Chapter C2 of the district plan contains rules specific to *plantation forestry*, including the following: *2.2.1.1. "The planting or harvesting of any plantation shall be a permitted activity if all of the following conditions are met: The plantation is not located in the areas shown on the Planning Maps as the Port Hills, Malvern Hills, High Country or the Visual Amenity Landscape on the Port Hills, excluding vineyards and orchards located within the Visual Amenity Landscape"* As the rule specifically restricts *afforestation* in a Visual Amenity Landscape, Regulation 13 will apply and consent for a controlled activity would be required under the NESPF.
Kaikoura District Plan 2008 (Operative)	The Kaikoura District Plan contains 'Significant Landscape Areas' (the plan clarifies that this overlay is not an *outstanding natural feature or landscape*). Chapter 10 of the district plan contains the following commercial forestry rule: *'11.7.2.2b: Commercial forestry* [is a restricted discretionary activity] *where any part of the forestry activity is visible against the skyline, when viewed from a Strategic Arterial Road (State Highway 1 and the Inland Road), or from the Kaikoura Peninsula water reservoir.'* As the rule specifically restricts *afforestation* in an overlay meeting the definition of a *visual amenity landscape*, Regulation 13 will apply and consent for a controlled activity would be required under the NESPF.
Taupo District Plan 2007 (Operative)	The Taupo District Plan has identified 'Amenity Landscape Areas' and the plan clarifies that this overlay is not an *outstanding natural feature or landscape*. There are no rules that apply to any of the *plantation forestry activities* in Amenity Landscape Areas – the rules generally apply to subdivision or performance standards such as building height. As such, Regulation 13 would not apply to *afforestation* in an 'Amenity Landscape Area'.

[44] *Residential Management Ltd v Papatoetoe City* A062/86 (PT), *Taranaki RC v Willan* EnvC W150/96, and *Ravensdown Growing Media Ltd v Southland RC* EnvC C194/00).

5.1.10 Regulation 14 – Setbacks

General guidance on *setbacks* is provided in section 4.3 of this User Guide. However, the following requirements are specific to *afforestation*:

- **Regulation 14(1)(a)** – this regulation recognises that the owner of a *plantation forest* may be different to the owner of the land the *plantation forest* is located on. The 10m setback will not apply if the owner of the adjoining property is either the *plantation forest* owner or the owner of the land it is located on. 'Adjoining property' means that property will be physically touching the land that the *plantation forest* is located on. Section 4.5 of this User Guide provide more guidance on 'adjoining' and 'adjacent'.

- **Regulation 14(1)(b)(ii) and 14(2)** – both these regulations require a setback to a *dwelling* and paved public road based on the shade cast by a fully-grown forest specie between 10am and 2pm on the shortest day of the year, except where the topography already causes shading. *Dwelling* is defined in the NESPF as having the same meaning as dwelling house under the RMA[45] which is focused on buildings used for residential purposes. General guidance on calculating shade can be found in the Cancer Society's *'Under Cover – Guidelines for Shade Planning and Design'*[46].

[45] Defined in RMA as ***"dwellinghouse*** *means any building, whether permanent or temporary, that is occupied, in whole or in part, as a residence; and includes any structure or outdoor living area that is accessory to, and used wholly or principally for the purposes of, the residence; but does not include the land upon which the residence is sited".*

[46] Refer: https://cancernz.org.nz/assets/Sunsmart/Sunsmart-resources/Guidelines-Under-Cover.pdf

5.2 PRUNING AND THINNING TO WASTE (REGULATIONS 18 - 21)

5.2.1 Overview of the plantation forestry activity

Pruning and thinning to waste is a regulated activity under Regulation 5(1)(b) of the NESPF. The NESPF regulations relating to ancillary activities (Part 2, subpart 9)[47] and general provisions of the NESPF (Part 2, subpart 10) must also be complied as relevant when undertaking *pruning and thinning to waste* (Regulation 5(2)).

Pruning and thinning to waste is defined in the NESPF as follows:

> *'means pruning plantation forest trees and thinning to waste involving the selective felling of plantation forest trees within a stand where the felled trees remain on site'*

The two principal tending (silviculture) operations during the forestry cycle are *pruning* and *thinning to waste*. Pruning removes branches from the lower sections of a tree, typically up to about 6.5m above ground. Thinning is selective removal of trees within a stand to achieve an optimum stocking rate for the final crop. Pruning and thinning operations leave the removed branches and felled trees on the forest floor and the main potential adverse effect to manage is the deposition of this *slash* material (*slash* is defined in the NESPF as any tree waste left behind after *plantation forestry activities*).

'Thinning to waste' is a separate process to 'production thinning' or 'low intensity harvesting'. Production thinning involves the removal of thinned trees for sale or use and falls within the definition of *harvesting*.

5.2.2 Potential adverse environmental effects

Pruning and thinning to waste typically has very limited adverse environmental effects, with the main adverse effect relating to deposition of the *slash* material within or near a *water body*. Pruned or thinned material such as branches, young trees or other woody debris that is deposited into a *water body*, or where it has the potential to enter a *water body*, can have adverse effects on water flow, water quality, and aquatic life. These adverse effects are generally rare due to the small quantities of *slash*[48] produced from *pruning and thinning to waste* but can be more substantial where there are larger volumes of *slash* material and/or the *water body* is particularly sensitive. In extreme cases, *slash* from *pruning and thinning to waste* transported during flood events can cause damage to downstream property and infrastructure, and cause amenity issues if transported to the coastal environment.

5.2.3 Permitted activity and conditions

Pruning and thinning to waste is a permitted activity in relation to **territorial authority functions** (Regulation 19) and there are no conditions.

Pruning and thinning to waste is a permitted activity in relation to **regional council functions** if regulations 20(1) is complied with. if Regulation 20(1) is not complied with then Regulation 20(2) must be complied with (i.e. there is no need to comply with Regulation 20(2) if Regulation 20(1) is complied with). A summary of the permitted conditions for *pruning*

[47] Slash traps, indigenous vegetation clearance, and non-indigenous vegetation clearance in subpart 9, Part 2 of the NESPF.

[48] Defined in the NESPF as *'any tree waste left behind after plantation forestry activities'*

and thinning to waste is provided in Table 9. For the exact wording of the conditions, refer to the NESPF which can be accessed through the hyperlinks in the table.

Table 9: Permitted activity conditions for pruning and thinning to waste.

Condition	Regional Council
***Slash* (Regulation 20)**	Regulation 20(1) - *Slash* must not be deposited: • Into a *water body*; • Onto land that would be covered in water during a 5% AEP event; or • Into coastal water. Regulation 20(2) - If the above is not complied with, *slash* must be removed from the three areas above unless it is unsafe to do so in order to avoid certain adverse effects.

5.2.4 Determining whether a resource consent is required

The flow chart in Figure 6 illustrates that the *pruning and thinning to waste* regulations are straightforward; if Regulation 20 is not complied with then a controlled activity consent will be required from the relevant regional council. *Pruning and thinning to waste* is also required to comply with the ancillary activity regulations (Part 2, subpart 9) and general provisions (Part 2, subpart 10) as relevant to be a permitted activity.

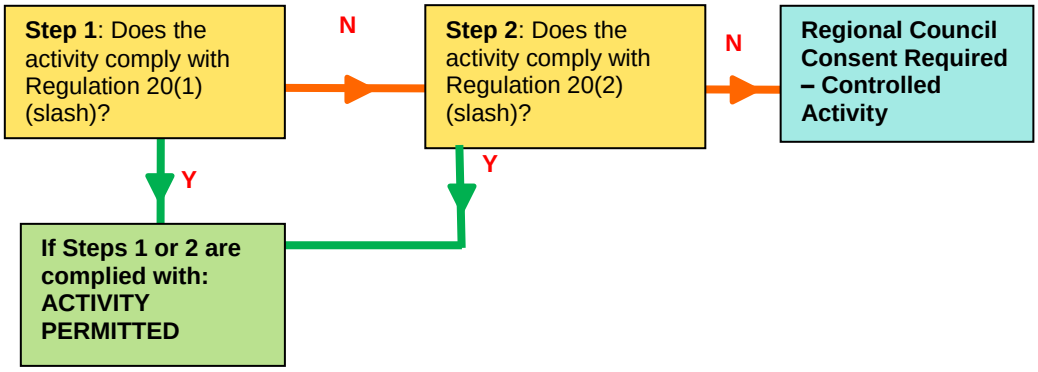

Figure 6: Flow chart to determine when resource consent is required for pruning and thinning-to waste.

5.2.5 Guidance on conditions for pruning and thinning to waste – slash management

Regulation 20(1) requires that *slash* is not deposited:

(a) **Into a *water body*** – note that the definition of *water body* in Regulation 3 of the NESPF states that it has the same meaning as the definition of *water body* in the RMA which "*means fresh water or geothermal water in a river, lake, stream, pond, wetland, or aquifer, or any part thereof, that is not located within the coastal marine area";*

(b) **Onto land that would be covered by water during a 5% *AEP* event** – this condition is intended to ensure *slash* is not deposited on land close to waterbodies that may be flooded during high rainfall events. A pragmatic approach to assess the extent of this area is required. Refer to section 4.10 for guidance on how to calculate *AEP*; or

(c) **Into coastal water** – coastal water is not defined in the NESPF but is defined in section 2(1) of the RMA as *"means seawater within the outer limits of the territorial sea and includes—*

(a) seawater with a substantial fresh water component; and
(b) seawater in estuaries, fiords, inlets, harbours, or embayments"

Where *slash* is deposited in these areas, Regulation 20(2) requires that *slash* be removed from these waterbodies and areas unless it is 'unsafe' to do so. Regulation 20(2) does not provide any guidance on when it is 'unsafe' to remove *slash*. It is expected that foresters and councils will take a pragmatic approach to determine when it is 'unsafe' to remove *slash* from these areas, taking into account health and safety requirements in other legislation.

Regulation 20(2) does not specify how soon after deposition the *slash* must be removed from the waterbodies and areas referred to. Foresters should remove *slash* **as soon as practicable** during or after the *pruning and thinning to waste* activities have been completed to avoid the adverse effects listed in Regulation 20(2)(a)-(d). If either of regulations 20(1) or 20(2) are not complied with, then resource consent will be required as a controlled activity (i.e. it cannot be declined) and control will be reserved over matters which correspond with the adverse effects listed in Regulation 20(2)(a)-(d).

5.3 *EARTHWORKS* (REGULATIONS 22 – 35)

5.3.1 Overview of the plantation forestry activity

Earthworks associated with *plantation forestry* is a regulated activity under Regulation 5(1)(c) of the NESPF. The NESPF regulations for three ancillary activities (Part 2, subpart 9) and general provisions (Part 2, subpart 10) of the NESPF must also be complied with as relevant when undertaking *earthworks* (Regulation 5(2)).

Earthworks are defined in the NESPF as follows:

> *(a) 'means disturbance of the surface of the land by the movement, deposition, or removal of earth (or any other matter constituting the land, such as soil, clay, sand, or rock) in relation to plantation forestry; and*
>
> *(b) includes the construction of forestry roads, forestry tracks, landings and river crossing approaches, cut and fill operations, maintenance and upgrade of existing earthworks, and forestry road widening and realignment; but*
>
> *(c) does not include soil disturbance by machinery passes, forestry quarrying, or mechanical land preparation'*

Earthworks are undertaken to provide the physical infrastructure needed to establish, maintain and harvest a *plantation forest*. Road construction is a particularly important part of forestry operations to enable access at all stages of forestry cycle with most *forestry road* and *forestry track* construction activities occurring prior to and during *harvesting*.

5.3.2 Potential adverse environmental effects from *earthworks*

If not appropriately planned and managed, *earthworks* associated with *plantation forestry* can result in the following adverse environmental effects:

- Accelerated erosion due to slope instability and bare soil exposure (e.g. collapse of slopes around cuts); and
- Excessive sediment discharges to waterways (e.g., through soil disturbance or slope failure), which can affect aquatic ecosystems or erode water control structures.

Other less common adverse environmental effects associated with *earthworks* include effects on indigenous fauna and flora resulting from soil disturbance and movement.

The volume of *earthworks* moved is generally much higher for first rotation *plantation forests* and therefore there is generally a greater risk of these adverse environmental effects occurring.

5.3.3 Permitted activity and conditions

Earthworks are a permitted activity in relation to **territorial authority** functions (Regulation 23) and there are no conditions. This regulation will prevail over district plan rules for *earthworks* associated with *plantation forestry* when the NESPF comes into force. The exception is where a district plan *earthworks* rule is more stringent and meets the requirements of Regulation 6 (refer to the <NESPF Plan Alignment Guide> for detailed guidance on where plan rules may be more stringent).

In relation to **regional council** functions, Regulation 24(2)-(4) of the NESPF set outs the types of *earthworks* that are permitted, provided that regulations 25 to 33 are complied with:

- Regulation 24(2) relates to general *earthworks* and all earthworks should first be assessed under the thresholds in this regulation.
- Regulations 24(3) and (4) provide two specific exceptions for *maintenance and upgrade of existing earthworks* [49]and *earthworks* for forestry widening or alignment when the proposed *earthworks* cannot meet the thresholds in Regulation 24(2), The purpose is to enable these types of *earthworks* to be carried out on steeper *orange zone* and *red zone* land provided the relevant thresholds and standards are complied with. Where the thresholds in Regulation 24(3) and 24(4) cannot be met, these *earthworks* are treated as general *earthworks* under Regulation 24(2) and any non-compliance with the thresholds or permitted activity conditions requires consent as a restricted discretionary activity under Regulation 35.

Each type of *earthworks* is subject to different volume thresholds and standards which are outlined in Table 10.

Table 10: The thresholds and standard for the earthworks permitted under NESPF.

Regulation and *earthworks* type	**Permitted Activity – Regional Council**
24(2) – general earthworks	*Earthworks* in: ○ Green or *yellow zone*; ○ *Orange zone* with slope less than 25°; ○ *Orange zone* with slope 25° or more and in any 3-month period that comprise: ○ Side cutting height of 2-3m over continuous length of no more than 100m; and ○ Deposition of less than 500m³ of *spoil*/fill. ○ *Red zone* and in any 3-month period comprise: ○ Side cutting less than 2m deep over a continuous length of no more than 50m; and ○ Deposition of less than 100m³ of *spoil*/fill.
24(3) – maintenance and upgrading of existing earthworks	Volume moved is less than 5000m³ in any 3-month period.
24(4) – earthworks for forestry road widening or realignment	○ Volume moved is less than 5000m³ any 3-month period; and ○ Where on a slope more than 25°, cut and fill road construction is used that involves: ○ Construction of a *forestry road* heading on same grade as road, but benched below the road formation height, to provide a bench below the road to contain and stabilise the fill slope road and create a stable base; and ○ Keying and compacting the fill to the bench; and ○ Spoil end-hauled to safe containment area where:

[49] Defined in NESPF as: maintenance and upgrade of existing earthworks— (a) includes—(i) activities to upgrade existing forestry infrastructure or minor reshaping of existing forestry infrastructure; and (ii) the installation and maintenance of water run-off control measures; and (iii) road metalling; but (b) does not include forestry road widening or realignment

	○ *Earthworks* on slope of more than 35°; or ○ *Spoil* cannot be benched while retaining stability; and ○ Records of *forestry road* widening and realignment are maintained and available for inspection.

These permitted activity conditions that apply to all *earthworks* are summarised in Table 11. For the exact wording of the conditions, refer to the NESPF which can be accesses through hyperlinks in table.

Table 11: Summary of permitted activity conditions for earthworks.

Condition	Regional Council Function
Notice (Regulation 25)	If *earthworks* involve more than 500m² of soil disturbance in any 3-month period, council must be given written notice of proposed *earthworks* location and planned start and end dates. Notice must be given: ○ At least 20 and no more than 60 working days before the planned start date; or ○ A minimum of 2 days before salvage operations are planned; or ○ Annually for ongoing *earthworks.* The notice must state that an *earthworks* management plan is required. Council may request the management plan (if it is required, after notice is given) and it must be supplied with 5 working days of the date by which the plan must be in place.
Sediment (Regulation 26)	*Sediment* from *earthworks* must be managed to ensure that, after reasonable mixing, it does not cause following effects in receiving waters: ○ A conspicuous change in colour or clarity; or ○ Rendering fresh water unsuitable for consumption by farm animals; or ○ Significant adverse effect on aquatic life.
Forestry earthworks management plan (Regulation 27)	Management plan required for all *earthworks* involving more 500m² of soil disturbance in any 3-month period. The plan must: ○ Identify the environmental risks associated with the *earthworks* and measures to avoid, remedy or mitigate adverse environmental effects; ○ Contain the details required in Schedule 3; ○ Be in place at least 20 working days before *earthworks* begin (2 days for salvage operation), and be provided to the relevant council upon request. *Earthworks* must be in accordance with the plan. Any material amendments to the management plan must be documented and dated. The relevant council must be advised that an amendment has been made and this must be provided to the relevant council on request.
Operation (Regulation 28)	*Earthworks* in any orange or *red zone* that are not required for *harvesting* within 12 months must be stabilised within 20 working days of completion. Soil disturbance in *ephemeral flow paths* must avoid accelerated erosion, obstruction, or diversion of water flow.

<table>
<tr><th>Condition</th><th>Regional Council Function</th></tr>
<tr><td>Setbacks (Regulation 29)</td><td>Earthworks must not occur within the following setbacks (subject to specific exclusions[50]):
<table>
<tr><th>10m</th><th>30m</th></tr>
<tr><td>• Perennial river;
• Wetland larger than 0.25ha;
• Lake larger than 0.25ha
• Outstanding freshwater body;
• Water body subject to a water conservation order</td><td>Coastal marine area</td></tr>
</table></td></tr>
<tr><td>Fill and spoil (Regulation 30)</td><td><u>Fill</u>

Must contain no more than 5% (by volume) of vegetation and wood.

<u>Spoil</u>

Spoil must not be deposited:

○ Where it may cause failure of the deposited material or the underlying land; or
○ Over slash or woody vegetation; or
○ Into a water body, coastal water, or a significant natural area; or
○ Onto land in circumstances that may result in the spoil or sediment entering water.</td></tr>
<tr><td>Sediment and stormwater control measures (Regulation 31)</td><td>○ Disturbed soil must be stabilised or contained to minimise sediment entering water and resulting in:
○ The diversion or damming of any water body; or
○ Damage to downstream infrastructure, property or receiving environments, including coastal environments.
○ Stormwater, water run-off, and sediment control measures must be installed and maintained.
○ Batters, cuts, and side cast construction must use methods that maintain stability.
○ Minimum stormwater culverts for forestry roads and forestry tracks are:
○ 325mm internal diameter in any green, yellow, or orange zone with a land slope of less than 25°; or
○ 375mm internal diameter in any orange zone with a land slope of 25° or more in any red zone.</td></tr>
<tr><td>Stabilisation (Regulation 32)</td><td>○ Exposed areas of soil (except firebreaks) that may result in sediment entering water must be stabilised as soon as practicable after completion but no later than the last day of autumn or spring (whichever is sooner).</td></tr>
</table>

[50] *Earthworks* setbacks do not apply to: 1) The construction/ maintenance of a river crossing, a sediment or water control measure, or a slash trap or debris retention structure; 2) If the *earthworks* within the setback will result in less than 100m² of soil disturbance in any 3-month period, and are not within 5 m of the water body; or 3) During the maintenance and upgrade of existing *earthworks*.

Condition	Regional Council Function
	○ Suitable stabilisation measures include seeding, vegetation cover, and compacting, draining, roughening or armouring by the placement of rocks or other rigid material.
Roads, tracks, and landings (Regulation 33)	*Forestry roads*, *forestry tracks*, and *landings* must be managed and aligned to: ○ Divert water run-off and disperse water flows to stable ground and away from constructed fill; and ○ Minimise disturbance to *earthflows* and gullies.

5.3.4 Determining whether a resource consent is required

The flow chart in **Error! Reference source not found.** illustrates the process to determine whether a resource consent is required for *earthworks* under the NESPF and the activity status where a resource consent is required. *Earthworks* is also required to comply with the ancillary activities regulations (Part 2, subpart 9) and general provisions (Part 2, subpart 10) as relevant to be a permitted activity.

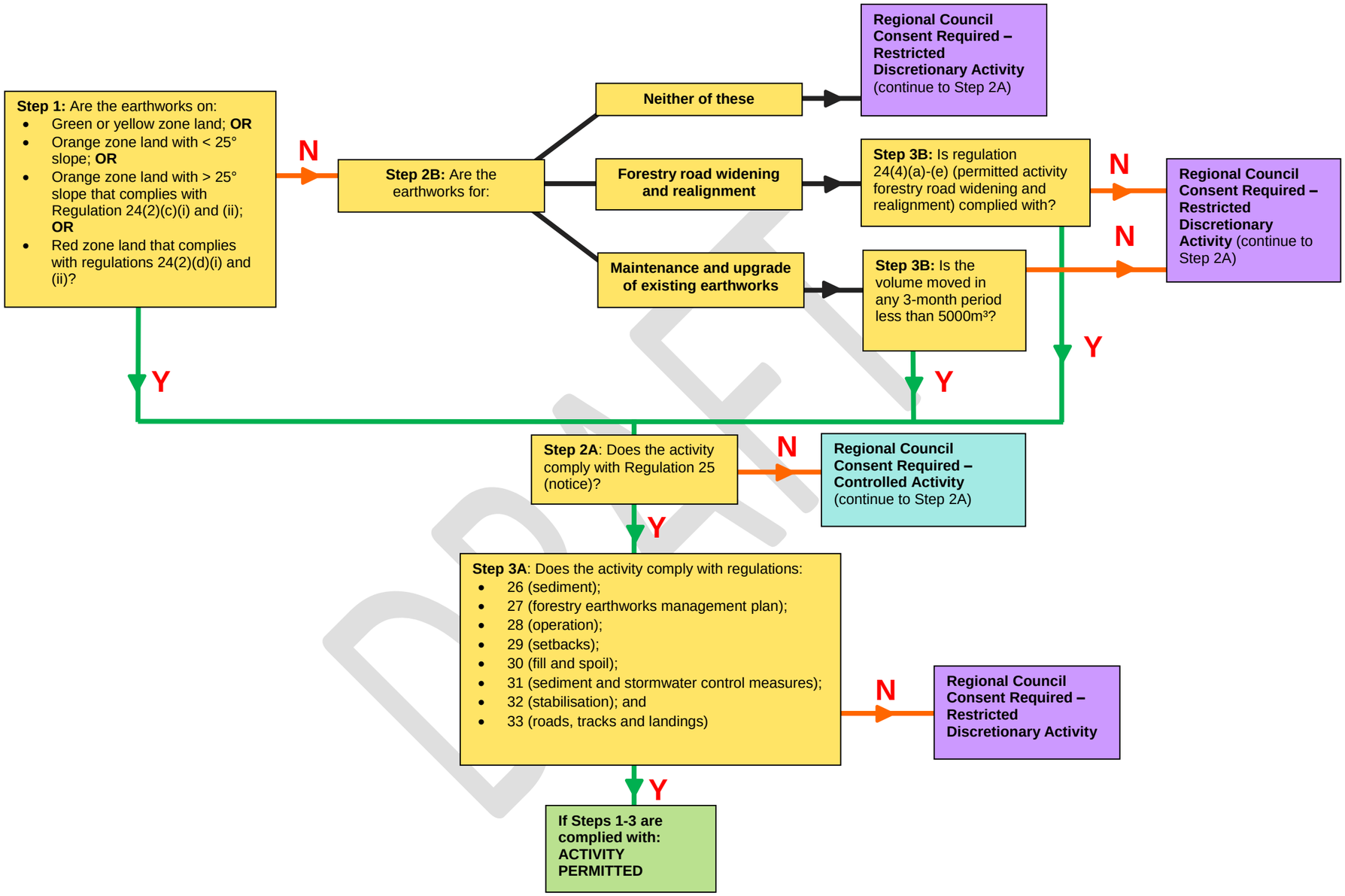

Figure 7: Flow chart to determine whether resource consent is required for earthworks.

5.3.5 Guidance on key conditions for *earthworks*

This section provides guidance on a selection of *earthworks* regulations to assist with interpretation and implementation. It does not provide guidance on setbacks as these are addressed generally in section 4.3 of this User Guide.

5.3.6 Regulation 24 – Permitted activity: regional council

Regulation 24 includes limits on the volume of *earthworks* that can be undertaken as a permitted activity, depending on where the *earthworks* are located and the type of *earthworks*. In complying with these regulations, it is not necessary to know exactly the volume of *earthworks* that will be deposited or moved - only whether the limits specified in the regulations will be exceeded. The permitted limits are:

General *earthworks*:

- *Orange zone* with slope of 25 degrees or more – deposition of less than 500m^3 of *spoil* or fill in any 3-month period (Regulation 24(2)(c)(ii)) and a side cut of 2-3m over a continuous length for no more than 100m. This limits side cuts to 3m and there are no limits if the side cut is less than 2m. If the cut is greater than 2m high but less than 3m, then the length of the cut should be measured to ensure it is no longer than 100m; and
- *Red zone* – deposition of less than 100m^3 of spoil or fill in any 3-month period (Regulation 24(2)(d)(ii)) and a side cut of less than 2m over a continuous length for no more than 50m.

Maintenance and upgrading of existing earthworks and forestry road widening or realignment:

- Volume of *earthworks* moved is less than 5000m^3 in any 3-month period (Regulation 24(3) and 24(4)(a)).

As a general guide:

- 100m^3 is about the size of a truck and trailer unit (or 10m x 10m x 1m high);
- 500m^3 is about the size of a single storey three-bedroom house (10m x 20m x 2.4m high); and
- 5000m^3 is larger-scale *earthworks* but likely to be less than what is needed to create a *landing.*

These thresholds should be calculated for a continuous area of *earthworks* within a *plantation forest* (not per land parcel) over a 3-month period. *Earthworks* activities that are physically separate and distinct do not create overlapping or cumulative environmental effects that are more than minor. Therefore, these should be treated separately for the purposes of the thresholds in Regulation 24. For example, in a large *plantation forest* there may be multiple maintenance *earthworks* activities being carried out that are in distinct separate areas which cumulatively exceed 5000m³, but the actual volume of each area of *earthworks* is small with limited potential for adverse effects.

The thresholds in Regulation 24(c) and (d) for *earthworks* volume and side cutting need to be read together – both must be exceeded for *earthworks* to require a restricted discretionary consent under Regulations 35(2)(a) and (b).

5.3.7 Regulation 25 – notice

Notice is required for *earthworks* when the soil disturbance will exceed 500m² in any 3-month period. This threshold is to avoid the notice requirement applying to really small-scale *earthworks* with minimal environmental effects, such as grading maintenance.

Notice of *earthworks* must be provided in writing to the relevant regional council and must include:

- **Details on the place of the *earthworks*** – this should provide an accurate description of location of the *earthworks* with supporting maps where appropriate;

- **Details on the planned start and end date *for earthworks*** – this needs to be as accurate as possible while recognising that there are inevitably external factors that may impact on the start/finish dates of the *earthworks*; and

- **Whether a forestry *earthworks* management plan is required** – the thresholds for notice and the forestry *earthworks* management plan are the same (500m² of soil disturbance in any 3-month period). Therefore, the notice should simply confirm that this management plan is required.

<Section 5.2. of the NESPF Consenting and Compliance Guide> provides more detailed guidance on the notice provisions in the NESPF, including timeframes and formally receiving and acknowledging notice.

5.3.8 Regulation 26 – sediment

Regulation 26 relates to the effects of sediment discharges from *earthworks* in receiving waters after 'reasonable mixing'. The water quality standards are based on section 70 of the RMA and Section 4.9 of this guide provides general guidance on the conditions in the NESPF relating to the effects of sediment discharges on receiving waters.

When undertaking *earthworks,* foresters should be attempting to minimise the quantity and flow rate of any water on exposed soil by diverting it away from bare soil sites. The key trigger for soil detachment, transport, and deposition (sedimentation) is moving water, so reducing the degree that water and soil interact and the speed that it happens should be the focus of any *earthworks* sediment management regime. As water and soil contact is inevitable (e.g. rainfall on exposed areas of *earthworks*), *sediment* management practices should focus on slowing down the movement of water to reduce the amount of *sediment* that is entrained in runoff and deposited in receiving waters.

Implementing good sediment management practices and complying with permitted activity conditions for *earthworks* (e.g. conditions relating to the forestry *earthworks* management plan, setbacks, and sediment and stormwater control measures) will enable foresters to comply with Regulation 26. Foresters may draw on a range of sources to identify appropriate management practices to ensure compliance with Regulation 26, including existing council guidance and/or industry guidance as appropriate.

5.3.9 Regulation 27 – forestry *earthworks* management plan

A forestry *earthworks* management plan is required for *earthworks* that involve more than 500m² of soil disturbance in any 3-month period. The purpose of the forestry *earthworks* management plan is to ensure site specific risks from *earthworks* are identified and managed up-front.

The forestry *earthworks* management plan must be prepared in accordance with the information requirements in Schedule 3. The Schedule requires a clear description of the management practices that will be used to avoid, remedy or mitigate risks from *earthworks*, including proposed erosion and sediment control measures. Clause 4(d) of Schedule 3 states that the description of proposed management practices must of '**sufficient detail to enable a site audit of the management practices to be carried out'**. The forestry *earthworks* management plan must also be provided to the relevant regional council on written request, and must be in place 20 working days before *earthworks* begin (except in the case of a salvage operation).

<Section 5.3 of the NESPF Consenting and Compliance Guidance> provides more detailed information on the NESPF management plan preparation and review process, and *material amendments* to management plans.

5.3.10 Regulation 28 – Operation

Stabilisation of earthworks in ESC orange and red zone

Regulation 28(1) states that:

> *'earthworks in any orange or red zone that are not required for harvesting within 12 months must be stabilised within 20 working days of their completion'.*

Regulation 28(1) is focused on managing *earthworks* on steep or unstable slopes (i.e. ESC orange or *red zone* land). It makes a distinction between *earthworks* required for *harvesting* within the next 12 months and all other *earthworks. Earthworks* for *harvesting* often occur over longer time periods to create *harvesting* infrastructure – *forestry roads* and *landings*. The surface of these *earthworks* will often have a metal running surface. The parts that need stabilising are the cut faces and fill slopes. It can take longer to stabilise exposed earth during *harvesting* for operational reasons. For all other *earthworks* in orange or *red zone*s, these must be stabilised within 20 working days of their completion. Regardless of the purpose of the *earthworks*, foresters should seek to *stabilise earthworks* as soon as practicable.

The most appropriate method to stabilise *earthworks* will need to be determined on a case by case basis. Potential methods that may be appropriate to stabilise *earthworks* include:

- Conventional planting of vegetation – this may include planting grass or legume seed where soil and topography conditions support germination and growth;
- Hydroseeding – spraying a mixture of water, seed, fertilisers, organic binders and mulch onto soil can produce dense grass cover quickly and may be more suitable for steeper, more infertile soils or during the growing off-season;
- Spreading mulch – may consist of bark, woody material or hay where an instant barrier of protection is required; may also be used in conjunction with sowing grass; and
- Spreading of *slash* – similar effect to the spreading of mulch but it can also be used as a sediment filter to reduce water velocity and to reduce the impact of logging machinery on tracks during wet weather.

The most common method for stablishing temporary harvest tracks is construction of cutoffs to disperse and divert stormwater to stable ground.

Soil disturbance in ephemeral flow paths

Regulation 28(2) states that *'soil disturbance in ephemeral flow paths must avoid accelerated erosion, obstruction, or diversion of water flow'. Ephemeral flow paths* are defined in Regulation 28(3) as:

> *"means the route that water from intermittent rainfall events follows, if—*
>
> *(a) the flow path is an entrenched dry gully greater than 1 m deep; or*
>
> *(b) there is evidence of a channel within the valley system where overland flow occurs from time to time; or*
>
> *(c) there is evidence of erosion (such as gullying or headward gully erosion) associated with short-term water flow from time to time within the valley system; or*
>
> *(d) there is evidence of an active bed activated by rain events."*

The photos below in Figure 8 provide examples of ephemeral flow paths (source: Bay of Plenty Regional Land and Water Plan (Operative 2008).

Example 1

The flow path is an entrenched dry gully greater than 1 metre deep. This site would qualify as an ephemeral flowpath.

Example 2

There is clear evidence of a channel within the valley system where overland flow occurs from time to time.

This site would qualify as an ephemeral flowpath.

Example 3

There is clear evidence of erosion (such as gullying or headward gully erosion) associated with short term water flow from time to time within the valley system.

This site would qualify as an ephemeral flowpath.

Example 4

The presence of the actively eroding gully head associated with stormwater flow indicates that this valley would be classified as an ephemeral watercourse. Without the presence of the eroding gully system, the valley would not be considered an ephemeral flowpath.

Example 5

The valley does not show any evidence of overland flow channels, or erosion as a result of overland flow.

This site would not qualify as an ephemeral flowpath.

Figure 8: Examples of ephemeral flow paths (Source: Bay of Plenty Land and Water Plan).

Ephemeral flow paths only carry water in intermittent rainfall. They are only likely to erode if the vegetation cover in the channel is interfered with, and/or the water flow in them is fast flowing and a high volume. To avoid erosion in *ephemeral flow paths*, the first step is to recognise whether a depression in the ground is likely to turn into an *Ephemeral flow paths*

during heavy rainfall. For depressions that are likely to become *ephemeral flow paths,* the best course of action when planning and undertaking *earthworks* is to avoid disturbing the ground at the base of the channel.

Erosion risk increases the longer the ground is exposed. When the base of the channel of an *ephemeral flow path* needs to be disturbed for a *harvesting* track or similar, it is important to rehabilitate immediately after the works. Keeping the channel clear is also important to minimise potential erosion.

5.3.11 Regulation 30 – Fill and spoil

Fill

Fill is defined in Regulation 3 as *'soil or aggregate, placed to raise the land surface'.* Regulation 30(1) requires that *fill* contains no more than 5% (by volume) of vegetation and wood. The purpose of this requirement is to ensure *fill* is stable. Fill that contains a lot of woody material becomes unstable as the woody material rots and the void space changes. The weight of soil on sloping wet rotting wood used as *fill* can result in slope failures. Further, wood can also introduce water flow pathways into the *fill,* and these routes can result in slope failure.

Obvious causes for concern are where there is evidence of fill being loaded onto *slash,* or *fill* containing high levels of *slash* during *earthworks* or post-harvest. Generally, a visual assessment will provide a good guide as to whether this is likely to be a problem and a pragmatic approach to assess the amount of vegetation and wood material within the *fill* is expected.

Corduroy roads

The purpose of Regulation 30(1) is to avoid unstable *fill* being created. Wood material can also be used to a construct road corduroy, which is a structured load-bearing surface where the logs are laid horizontally and parallel, and there are no void areas[51]. Corduroy roads are an engineered road construction technique used in places where the substrate is very weak and where the load must be spread if the road is to be trafficable. The use of logs to create a road corduroy does not meet the definition of "*fill*".

Spoil

Spoil is defined in the NESPF as "*the by-product of excavations and earthworks*". Regulation 30(2) requires that spoil must note be deposited in areas where it may cause failure of the deposited material or the underlying land, or for *spoil* to be deposited over *slash* or woody vegetation, into a water body, coastal water or a *significant natural area,* or onto land in circumstances that may result in *sediment* or *spoil* entering water. This will need to be determined on a case by case basis, with consideration given to the volume of material deposited, the land covered by *AEP* events (refer to Section 4.10), and the stability of deposited material.

5.3.12 Regulation 31 – Sediment and stormwater control measures

All sediment, water runoff and stormwater control measures aim to disperse and slow water to reduce its potential to entrain, transport and deposit sediment. *Sediment, water runoff and stormwater control measures* (including some examples) are discussed in Section 4.8 of this User Guide.

[51] For more information on corduroy roads, refer to the New Zealand Forest Owners Association Forest Road Engineering manual: http://www.nzfoa.org.nz/resources/file-libraries-resources/transport-and-roading/484-nz-forest-road-engineering-manual-2012/file

In addition to the requirement to install and maintain these measures, Regulation 31(1) includes a performance-based condition for disturbed soil to be stabilised or contained to minimise sediment entering water resulting in:

- The diversion or damming of any *water body*; or
- Damage to downstream infrastructure, property, or receiving environments, including the coastal environment.

This condition requires proactive steps to be taken to ensure these adverse effects do not occur. Common practices to stabilise and contain disturbed soil are techniques that stop flow (e.g. sediment traps) and techniques that redirect and disperse flow with (e.g. cut-outs, water table drainage culverts, berms).

5.3.13 Regulation 32 – Stabilisation

Regulation 32 applies to all areas of exposed soil from *earthworks* that may result in *sediment* entering water (whereas Regulation 28 applies to *earthwork* in orange and *red zone*s). Regulation 32(1) requires that:

> *Exposed areas of soil, except firebreaks, that may result in sediment entering water must be stabilised as soon as practicable after completion of the activity, but no later than the last day of the autumn or the spring, whichever is sooner, after completion of the activity.*

The reference to 'the last day of autumn or spring' ensures that *earthworks* are stabilised no longer than six months after completion of the activity. Six months is the absolute maximum timeframe before exposed soil must be stabilised and generally the end of autumn or springer will be sooner. However, the key requirement in Regulation 32(1) is that *earthworks* **'must be stabilised as soon as practicable'** – this should generally be achieved well within the required timeframe to avoid potential adverse effects of exposed soil on receiving waterbodies (i.e. *sediment* transport and deposition).

Regulation 32(2) lists a number of suitable stabilisation measures, including seeding, vegetation cover and compacting, which are all proven methods to stabilise soil. However, this list should not be seen as exhaustive and the most appropriate stabilisation methods will need to be determined on a case by case basis. Section 5.3.5.5 of this User Guide provides some examples of vegetation and mulch/slash stabilisation measures.

5.3.14 Regulation 33 – Roads, tracks and landings

The purpose of Regulation 33 is to reduce the likelihood of erosion resulting from *earthworks.* Regulation 33 specifically requires that *forestry roads, forestry tracks* and *landings* are managed and aligned to:

- Divert water run-off to stable ground and away from constructed fill; and
- Minimise disturbance to earthflows and gullies.

Constructed fill

Constructed *fill* is more vulnerable to erosion caused by water flows. Regulation 33 therefore requires *forestry roads, tracks* and *landings* to be managed and aligned so that flows are diverted away from areas of constructed *fill*. Techniques to achieve this include (but are not limited to):

- Water table drains (channels to direct water from cut banks or berms along the road to *culverts* or cut-outs);
- Cut outs (channels to direct water away from a road, track or landing and divert it into sediment control structures);

- Berms (small banks on the outside edge of a road or landing constructed to channel water to cut-outs and additional *sediment control measures*); and
- Water table drainage culverts (structures to drain water across a road, often made of corrugated PVC).

Gullies

Gullies created by gully erosion is generally not an issue for *plantation forestry.* However, it can be an issue on soils and substrate with even-sized moderate to coarse particle size, such as the Central North Island pumice, loess, and marine sands. On these soils, good water control is crucial to help avoid gullies forming and/or minimising disturbance of existing gullies. If gullies do develop they can rapidly undermine *forestry infrastructure*.

Earthflow

Earthflow is a type of erosion defined in Regulation 33(3) as:

> *'rapid flowing of soil and underlying weathered material on slopes of between 10 and 20 degrees that is characterised by—*
>
> *(a) an overthrust bulging dome at the toe, a depressed, fissured, and disrupted centre upslope, and slipping or slumping at the head; and*
>
> *(b) prominent transverse cracks, particularly in the upper region of the movement.'*

Earthflow is a relatively deep-seated erosion type found on crushed mudstone geologies. Often the toe of the slope is being continually eaten out by the stream. *Earthflows* are inherently unstable, so removing its toe stability means that it continues to flow downhill, very slowly. This can underline *forestry infrastructure* on an *earthflow* as it will likely move downhill with the *earthflow*. Increases in the weight loading, or water within an *earthflow* will increase its flow rate. The gentle slope of an *earthflow* may look like a suitable site for roads or other infrastructure, but anything built on it will rapidly deform, and it will be in constant need of repair and maintenance. As such, it is important to minimise disturbance to *earthflows.*

5.4 *RIVER CROSSINGS* (REGULATIONS 36-49)

5.4.1 Overview of plantation forestry activity

River crossings are a regulated activity under Regulation 5(1)(d) of the NESPF. The NESPF regulations for three ancillary activities (Part 2, subpart 9) and the general provisions (Part 2, subpart 10) must also be complied with as relevant when constructing, using, maintaining or removing *river crossings*.

River crossings are defined in the NESPF as follows:

> *(a) means a structure that is required for the operation of a plantation forest and provide for vehicles or machinery to cross over a water body; and*
>
> *(b) includes an apron and other structures and materials necessary to complete a river crossing; but*
>
> *(c) does not include a stormwater culvert or a culvert under a forestry road or forestry track.*

5.4.2 Potential adverse environmental effects

River crossings are commonly required in *plantation forests* to provide access. *River crossings* require good design, installation and on-going maintenance to minimise potential adverse environmental effects. The main potential adverse environmental effects associated with the construction, use, maintenance and removal of *river crossings* are:

- Sedimentation (i.e. suspended *sediment* and bed sedimentation) of the river during construction and use *of river crossings*;
- Restricting or preventing fish passage;
- Activating or accelerating bed erosion by concentrating water flows;
- Accumulating debris around culvert openings and bridge abutments, which can result in scour and flooding; and
- Erosion, sedimentation or damming if structures are displaced or destroyed during floods.

5.4.3 Permitted activities and conditions

River crossings fall within **regional council functions** under section 30 of the RMA. **Territorial authorities** do not have functions in relation to the *river crossings* regulations in the NESPF.

The NESPF includes both generic *river crossing* conditions and conditions targeted to different types of *river crossings,* refer to Table 12.

Table 12: NESPF conditions for different types of river crossings.

Type of river crossing	Permitted activity conditions to comply with
Single culvert	Regulations 38-45, Regulation 46(1)
Battery culvert	Regulations 38-45, Regulation 46(2)

Drift deck	Regulations 38-45, Regulation 46(3)
Ford	Regulations 38-45, Regulation 46(4)
Single span bridge	Regulations 38-45, Regulation 46(5)
Temporary river crossing	Regulations 38-41, regulations 43-45, Regulation 46(6)
Temporary single span bridge	Regulations 38-45, Regulation 46(5)(b), (c), (d) and 46(7)

A summary of the general permitted conditions for *river crossings* is provided in Table 13. For the exact wording of the conditions, refer to the NESPF which can also be accessed through the hyperlinks below.

Table 13: Summary of general permitted activity conditions for river crossings.

Condition	Regional Council Function
Notice (Regulation 38)	• Council must be given written notice of the proposed *river crossing* location, and planned start date for construction or removal (other than for a *temporary river crossing*). • Notice must be provided to the council at least 20 and no more than 60 working days before the planned start date. This condition does not apply to the maintenance of a *river crossing*.
Effects on other structures and users (Regulation 39)	A *river crossing* must not: • Alter the natural alignment or gradient of the river; or • Compromise the structural integrity or use of any other lawfully established structure or activity in the bed of the river or lake; or • Dam or divert water causing flooding or ponding on any property owned or occupied by a person other than the owner of the *plantation forest.*
Passage of fish (Regulation 40)	• *River crossings* must provide for upstream and downstream fish passage in rivers (except where the relevant statutory manager advises this would have an adverse effect on the upstream fish population); and • River bed material in the *river crossing* structure which is in place of the river bed must be maintained to provide for fish passage.
Erosion and sediment discharge from use (Regulation 41)	• *River crossings* must not cause or induce erosion of the bed or banks, instability of the banks of the water body, or create sedimentation; • Approaches and abutments must be stabilised to avoid erosion and sedimentation; and • Surface road run-off must be diverted away from water bodies within 10 m of the *river crossing*.
Maintenance (Regulation 42)	*River crossings* must be maintained to avoid aggradation or erosion of the bed of the *water body*.
Location (Regulation 43)	*River crossings* must not be constructed: • In a *wetland* larger than 0.25ha; or • In a *wetland* 0.25ha or less where crossing extends more than 20m in length within the *wetland*; or • Within an *outstanding freshwater body*; or • Within a *water body* subject to a water conservation order; or

Condition	Regional Council Function
	• Within a *significant natural area*; or • Less than 500m upstream of a dwelling that is within 15m of a river bed that is 3m wide or wider; or • Downstream of a dwelling with a ground-floor level that is less than 1m above the highest part of the *river crossing*.

Contaminant discharges (Regulation 44)	If a *river crossing* is being constructed, maintained, or removed:
	• No contaminants must be discharged into water, other than *sediment*; and
	• Practical steps must be taken to:
	  ○ Avoid depositing organic material or *sediment* into water bodies; and
	  ○ Minimise disturbance of the bed of a river and *wetlands*;
	• Practicable steps must be taken to avoid wet concrete or concrete ingredients coming into contact with water;
	• Elevated *sediment* levels resulting from the construction, maintenance and removal of a river crossing must not occur for longer than 8 consecutive hours;
	• Machinery must be kept out of water, except where it must cross the bed of a water body for the purposes of construction, maintenance or removal; and
	• Excess materials and equipment must be removed from the bed of the *water body* within 5 working days of completion of the activity.

Flow calculations (Regulation 45)	• Flood flow estimations must be calculated for all *river crossings*, except *fords,* using relevant documents in items 3, 4 and 5 of Schedule 2; and • Upon council's request, records of the calculations must be made available within 20 working days.

5.4.4 Determining whether a resource consent is required

The flow chart in **Error! Reference source not found.** below shows the process for determining whether a *river crossing* needs consent and the activity status when resource consent is required. *River crossings* are also required to comply with the ancillary activity regulations (Part 2, subpart 9) and general provisions (Part 2, subpart 10)

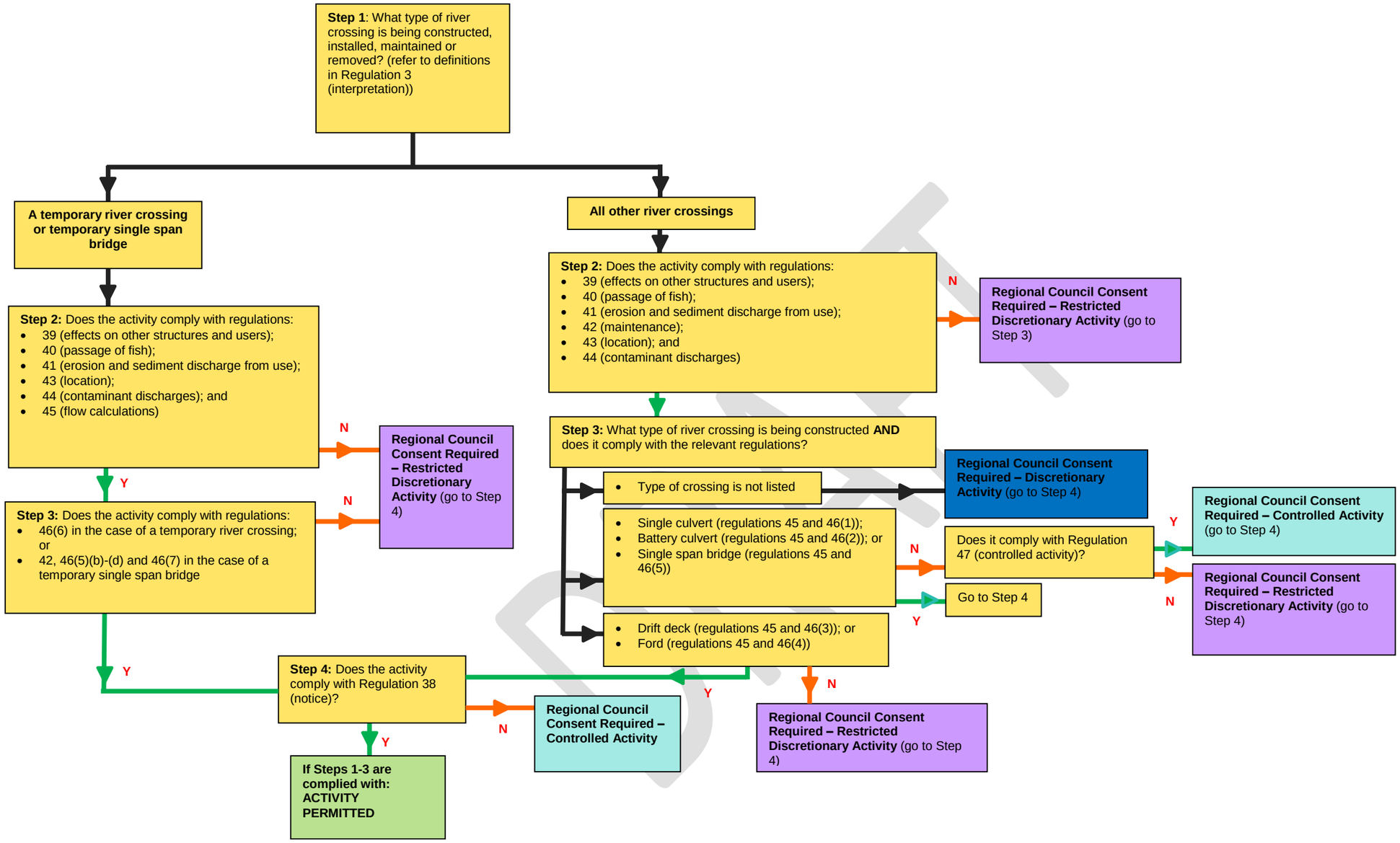

Figure 9: Flow chart to determine whether resource consent is required for river crossings.

5.4.5 Guidance on general river crossing conditions

This section provides guidance on selected general *river crossing* regulations to assist with interpretation and implementation. Not all regulations are included in this section as some regulations are sufficiently explained by the summary table above or by reading the regulations. Guidance on specific types of *river crossings* is provided in Section 5.4.9 of this User Guide.

5.4.6 Regulation 39 – Effects on other structures and users

Regulation 39 states that:

> *'A river crossing must not—*
>
> *(a) alter the natural alignment or gradient of the river; or*
>
> *(b) compromise the structural integrity or use of any other lawfully established structure or activity in the bed of the river or lake; or*
>
> *(c) dam or divert water in a way that causes flooding or ponding on any property owned or occupied by a person other than the owner of the plantation forest.'*

Alignment is the position of the *river crossing* relative to the horizontal orientation of the bed. For structures that cross the *water body* (e.g. bridge, *drift deck*), aligning the structure to be as perpendicular as possible reduces the chance that the structure redirects water away from its normal flow, which can cause scouring at the immediate site and have downstream scouring effects. For structures that carry the water through them (e.g. *culverts*), aligning the *river crossing* with the *water body* will avoid redirecting water and creating scour problems. Scouring of river beds and banks creates *sediment.* It can also affect the integrity of the structure so that the downstream side becomes 'perched' (no longer sits on the bed), affecting fish passage.

Gradient is the vertical fall of the *water body*. All structures need to match this as closely as possible to retain fish passage capability. Increasing the fall above the natural grade can cause scouring of the downstream edge of the *river crossing.* Decreasing the grade can result in the *river crossing* becoming clogged with bed material.

Regulations 39(b) and (c) protect other structures and other properties from being affected by a *river crossing*. It should generally be obvious where a *river crossing* is causing the adverse effects referred to in these regulations.

5.4.7 Regulation 40 – Passage of fish

Regulation 40 requires that all '*river crossings must provide for the upstream and downstream passage of fish in rivers'.* This mainly affects structures such as culverts, where the water speed inside a culvert with no bed material can be considerably higher. A *river crossing* can be exempt from this requirement if '*the relevant statutory fisheries manager advises the relevant regional council in writing that to provide for the passage of fish would have an adverse effect on the fish population upstream of the river crossing*'.

In a situation where providing fish passage would have an adverse effect on the upstream fish population (i.e. the test of Regulation 40(1) is considered to be met), foresters need to request confirmation of this from the relevant statutory fisheries manager. The most likely circumstance this will occur is where there are populations of native fish that are cut off from other parts of the *water body*, and the absence of fish passage is protecting them from certain species such as trout.

The relevant statutory fisheries manager is employed by either the Department of Conservation (if the affected fish species is indigenous) or by Fish and Game (if the affected fish species is a sports fish). The correct Fish and Game staff can be contacted at the relevant regional office, which can be found on the Fish and Game website:

https://fishandgame.org.nz/about/about-fish-and-game-council/council-staff/. The most appropriate way to reach the correct Department of Conservation staff member is to contact the relevant local office and speak with a ranger, who will then pass the request for information onto the Department of Conservation technical team. Contact details for regional officers can be found on the Department of Conservation website: http://www.doc.govt.nz/footer-links/contact-us/office-by-name/

5.4.8 Regulation 43 – Location

Regulation 43 specifies locations where *river crossings* should not be constructed. It should be relatively straightforward to identify the water bodies and *significant natural areas* referred to in sub-clauses (a)-(e)[52] and general guidance on how to identify the location and boundaries of these water bodies is provided in Section 4.3.1 of this User Guide.

Regulation 43 (f) and (g) control the proximity of *river crossings* upstream and downstream of dwellings by requiring that they are not constructed:

> *(f) less than 500 m upstream of a dwelling that is within 15 m of a river bed that is 3 m or more wide; or*
>
> *(g) downstream of a dwelling with a ground-floor level that is less than 1 m above the highest part of the river crossing*.

The purpose of Regulation 43(f) is to reduce the likelihood of damage to a downstream *dwelling*, in the case of blockage or structural failure of an upstream crossing. This upstream buffer distance of 500m means that any crossing failure or debris caught up in a *river crossing* will have lost energy and will have reduced the ability to cause damage by the time it reaches the dwelling. This condition only applies where the *dwelling* is reasonably close to a river (within 15m) so that the construction of *river crossings* is not unnecessarily constrained where the risk of such damage is low. The 500m buffer distance should be measured from the downstream side of the *river crossing* and measure the shortest distance to the upstream facing side of the house (see Figure 11 below).

The purpose of Regulation 43 (g) is to avoid flooding of a *dwelling* should the water pond behind the *river crossing* (e.g. the *culvert* becomes blocked with debris during a storm event). There is no maximum distance between the *river crossing* and dwelling specified in (g) because any upstream houses that have a ground floor elevation less than 1m higher than the *river crossing* have the potential to be flooded. Naturally, the elevation of the dwelling above the river crossing will increase the further upstream the dwelling is.

Figure 11 and 12 show situations under Regulation 43 (f) and (g) where *river crossings* are not to be constructed to assist in understanding these locational limits on *river crossings*.

[52] Different sized *wetlands*, outstanding freshwater bodies and waterbodies subject to a conservation order, and *significant natural areas.*

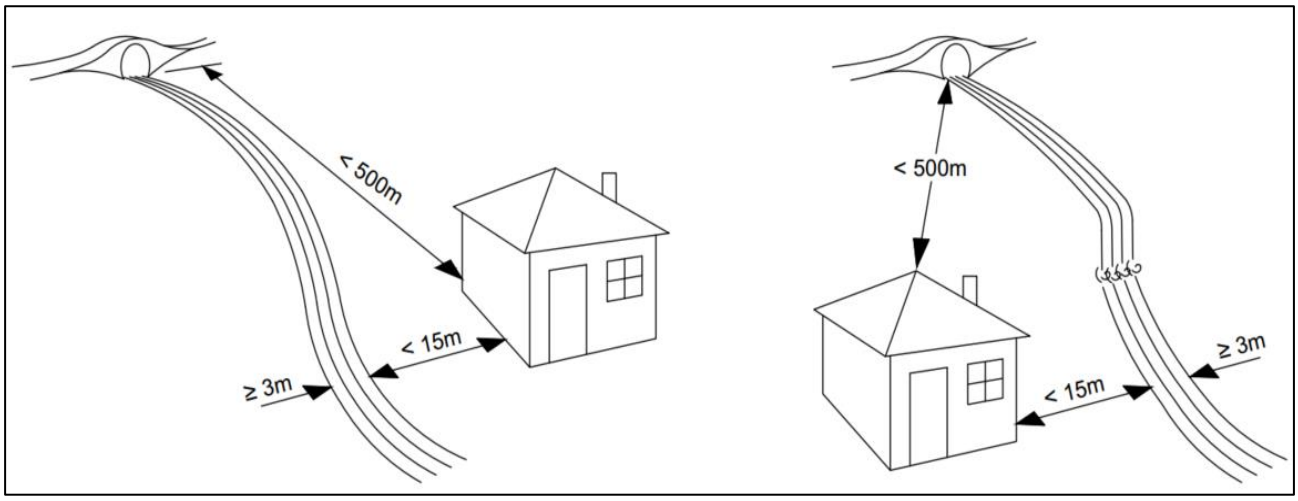

Figure 11: Diagram of river crossing upstream of dwelling that is within 15m from river bed.

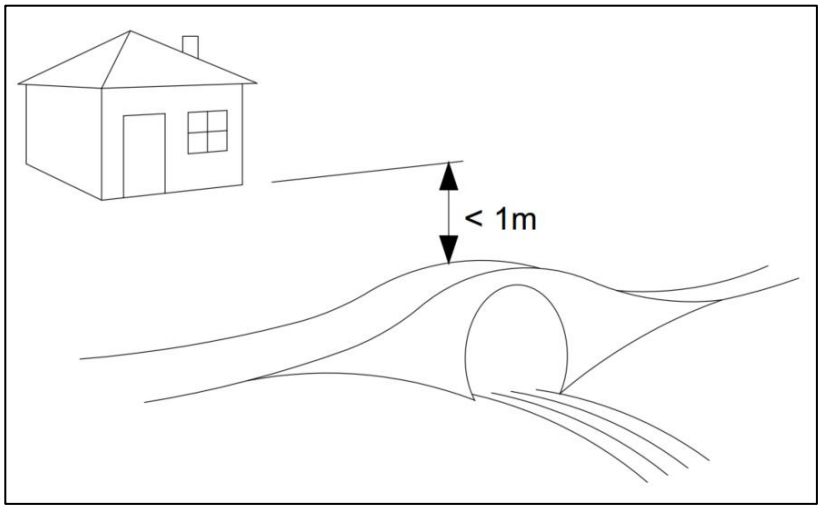

Figure 10: Diagram of dwelling with ground level less than 1m above river crossing.

5.4.9 Guidance on specific types of *river crossings*

The *river crossing* regulations in Subpart 4 of the NESPF require that to be a permitted activity:

- The general regulations for *river crossings* (Regulations 38-45) [53] are complied with; **and**
- Regulations specific to the type of *river crossing* are complied with (Regulation 46) [54].

Regulation 46 sets out the permitted activity conditions specific to various types of *river crossings*. In all cases there is an upper limit to the size of the *river crossing* and resource consent is required for any *river crossing* larger than the specified limit.

5.4.10 Single culverts

Culvert and *single culvert* are defined in the NESPF as follows:

> ***culvert*** *means—*
>
> *(a) a pipe or box structure that conveys a stormwater flow under a forestry road or forestry track; or*

[53] Except for a *temporary river crossing* which does not need to comply with Regulation 42.

[54] In the case of temporary single span bridges these must also meet 46(5)(b), (c) and (d).

(b) the entire structure used to channel a water body under a forestry road or forestry track

***single culvert** means a river crossing structure made by using 1 culvert to carry the water flow and creating a surface on top of the culvert to cross a water body*

*Single culvert*s are the most common *river crossing* used to cross small to medium sized streams. *Culverts* can be smooth or corrugated and made from a wide range of materials - plastic, concrete, galvanised steel or aluminium. *Culverts* are easy to install and relatively low cost compared to other types of *river crossings*. When they are designed, constructed and maintained correctly, culverts will effectively function for many years. However, they still require careful planning and installation to prevent failure.

The focus of the permitted activity conditions for *single culverts* in Regulations 46(1)(a)-(i) is to manage environmental and natural hazard risks. The specific conditions for *single culverts* are:

- **Regulation 46(1)(a)** – the calculated 5% *AEP* storm flow from the catchment above the river crossing point must be less than or equal to 5.5m³ per second. This condition manages flood risk by ensuring the *single culvert* is designed to cope with an acceptable amount of storm flow to mitigate downstream flooding effects. Storm flows above this threshold will be subject to engineering peer review via a resource consent process. This will ensure that engineering design is appropriate in terms of the potential adverse effects on the environment.

  Regulation 45 sets out the three approved methodologies for flood flow estimations, which can be used with local rainfall data. Alternatively, using the online NIWA tool: High Intensity Rainfall Design System (HIRDS) will automatically provide answers by using two of the three approved methods. It is safer to calculate culvert sizing on the more conservative (larger) flow that HIRDS provides. HIRDS can be accessed through the NIWA website: https://hirds.niwa.co.nz/. Note however that HIRDS does have limitations in that it only calculates flows for each stream section between junctions. It can therefore be very conservative for the upper part of a stream section if there are long stretches between junctions;
- **Regulation 46(1)(b)** – *single culverts* must be designed to pass a 5% *AEP* flood event without *'heading up'*. *Heading up* id defined in the NESPF as *"means hydraulic head of water above the culvert inlet at times when a culverts nominal capacity is exceeded*". It occurs when the capacity of the pipe cannot handle the full flow of water reaching it and water starts to build up on the upstream side of the *culvert*. This can create dam-like conditions and, in the event of structural failure, this will result in a higher volume of stream flow being released downstream;
- **Regulation 46(1)(c)** – the *culvert* diameter must be at least 450mm. This is to provide sufficient internal diameter to allow for maintenance;
- **Regulation 46(1)(d)** – the highest point (inlet end) of the *river crossing* must be no greater than 3.5m above the river bed. This is in case of blockage and structural failure. This height limits ensures that if the *culvert* is completely blocked, the height of the dam created by the culvert will be no more than 3.5m;
- **Regulation 46(1)(e)** – fill depth and construction must comply with *culvert* manufacturer's specifications. This is to avoid *culverts* being crushed or cracked because the fill has not been placed in a way that the road load bears evenly on the *culvert* pipe;
- **Regulation 46(1)(f)** – the *culvert* invert must be located so that at least 20% of the *culvert's* diameter is below the river bed level. This is to provide for fish passage;
- **Regulation 46(1)(g)** – where the *bankfull channel width* is 3 m or more, the bed invert gradient must be no greater than 6, measured 50m upstream and downstream of the *single culvert*;

- **Regulation 46(1)(h)** – the inlet and outlet must be protected from erosion. Protection options when designing and constructing *single culverts* include armouring the headwall and culvert outlet, rip rap, reno mattress, durable logs, gabions, wing walls or energy dissipating structures; and
- **Regulation 46(1)(i)** - approaches and *fill* must be constructed using successively compacted layers of clean *fill* that is free of organic matter. This is to ensure the *fill* is stable.

5.4.11 Battery culverts

Battery culverts are defined in the NESPF as follows:

> ***battery culvert*** *means a river crossing structure made by using multiple culverts that allows the free flow of water in low flow conditions and high flows and debris to flow over the top of the entire structure*

Battery culverts are a series of pipe or box culverts installed alongside each other to form a low-profile crossing. The normal stream flow passes through the culverts, but during flood events, water flows over the top of the crossing. This allows the dry passage of vehicles in normal conditions but may result in the road occasionally being closed to vehicles for short periods during storm events.

The permitted activity conditions for *battery culverts* in Regulations 46(2)(a)-(h) are to manage environmental and natural hazard risks. The specific conditions for *battery culverts* are:

- **Regulation 46(2)(a)** – the contributing catchment must be less than 500ha. Catchments larger than this can generate significant flows and the engineering design of *battery culverts* within these catchments needs to be carefully assessed. The engineering peer review that happens via a resource consent process for catchments over 500ha is an important part of confirming that engineering design of the *battery culvert* is appropriate for larger catchments;
- **Regulation 46(2)(b)** – maximum height of *battery culvert* (measured from the river bed) must be less than or equal to 800mm. This is to avoid creating a significant dam structure, which could have substantial downstream effects if it failed and have a substantial erosive force on the river bed if it overtopped;
- **Regulation 46(2)(c)** – *culvert* diameter must be at least 450mm but not exceed 800mm, except that the *culvert* that carries base flow must be at least 450mm in diameter but not exceed 1.2m. This allows for the central *culvert* that carries base flow to be a bit larger and set a bit deeper than the other *culverts*;
- **Regulation 46(2)(d)** – the invert of at least 1 *culvert* pipe must be at least 100mm below the river bed level and positioned to carry base flow. This is to ensure that at least one pipe provides fish passage at the lowest flow level;
- **Regulation 46(2)(e) and (f)** – inlets, outlets and approaches must be protected from erosion – protection options when designing and constructing *battery culverts* include armouring the culvert outlet with a concrete apron, rip rap, reno mattress, or other energy dissipating structures. Inlets can also be protected by deflectors that force most woody debris up and over the structure;
- **Regulation 46(2)(g)** – if the *bankfull channel width* is 3m or more, the bed invert gradient must be no greater than 6% measured 50m upstream and downstream of the *river crossing*; and
- **Regulation 46(2)(h)** – the *culvert* must be sized to pass annual average flow and constructed to allow greater flows to pass over it without structural failure.

5.4.12 Drift decks

Drift deck is defined in the NESPF as follows:

> ***drift deck*** *means a river crossing structure composed of a series of inverted U-shaped precast concrete elements that is designed to pass low flows through the structure and allow high flows and debris to flow over the top of the entire structure*

Drift decks can be a series of open bottomed inverted "U" precast concrete components, or a series of rectangular concrete box segments. Each segment is secured to each other for the length of the structure. Those with an open bottom typically need a concrete base or piers for support as an anchor. Alternatively, they may use piers cast in-situ with precast concrete bridging slabs. The open bottom and concrete bridging slabs can be removed for use at a different site. Often the slabs are lifted off and re-used elsewhere once *harvesting* within an area is complete, leaving the piers in place for the next harvest rotation.

Drift decks cause less damage if they fail compared to *culvert* crossings so there are fewer specific conditions in the NESPF for *drift decks*. The specific conditions that apply to *drift decks* are:

- **Regulation 46(3)(a)** – contributing catchment must be less than 500ha. Catchments larger than this can generate significant flows. A resource consent process for contributing catchments over 500ha is important to provide some regulatory oversight and confirm that engineering design of the *drift deck* is appropriate for larger catchments;
- **Regulation 46(3)(b)** – approaches and outlets must be protected from erosion. Inlets from *drift decks* are more challenging to protect from large woody debris because debris cannot be deflected as easily as from a battery culvert. Using a debris fence upstream and armour outlets with rip rap, reno mattress, or other energy dissipating structures may help to protect *drift decks* from erosion; and
- **Regulation 46(3)(c)** – if the *bankfull channel width* is 3m or more and the *bed invert gradient* is greater than 6% measured 50m upstream and downstream of the *river crossing*, two discrete footings must be used to embed the *drift deck* into the substrate. This is to maintain the natural bed material under the structure.

5.4.13 Fords

Ford is defined in the NESPF as follows:

> ***ford*** *means a hard surface on the bed of a river (that is permanently or frequently overtopped by water) that allows the crossing of a river by machinery or vehicles*

Fords are generally used on low volume roads to cross broad, shallow, low to medium flow streams. This makes it easy for the road grade to be brought down to the level of the channel bottom. *Fords* can be just a graded river bed, a naturally rocky bed or can have a concrete pad to assist with vehicle traction and to reduce sedimentation from vehicle passes.

Fords differ from other *river crossings* in that they also can create *sediment* problems when they are being used, not just while they are being constructed. The specific conditions that apply to *fords* are:

- **Regulation 46(4)(a)** – water from *forestry roads or forestry track* surface must be intercepted and passed through a sediment treatment structure, such as a sediment trap, positioned as close as practicable to the water body above the annual flood flow level. The purpose is to minimise the release of sediment to the water body;
- **Regulation 46(4)(b)** – use of the *ford* must not cause a conspicuous change in colour or visual clarity beyond a 100m mixing zone downstream for more than 30 consecutive minutes after use of the *ford.* It is expected that councils will apply their own guidelines and procedures to assess what is a conspicuous change in colour or visual clarify (as discussed further in section 4.9); and

- **Regulation 46(4)(c)** – new *fords* are not permitted where a regional plan or Water Conservation Order has identified the river as a habitat for threatened indigenous fish or as a fish spawning area. The relevant regional council will be able to confirm whether the river is a habitat for threatened indigenous fish or is a fish spawning area and the list of Water Conservation Order can be found on the Ministry for the Environment's website[55].

5.4.14 Single-span bridges

Single-span bridges are the most common type of bridge used for *plantation forestry* and are typically beam and deck construction. Beams are usually steel "I", stressed concrete, steel truss, or glulaminated, while decks are pre-stressed concrete or timber. Shorter crossing may be made from concrete slabs. Bridges typically cost more to construct than culverts or low-level *river crossings* such as *fords*.

Single-span bridges require thorough engineering design input. The specific conditions in the NESPF for single-span bridges are:

- **Regulation 46(5)(a)** – there must be at least 1m clearance of the bridge soffit (bottom part of bridge) above the design flood level, from a 2% AEP event;
- **Regulation 46(5)(b)** – bridges must not decrease the *bankfull channel width* or top flow width by more than 10%. This is so that the water profile is not impeded in high flow conditions. This could occur if, for example, the piers had supporting struts attached to the bridge deck;
- **Regulation 46(5)(c)** – abutments or foundations must be constructed parallel to the channel. This is to reduce the likelihood of scouring, and to retain the maximum river channel width; and
- **Regulation 46(5)(d)** – a bridge on a navigable *water body* must permit continued navigability.

5.4.15 Temporary river crossings

Temporary river crossings are defined in the NESPF as follows:

> ***temporary river crossing—***
>
> *(a) means a river crossing that is in place for up to 2 months; and*
>
> *(b) includes a corduroy, which is a structure made by laying a culvert in the bed of a river to carry the water flow and creating a running surface approach using logs placed parallel to the culvert; but*
>
> *(c) does not include a bridge or ford*

Temporary river crossings are used generally *during harvesting* to cross very small or intermittently flowing streams, to avoid the machinery getting bogged in wet ground and the associated damage to the streambed. The definition in the NESPF effectively limits *temporary river crossings* to being in place for two months otherwise the other *river crossing* conditions apply.

The specific conditions in the NESPF for *temporary river crossings* are:

- **Regulation 46(6)(a)** – excavation of the banks or bed of a river must not be greater than 200m²;
- **Regulation 46(6)(b)** – if logs are placed in the bed of a river, a culvert of 300mm diameter or greater must be placed in the bed first; and

[55] http://www.mfe.govt.nz/fresh-water/water-conservation-orders/existing-water-conservation-orders

- **Regulation 46(6)(c)** – all *river crossing* materials must be removed from the bed of the river within 1 week of completion of construction or removal. This condition relates to excess construction materials at the time of construction not the materials associated with the *temporary river crossing* being in place which can be for up to two months.

5.4.16 Temporary single-span bridges

Temporary single-span bridges are defined in the NESPF as follows:

> ***temporary single-span bridge*** *means a single-span bridge that is in place for up to 2* years

In some instances, temporary portable bridges are used for short-term *harvesting* and transport access. These are designed for rapid construction and dismantling. Most consist of prefabricated beams and decking. The NESPF includes the following specific conditions for *temporary single span bridges*:

- **Regulation 46(6)(a)** – bridge must be constructed to pass the flood flow from a 5% *AEP* event under the bridge *soffit*; and
- **Regulation 46(6)(b)** – bridges must be constructed to enable the passage of bed material.

5.5 *FORESTRY QUARRYING* (REGULATIONS 50 – 61)

5.5.1 Overview of plantation forestry activity

Forestry quarrying is a regulated activity under Regulation 5(1)(e) of the NESPF. The NESPF regulations for three ancillary activities (Part 2, subpart 9) and the general provisions (Part 2, subpart 10) must also be complied with as relevant when undertaking *forestry quarrying*.

Forestry quarrying is defined in the NESPF as:

> *(a) means the extraction of rock, sand, or gravel for the formation of forestry roads and construction of other plantation forest infrastructure, including landings, river crossing approaches, abutments, and forestry tracks; -*
>
> *i. within a plantation forest; or*
>
> *ii. required for the operation of a plantation forest on adjacent land owned by or managed by the owner of the plantation forest; and*
>
> *(b) includes the extraction of alluvial gravels outside the bed of a river, extraction of minerals from borrow pits, and the processing and stockpiling of material at the forest quarry site; but*
>
> *(c) does not include earthworks, mechanical land preparation, or gravel extraction from the bed of a river, lake, or other water body.*

Many large *plantation forests* have dedicated forestry quarries within the boundaries of the *plantation forest* that extract material for the construction of *forestry roads*, *forestry tracks* and other *forestry infrastructure*. In smaller first-rotation *plantation forests*, rock and gravel may have been extracted from suitable sources near the construction of *forestry roads* and other fo*restry infrastructure*, resulting in a number of small extraction sites (also known as borrow pits).

The distinction between *forestry quarrying* and *earthworks* in clause (c) of the definition above is important. For example, if *earthworks* are being carried and in the course of *earthworks* the material excavated is suitable to be used for road construction that is still *earthworks* – it is not a forestry quarry. A forestry quarry is where you excavate solely for the purpose of extracting material.

In addition to the NESPF regulations relating to forestry quarrying, there are specific quarrying regulations under the Health and Safety at Work Act 2015[56] that foresters need to comply with.

5.5.2 Potential adverse environmental effects

Forestry quarrying can have similar adverse effects to *earthworks* in relation to soil and slope stability, sedimentation and adverse effects on water quality. There are also potential adverse effects from *forestry quarrying* on landscapes and amenity values (e.g. from noise and visibility). In highly erosion-prone areas, where quarry material is likely to be in rocky outcrops, the key environmental risk relates to *overburden* disposal.

[56] The Health and Safety at Work (Mining Operations and Quarrying Operations) Regulations 2016, refer: http://www.legislation.govt.nz/regulation/public/2016/0017/latest/DLM6732829.html

5.5.3 Permitted activity and conditions

Forestry quarrying is a permitted activity if:

- **Territorial authority** – regulations 52(1) and (2), 53, 54(1) and (2), and 57 are complied with; and

- **Regional council** – the quarry is located in a green or *yellow zone*, or *orange zone* (except earthflow terrain) and regulations 52, 54(3) and (4), 55, 56, 58, and 59 are complied with.

A summary of the permitted conditions for *forestry quarrying* is provided in

Table 14. For exact wording of the conditions, refer to the NESPF which can also be accessed through the hyperlinks within the table.

Table 14: Summary of permitted activity conditions for forestry quarrying.

Condition	Territorial Authority	Regional Council
Notice (Regulation 52)	If the volume extracted from a forest quarry is more than 200m³ in any calendar year, written notice must be given of the proposed quarrying location, *setbacks*, and planned start and end dates. Notice must be given at least 20 and no more than 60 working days before the planned start date, or annually for ongoing forestry quarrying.	If the volume extracted from the forest quarry is more than 200m³ in any calendar year, written notice must be given of the proposed quarrying location, *setbacks*, and planned start and end dates. Notice must be given at least 20 and no more than 60 working days before the planned start date, or annually for ongoing forestry quarrying. Notice must state that a quarry erosion and sediment management plan is required, when this is required (under Regulation 59(1)). If the council requests a copy of the plan it must be supplied within 5 working days of the date by which the plan must be in place (under regulation 59(3)).
Visibility (Regulation 53)	A forest quarry within 2km of a *dwelling* under different ownership or management from the land where the quarry is located, where the quarry is visible from the *dwelling*, must not – ○ Quarry more than 5000m³ of material within a 5-year period; and ○ Be closer than 500m from any other quarry at which *forestry quarrying* exceeds 200m³ per calendar year.	N/A
Setbacks (Regulation 54)	New *forestry quarrying* must not be undertaken within 500m of: ○ A *dwelling* under different ownership or management from the land on which the forest quarry is located; or	*Forestry quarrying* must not be undertaken within the following *setbacks*. **20m**: • *Perennial river* **30m**: Coastal marine area

Condition	Territorial Authority	Regional Council
	○ The boundary of an *urban area* or a *papakāinga.* Excavated *overburden* must not be deposited within 20m of an adjoining property under different ownership or management from the land on which the forest quarry is located.	• *Wetland* larger than 0.25ha • Lake larger and 0.25ha
Deposition, stabilisation, and restoration (Regulation 55)	N/A	Excavated *overburden* must not be deposited: ○ Where it may cause failure of the material or underlying land; or ○ Over *slash* or woody vegetation; or ○ Into a *water body*/coastal water/*significant natural area*/within a setback referred to in Regulation 54(3) or (4); or ○ Onto land where it may result in *sediment* entering water. *Overburden* and exposed spoil generated from quarrying activities must be stabilised within 6 months of exposure to prevent erosion and sediment export. No *topsoil* stripped from the surface of the land must be removed from the property. Within 2 months of the quarry being deactivated, the land must be restored to a stable land form.
Sediment and stormwater control measures (Regulation 56)	N/A	*Sediment* *Sediment* originating from *forestry quarrying* must be managed to ensure that, after reasonable mixing, it does not cause the following effects in receiving waters: ○ A conspicuous change in colour or clarity; or ○ Rendering fresh water unsuitable for consumption by farm animals; or ○ Significant adverse effect on aquatic life. *Sediment and stormwater control measures*

Condition	Territorial Authority	Regional Council

		• All disturbed soil must be stabilised or contained to avoid it causing:
		  ○ The diversion or damming of any *water body*; or
		  ○ Damage to downstream infrastructure, property, or receiving environments.
		• *Stormwater, water run-off, and sediment control measures* must be installed and maintained.
		• Batters, cuts, and side cast construction must use methods that maintain stability.

Traffic management (Regulation 57)	Forestry quarry material must not be transported on a public road unless: • Material is being transported to a property under the same ownership or management as the *plantation forest*; and • Debris and soil is removed from wheels of vehicles transporting quarry material before vehicles exit the property on which the quarry is located; and • Material is transported 2km or less; and • Vehicles carrying material do not travel through an *urban area* or area zoned primarily for rural residential or country living activities in a district plan or proposed district plan.	N/A
Aquifers (Regulation 58)	N/A	The deepest excavation of a quarry must not extend: • Into the *aquitard* above a *confined aquifer*; or • Within 1m of the *seasonal high-water table* level above an *unconfined aquifer*.
Quarry erosion and sediment management plan (Regulation 59)		A quarry erosion and sediment management plan must: • Be prepared for any forest quarry if the volume extracted exceeds 200m³ in any calendar year;

Condition	Territorial Authority	Regional Council
		• Contain the details required by Schedule 4; • Identify environmental risks and provide measures to avoid, remedy or mitigate adverse environmental effects; and • Be in place at least 20 working days before *forestry quarrying* begins; and • Be provided to council upon written request (and provided annually if requested). *Material amendments* to the plan must be documented and dated, the relevant council must be advised that an amendment has been made and the amended plan must be made available to the relevant council on request. All quarrying activities must be undertaken in accordance with the plan.

5.5.4 Determining whether a resource consent is required

The flow chart in Figure 12 shows the process to determine whether *forestry quarrying* needs resource consent, the activity status when consent required, and whether consent is required from the relevant regional council and/or territorial authority. *Forestry quarrying* is also required to comply with the regulations for ancillary activities (Part 2, subpart 9) and the general provisions (Part 2, subpart 10) as relevant to be a permitted activity.

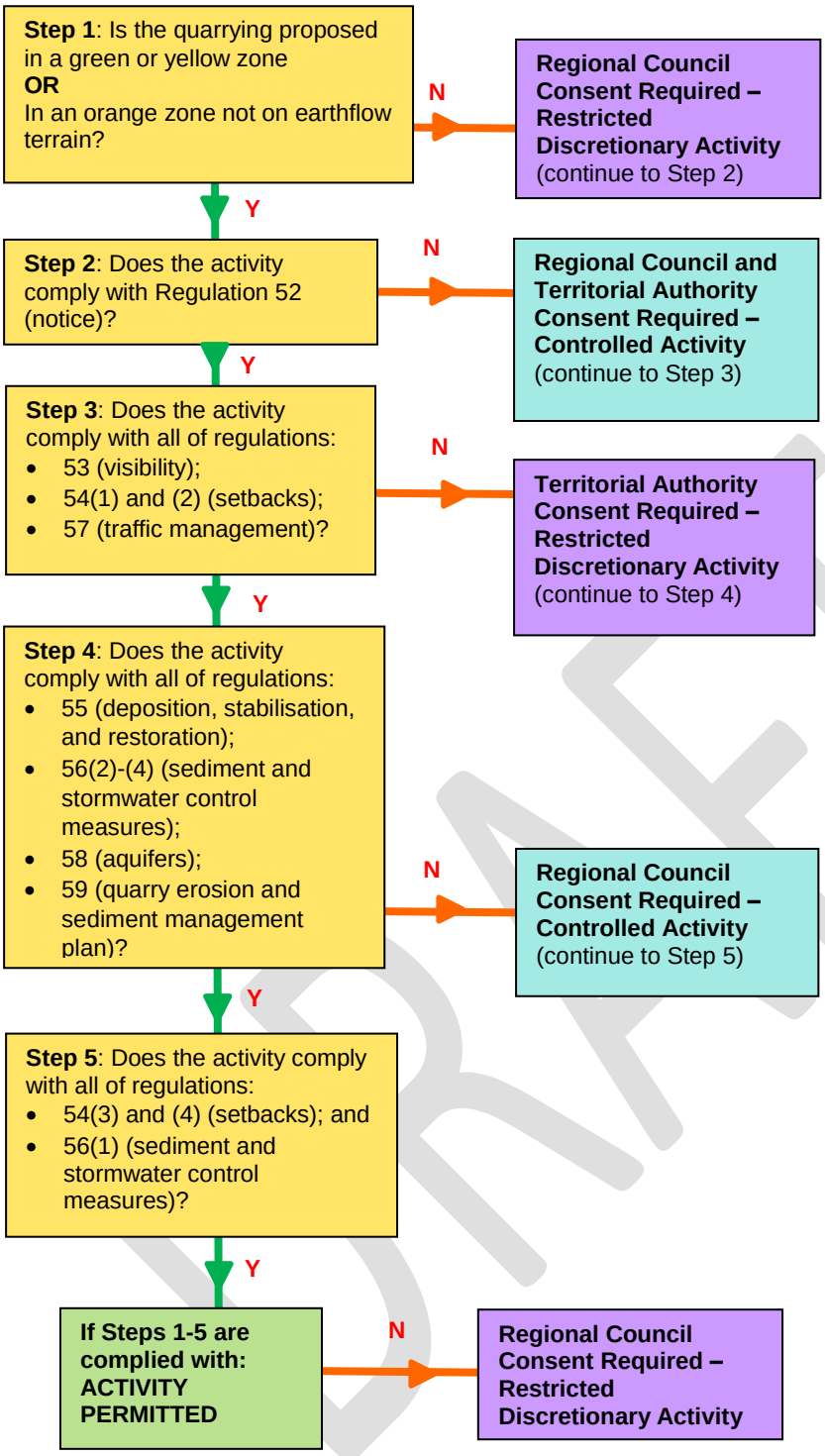

Figure 12: Flow chart to determine when resource consent is required for forestry quarrying.

5.5.5 Guidance on key conditions for *forestry quarrying*

This section provides guidance on a selection of *forestry quarrying* regulations to assist with interpretation and implementation.

5.5.6 Regulation 52(1) – Notice

Foresters are required to give the relevant regional council and territorial authority notice of *forestry quarrying* if the volume extracted exceeds 200m³ in a calendar year, which will generally be exceeded by most quarries. Determining whether notice is required will require

foresters to make an estimation of the likely extraction volume prior to beginning the activity and annually thereafter. It is important to consider the likely volume of material to be extracted in advance as Regulation 52(2)(a) requires notice to be provided at least 20 working days before the date the *forestry quarrying* is planned to begin (but no more than 60 working days).

Once it is determined that notice is required for *forestry quarrying*, the notice to the relevant councils must include:

- ***Details on the place of the forestry quarrying*** – this should provide an accurate description of the quarry's location with supporting maps where appropriate;

- ***Details of proposed setbacks (including a description of how these are calculated)*** – measurement will generally be on the ground or using a map but it may also be useful to clarify how certain boundaries were calculated where these are less obvious;

- ***The planned start and end date of the forestry quarrying*** – this should be as accurate as possible while recognising that in many cases the exact end date for *forestry quarrying* will not be known prior to the activity commencing and some flexibility is required; and

- ***Whether a forestry quarry erosion and sediment management plan is required*** – the thresholds for notice and the forestry quarry erosion and sediment management plan are the same (200m³ of material extracted in any calendar year). Therefore, the notice should simply confirm the quarry erosion and sediment management plan is required.

<Section 5.2. of the NESPF Consenting and Compliance Guide> provides more detailed guidance on the notice provisions in the NESPF, including timeframes, formally receiving and acknowledging notice.

5.5.7 Regulation 53 – Visibility

Regulation 53 manages the visual effects of forest quarries within 2km of a *dwelling* under different ownership or management from the land on which the quarry is located where the quarry is visible from that *dwelling*. It includes two conditions:

- Regulation 53(a) places a limit on the maximum amount of extraction (no more than 5000m³) than can occur within a 5-year period. This effectively restricts the size of a quarry where this is visible from a dwelling; and

- Regulation 53(b) places limits on the proximity of other quarries (where the quarrying exceeds 200m³ per calendar year) to the visible quarry (must not be closer than 500m). This manages the cumulative visual effects of quarries where they are visible from dwellings.

Determining whether a forestry quarry is visible from *dwelling* within 2km of the quarry will generally necessitate a site visit to that dwelling, although in some cases it will be obvious without a site visit. The visibility of the forestry quarry may also change during the quarry operation due to the use or loss of screening or an increase in the size of the forestry quarry.

Regulation 53 is a territorial authority regulation, meaning that existing use right under section 10 of the RMA apply to forestry quarries that were lawfully established prior to the NESPF coming into force. <Section 2 of the NESPF Consenting and Compliance Guide> provides more detailed guidance on existing use rights under the NESPF.

5.5.8 Regulation 54 – Setbacks

<Section 4.3> of this User Guide provides general guidance on the NESPF setbacks, including how to measure the setbacks in Regulations 54(1), 54(3) and 54(4).

Regulation 54(2) sets out requirements for excavated *overburden* not to be deposited within 20m of an adjoining property under different ownership or management from the land which the forestry quarry is located. *Overburden* is defined in the NESPF as *"the overlying soil and rock that is removed to allow quarrying of the underlying material".* This material can cause adverse visual and amenity effects on adjoining properties if not well managed and Regulation 54(2) seeks to manage these effects. Where practicable, *overburden* should be located further away than 20m from adjoining properties, particularly when *dwellings* or sensitive land uses are near the boundary.

5.5.9 Regulation 55 – Deposition, stabilisation and restoration

To extract the desirable rock, *forestry quarrying* often involves removing overlying layers of unsuitable material – referred to as *overburden*. This may be *topsoil* – which defined in Regulation 55 as '*the surface layer of soil, enriched by organic matter and dark brown to black in colour, to a maximum depth of 25 cm'.* It may also include deeper material overlying the desirable rock. The amount of *topsoil* and deeper material to be removed will depend on how deep the desirable material is.

To avoid stability issues and adverse effects on water bodies, Regulation 55(1) controls where excavated *overburden* is deposited. It will generally be obvious if *overburden* has been deposited in one of the areas referred to in Regulation 55(1), such as on areas of *slash*. It is in the forester's interest to place *overburden* on stable areas and away from areas where it may cause *sediment* and erosion problems. This will typically be somewhere on flat land, away from of *slash* and waterbodies. Regulation 55(2) also requires *overburden* and exposed *spoil* to be stabilised within 6 months of exposure to prevent soil erosion and sedimentation. This may involve covering or vegetating the *overburden* to achieve stabilisation.

To achieve restoration of the quarry site:

- Regulation 55(3) requires that *topsoil* must be retained on the property it is stripped from for the future restoration of the land; and
- Regulation 55(4) requires that within 2 months of the quarry being deactivated, the land must be restored to a stable land form.

5.5.10 Regulation 56 – Sediment and stormwater control measures

Regulations 56(1), 56(2) and 56(3) are intended to work together – the stabilisation and containment of soil and the installation and maintenance of appropriate stormwater, water run-off and *sediment control measures* will help ensure the water quality standards in Regulation 56(1) are complied with. Section 4.9 of this User Guide provides general guidance on the conditions in the NESPF relating to the effects of sediment discharges in receiving waters.

Examples of suitable control measures to stop and slow water in order to reduce sedimentation are outlined in Sections 4.8 of this User Guide. The most appropriate stormwater, water run-off and sediment control measures for *forestry quarrying* will need to be determined on a case by case basis and depend on the size and location of the *forestry quarry* and site-specific factors such as topography, rainfall, and proximity to waterbodies. Foresters need to decide which measures will be the most suitable for their particular site and activity and to record these in the quarry erosion and sediment management plan. Foresters may also draw on existing council and industry guidance to identify appropriate stormwater, water run-off and *sediment control measures* for their forestry quarry.

5.5.11 Regulation 57 – Traffic management

Regulation 57 manages the effects of transporting material from a *forestry quarry* on public roads by only allowing this to occur as a permitted activity if all of 57(a)-(d) are complied with. It places restrictions on:

- Where quarry material can be transported to – it must be to a property under the same ownership or management as the *plantation forest* it originated from;
- The distance the quarry material can be transported – 2km or less; and
- The transportation route – quarry material cannot be transported through *urban areas* (refer to section 4.6 for an explanation of *urban areas*) and areas that are zoned primarily for rural residential or country living activities in a district plan or proposed district plan. This effectively means that quarry material can be transported through areas zoned in a district plan or proposed district plan primarily for rural activities[57].

Regulation 57 is not intended to manage the adverse effects of trucks transporting forest quarry material on public roads. The restrictions on where quarry material can be transported to (Regulation 57(a)) and the distance quarry material can be transported (Regulation 57(c)), is to ensure that quarried material is used within the *plantation forest* (as opposed to being trucked offsite for other activities). This also helps ensure that the size of the quarry stays proportionate to the needs of the immediately surrounding *plantation forest*. The 2km maximum travel distance is to give foresters some flexibility to transport quarry rock between different parts of their forest where short trips on public roads might be needed.

Regulation 53 is a territorial authority regulation meaning that existing use right under section 10 of the RMA apply to forestry quarries that were lawfully established prior to the NESPF coming into force. <Section 2 of the NESPF Consenting and Compliance Guide> provides more detailed guidance on existing use rights under the NESPF.

5.5.12 Regulation 58 – Aquifers

Regulation 58(2) includes some specific definitions relating to Regulation 58(1) as follows:

> ***aquifer*** *means a water-saturated zone of the ground that will yield groundwater to bore and springs at a sufficient rate to serve as an adequate source of water*
>
> ***aquitard*** *means a low-permeability soil layer that restricts the flow of groundwater from one aquifer to another*
>
> ***confined aquifer*** *means a saturated water-bearing formation that does not have a free water table and is protected by an aquitard from surface contamination*
>
> ***seasonable high water table*** *means the highest groundwater elevation that the water table has reached between the months of June and August (inclusive) at the time the activity is established*
>
> ***unconfined aquifer*** *means a saturated water-bearing formation that has free water table and is not protected by an aquitard from surface contamination.*

There is a relationship between Regulation 58(1)(b) and Regulation 6(3)(d) – the latter allows more stringent rules to prevail over the NESPF when the rule manages *forestry quarrying* activities over a shallow water table (less than 30m below ground level) that is above an *aquifer* used for human drinking water supply. Essentially, the distinction between the two regulations are:

- Regulation 58(1)(b) manages the depth of *forestry quarrying* above **all *aquifers***; and

[57] Potentially also open space zones and special purpose areas that are not zone primarily for rural residential activities and do not meet the definition of *urban areas.*

- Regulation 6(3)(b) allows plan rules to be more stringent where they manage *forestry quarrying* activities over ***aquifers* used for human drinking water supply**.

5.5.13 Regulation 59 – Quarry erosion and sediment management plan

Regulation 59 requires the preparation of a quarry erosion and sediment management plan for *forestry quarrying* where the volume of material extracted exceeds 200m³ in a calendar year, which is likely to be exceeded by most quarries. The purpose of the quarry erosion and sediment management plan is to ensure environmental and site-specific risks associated with *forestry quarrying* are identified and managed up-front. The quarry erosion and sediment management plan must:

- Be provided to the relevant regional council on written request;
- Be in place 20 working days before *forestry quarrying* begins; and
- Contain the information required in Schedule 40.

Key requirements in the quarry erosion and sediment management plan include:

- Identification of waterbodies and on-site risk areas;
- Details of the management practices that will be used to avoid, remedy or mitigate the effects of quarrying, with **sufficient detail to enable a site audit to be carried out**;
- Erosion and sediment control measures to be used; and
- How the quarry will be restored after quarrying ceases.

Forestry quarrying must be undertaken in accordance with the plan.

Regulation 59 is a regional council function and the quarry erosion and sediment management plan is focused on managing erosion and sediment related effects, not effects from *forestry quarrying* that fall within territorial authority functions (e.g. visibility from dwellings, traffic management).

<Section 5.3 of the NESPF Consenting and Compliance Guidance> provides more information on management plan preparation, receipt and review, and *material amendments* to management plans

5.6 *HARVESTING* (REGULATIONS 62-71)

5.6.1 Overview of plantation forestry activity

Harvesting is a regulated activity under Regulation 5(1)(f) of the NESPF. The NESPF ancillary activity regulations (Part 2, subpart 9) and general provisions (Part 2, subpart 10) must be complied with as relevant for *harvesting*.

Harvesting is defined in the NESPF as follows:

> *(a) means felling trees, extracting trees, thinning tree stems and extraction for sale or use (production thinning), processing trees into logs, or loading logs onto trucks for delivery to processing plants; but*
>
> *(b) does not include—*
>
> *(i) milling activities or processing of timber; or*
>
> *(ii) clearance of vegetation that is not plantation forest trees.*

Clear felling is the most common type of *harvesting* in New Zealand and involves cutting down an entire stand of trees. Trees are extracted using methods suited to the land, access, forest size and the surrounding environment. Many clear-fell operations take place on steep terrain, where cable hauling is the most common extraction method used.

Harvesting also includes 'production thinning' and 'low-intensity *harvesting*'. Production thinning is a way of extracting an intermediate crop before final *harvesting*. The number of logs extracted during production thinning is significantly less than those from the final crop. Low intensity *harvesting* encompasses selective logging regimes.

The activity of *harvesting* in the NESPF finishes at the point where the logs are loaded onto trucks for delivery to processing plants. The NESPF does not cover any further activities, such as transporting the logs, unloading them at any destination or the processing of timber.

5.6.2 Potential adverse environmental effects

Harvesting has the potential for adverse environmental effects if not properly managed, particularly in difficult terrain and when it takes place near sensitive receiving environments. Potential adverse effects from *harvesting* include:

- *Slash* from *harvesting* reaching water leading to changes in water chemistry or the damming and diverting of water, possibly damaging downstream *forestry infrastructure* (e.g. bridges and *culverts*);
- Soil disturbance from *harvesting* including by *harvesting* machinery leading to sedimentation in waterbodies and adversely affecting water quality and instream habitats;
- Riparian vegetation disturbance and potential effects on indigenous flora and fauna; and
- Soil erosion post-harvest, as the harvested tree roots rot and the slope loses stability.

5.6.3 Permitted activity and conditions

Harvesting is a permitted activity in relation to **territorial authority** functions if notice is provided in accordance with Regulations 64(1) and (2). All other *harvesting* regulations in the

NESPF relate to **regional council** functions. *Harvesting* is a permitted activity in relation to regional council functions if:

- Regulations 64 to 69 are complied with; and
- It is located in the:
    - Green, yellow, or *orange zone*; or
    - *Red zone* that is not of Land Use Capability Class 8e, where it involves no more than 2 ha of *harvesting* in any 3-month period; or
- A minimum of 75% canopy cover is maintained at all times for any given hectare of *plantation forest* land (low-intensity *harvesting*) in all ESC zones.

A summary of the permitted conditions for *harvesting* in relation to regional council functions is provided in Table 15. For exact wording of the conditions, refer to the NESPF which can be accessed through the hyperlinks in the table.

Table 15: Summary of permitted activity conditions for harvesting.

Condition	Regional Council
Sediment (Regulation 65)	*Sediment* originating from harvesting must be managed to ensure that, after reasonable mixing, it does not give rise to any of the following effects in receiving waters: ○ A conspicuous change in colour or visual clarity; or ○ Rendering fresh water unsuitable for consumption by farm animals; or ○ Significant adverse effect on aquatic life.
Harvest plan (Regulation 66)	• A harvest plan is required for *harvesting* in all ESC zones; • The harvest plan must identify environmental risks and responses and contain details required in Schedule 3; • The harvest plan must be in place 20 working days before *harvesting* begins except for salvage operations where it must be in place before *harvesting* begins; • Where located in *orange zone* or *red zone*, the harvest plan must be accompanied by forestry earthworks management plan or a combined plan must be prepared; • The harvest plan must be provided to the relevant council on request, and the council may request that it is provided annually; • The relevant council must be advised of material amendments to the harvest plan and the amended plan must be provided on request; and • All *harvesting* must be undertaken in accordance with the harvest plan.
Ground disturbance (Regulation 67)	• Harvest systems must be planned and located to achieve *butt suspension* wherever practicable; • Disturbed soil must be stabilised or contained to minimise *sediment* entering water and resulting in: ○ Diversion or damming of any *water body*; or

<table>
<tr><th>Condition</th><th>Regional Council</th></tr>
<tr><td></td><td>

Degradation of the aquatic habitat, riparian zone, freshwater body, or coastal environment; or
Damage to downstream infrastructure and properties.

</td></tr>
<tr><td>Disturbance of margins of waterbodies and coastal marine area (Regulation 68)</td><td>

Trees must be felled away from any water body or riparian zone during harvesting, except where it is unsafe to do so.
If unsafe to do so, trees must be felled directly across the water body for full-length extraction before de-limbing or heading;
Full suspension tree harvesting in a manner that lifts the entire tree above the ground must be achieved across rivers of 3 m or more in width;
Harvesting machinery must not be operated within the following setbacks.

<table>
<tr><th>5m</th><th>10m</th><th>30m</th></tr>
<tr><td>A perennial river with a bankfull channel width less than 3m; or
Wetland larger than 0.25ha</td><td>Perennial river with a bankfull channel width 3m or more; or
Lake larger than 0.25ha; or
Outstanding freshwater body; or
Water body subject to a Water Conservation Order</td><td>Coastal marine area</td></tr>
</table>

Harvesting machinery may be operated in the above setbacks if:

Any disturbance to the water body from the machinery is minimised; and
The harvest machinery is being operated—

At water body crossing points; or
Where slash removal is necessary; or
Where essential for directional felling in a chosen direction or extraction of trees from within the setbacks above.

When harvesting occurs within or across a riparian zone, all disturbed vegetation, soil, or debris must be deposited to avoid it entering into water in order to avoid specified adverse effects.

</td></tr>
<tr><td>Slash and debris management (Regulation 69)</td><td>

Slash from harvesting must be placed onto stable ground.
Slash from harvesting that is on the edge of landing sites must be managed to avoid the collapse of slash piles.
Slash from harvesting must not be deposited into a water body or onto the land that would be covered by water during a 5% AEP event. If this is not complied with, slash from harvesting must be removed from a water body and the land that would be covered by water during a 5% AEP flood event, unless it is unsafe to do so, to avoid specified adverse effects.

</td></tr>
</table>

5.6.4 Determining whether a resource consent is required

The flow chart in **Error! Reference source not found.** shows the process to determine whether *harvesting* requires resource consent, the activity status when consent is required, and whether consent is required from the regional council and/or territorial authority. *Harvesting* is also required to comply with the ancillary activity regulations (Part 2, subpart 9) and general provisions (Part 2, subpart 10) as relevant to be a permitted activity.

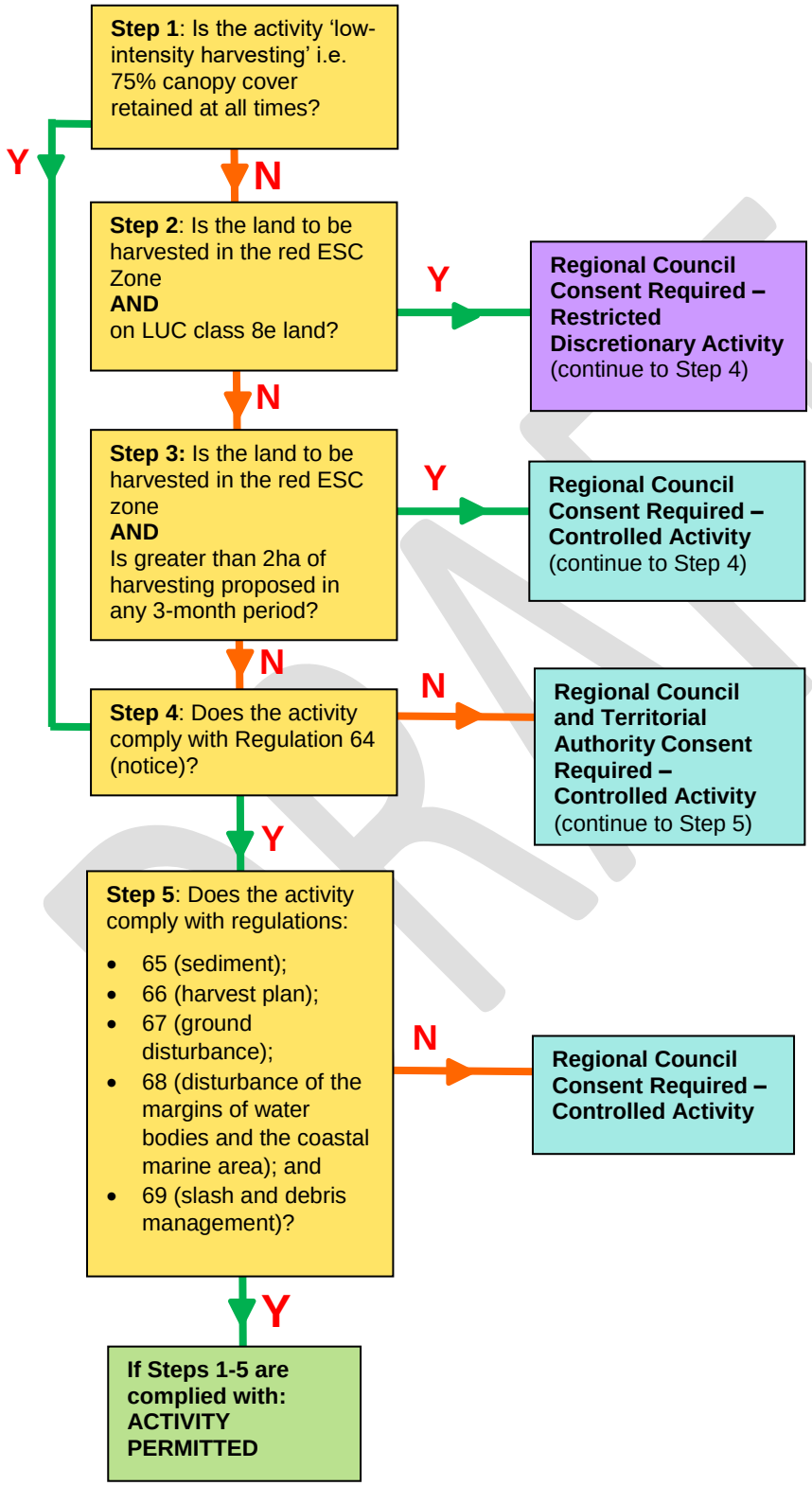

Figure 13: Flow chart to determine whether resource consent is required for harvesting.

5.6.5 Guidance on key conditions for *harvesting*

This section provides guidance on selected *harvesting* regulations to assist with interpretation and implementation.

5.6.6 Regulation 63(3) – Low intensity *harvesting*

Regulation 63(3) provides for low intensity harvesting as a permitted activity, regardless of which ESC zone it is located in. *Low intensity harvesting* is explained in Regulation 63(3) as:

> *'Harvesting where a minimum of 75% canopy cover is maintained at all times for any given hectare of plantation forest land'*

Low intensity harvesting involves removing far fewer trees from any given hectare of forest than standard short rotation *harvesting* regimes. As such, the potential adverse environmental effects associated with *low intensity harvesting* are considerably less than *harvesting* that removes all trees. Regulation 63(3) enables *low intensity harvesting* to be carried out as a permitted activity regardless of the ESC zone, recognising that leaving at least 75% of the canopy cover intact (per hectare) will avoid most of potential adverse effects associated with *harvesting*. *Low intensity harvesting* is still required to comply with regulations 64 to 69.

There are no specific methods in the NESPF for estimating the percentage of canopy cover retained after *harvesting*. Both councils and foresters will need to take a pragmatic approach to determine whether *harvesting* will retain 75% of the canopy cover. Foresters should not be expected to provide the relevant council with detailed calculations as to how their estimates were achieved. However, the relevant regional council may ask that foresters explain their calculations/methods to demonstrate compliance with Regulation 63(3).

5.6.7 Regulation 64 – Notice

Regulation 64 requires foresters to provide written notice of *harvesting* to the relevant regional council and territorial authority at least 20 and no more than 60 working days before the date harvesting is planned to begin. Although territorial authorities are not responsible for managing the adverse effects of *harvesting*, *harvesting* often constitutes a very visible land use change in a district. Territorial authorities are generally most interested in knowing the timing of *harvesting* because of the effect of logging traffic on the district roading network. Advanced knowledge about the location and planned timing of *harvesting* is helpful to allow the district council to programme in any necessary road work.

The notice of *harvesting* needs to include:

- ***Details on the place the harvesting will be carried out*** – this should provide an accurate description of location of the area with supporting maps where appropriate; and

- ***Details on the planned start and end date for harvesting*** – this should be as accurate as possible while recognising that in many cases the exact end date for *harvesting* will not be known prior to the activity commencing.

After receiving notice, the regional council may request a copy of the harvest plan and, if requested, this must be provided within 5 working days from when the harvest plan must be in place (20 working days before *harvesting* begins). The NESPF conditions do not include provision for territorial authorities to request the harvest plan.

<Section 5.2 of the NESPF Consenting and Compliance Guidance> provides more information on notice of forestry activities, including timeframes and receipt and acknowledgement of notice.

5.6.8 Regulation 65 – Sediment

Regulation 65 sets water quality standards for *sediment* discharges in receiving waters after reasonable mixing consistent with section 70 of the RMA. These water quality standards are discussed generally in Section 4.9 . For *harvesting* operations, compliance with this condition will generally be achieved through compliance with other permitted activity conditions that require appropriate operational responses and management practices to be followed (e.g. preparation and compliance with harvest plan, minimising ground disturbance and disturbance of water bodies).

5.6.9 Regulation 66 – Harvest plan

Regulation 66 requires the preparation of a harvest plan for all *harvesting* operations. The purpose of the harvest plan is to ensure environmental and site-specific risks associated with *harvesting* are identified and managed up-front.

The harvest plan must be prepared in accordance with the information requirements in Schedule 3 and all *harvesting* must be undertaken in accordance with the harvest plan. Key requirements of the harvest plan include:

- Identifying on-site environmental risks on a map and setting out the management practices to respond to those risks to avoid, remedy or mitigate adverse effects on the environment;
- *Slash* management procedures; and
- Operational restrictions to minimise damage to *indigenous vegetation* and avoid damage to downstream infrastructure and properties.

When *harvesting* involves earthworks and is located in an *orange or red zone*, the harvest plan must be accompanied by a forestry earthworks management plan or a combined harvest plan and forestry earthworks management plan can be prepared.

The harvest plan must be provided to the relevant council on written request and must be in place at least 20 working days before harvesting begins, except where the *harvesting* is a *salvage operation* (in which case, the plan must be in place for *harvesting* begins). For sustained yield forests, where *harvesting* is ongoing in different parts of the *plantation forest,* the council may request that the plan be provided annually.

<Section 5.2 of the NESPF - Consenting and Compliance Guidance> provides more information on management plan preparation, receipt and review, and *material amendments* to management plans.

5.6.10 Regulation 67 – Ground disturbance

Butt suspension

Regulation 67(1) requires that harvest systems be planned and located to achieve *butt suspension* wherever practicable. *Butt suspension* is defined in NESPF as *"means suspending the sawn base of the tree being harvested above the ground or surface of a water body while pulling it to a landing".* Butt suspension involves tree extraction techniques that achieve suspension of the butt end[58] of the logs.

Butt suspension will generally be achievable for *harvesting* but there may be circumstances where topography and operational factors mean that not all parts of all sites can practicably achieve this (e.g. very broken topography, where there are areas blind to the hauler). The harvest plan is required to include detailed information on the *harvesting* methods and this

[58] The end closest to the base of the tree.

plan should outline any areas where butt suspension may not be practicable. This will help confirm compliance with Regulation 67 if, for example, a site audit was undertaken.

Stabilisation and containment of disturbed soil

Regulation 67(2) requires the stabilisation and containment of disturbed soil to minimise *sediment* entering water where it may result in certain adverse effects. Appropriate methods to stabilise and contain disturbed soil during *harvesting* will need to be determined on a case by case basis. Examples of common methods to contain and stabilise soil are discussed in Section 4.8 and section 5.3.5.5 in relation to *earthworks*. Foresters can also draw on techniques to stabilise disturbed soil from existing council and/or industry guidance. They can also draw on the Forestry Practice Guides that have been developed by MPI and the forestry industry which will be available on the Forest Owners Association website: https://www.nzfoa.org.nz/ .

5.6.11 Regulations 67 and 68 – Use of the term 'degradation'

Regulations 67(2)(b) and 68(6)(b) both use the term 'degradation' to define an adverse effect on aquatic habitat, *riparian zone*, the coastal environment or freshwater body that must be avoided. Regulation 67(2) relates to *sediment* entering water from disturbed soil and Regulation 68(6) relates to the deposition of disturbed vegetation, soil or debris where *harvesting* occurs within or across a *riparian zone*. Where *harvesting* would result in a particular freshwater body, the coastal environment, aquatic habitat or *riparian zone* being degraded, a restricted discretionary consent would be required due to non-compliance with Regulation 67(2)(b) and 68(6)(b).

Whether or not there has been degradation due to *harvesting* will need to be considered on case by case basis. Degradation of a *water body* can generally be considered as a situation where *harvesting* leads to significant adverse effects on the values of that freshwater body, aquatic habitat, coastal environment or *riparian zone*.

In assessing compliance with these condition, comparison of the quality of the freshwater body, aquatic habitat, coastal environment or *riparian zone* prior to and post *harvesting* is required to determine whether *harvesting* has caused the degradation. Consideration should also be given to what methods have been used to stabilise or contain soil (Regulation 67) and how disturbed vegetation, soil or debris has been deposited (Regulation 68) to avoid it entering water (i.e. what efforts have been made to avoid or mitigate adverse effects).

5.6.12 Regulation 68 – Disturbance of margins of water bodies and the coastal marine area

Tree felling and suspension

Regulations 68(1)-(3) outline requirements for *harvesting* to minimise disturbance of waterbodies and the *riparian zone.* It requires trees to be felled away from any water body or *riparian zone* – except where it is 'unsafe' to do so. It is expected that foresters and councils will take a pragmatic approach to determine when it is 'unsafe' to fell trees away from waterbodies and *riparian zones*, taking into account health and safety requirements in other legislation.

Trees are either manually felled by a chainsaw operator, or mechanically felled, using a tracked vehicle with a felling head. In both situations, the feller has some control over which way the tree will fall. However, there will be situations where the location and growth pattern of the tree makes it very difficult to ensure it falls away from sensitive areas. In those situations, the least damaging way to harvest is to fell the tree directly perpendicular to the *riparian zone* or waterbody – which may be completely across some smaller waterbodies. This allows for the tree to be hauled straight back, leaving the smallest area of damage.

Regulation 68(3) requires that full suspension is achieved when hauling trees across rivers that are 3m or more in width.

Setbacks

Regulation 68(4) requires that *harvesting* machinery must not operate in specified *setbacks* to water bodies and the coastal marine area, unless the exceptions in Regulation 68(5) apply. General guidance on the regional setbacks referred to in Regulation 68(4) is provided in section 4.3.

Regulation 68(5) provides for *harvesting* machinery to operate in the setbacks in three specific circumstances provided that *"any disturbance to the water body from the machinery is minimised*". In order to comply with this condition operators of mechanical harvesting machines should minimise their tracking and avoid slewing and turning the vehicle's tracks in a way that causes significant ground disturbance.

The three circumstances when *harvesting* machinery may operate in the setbacks are:

- When the machinery is operating at water body crossing points; or
- Where *slash* removal is necessary; or
- Where essential for directional felling in a chosen direction or extraction of trees from within the setbacks.

The last exception recognises that when mechanical felling, the machine has much greater control of the direction of fall if it is close to the tree. This better enables the feller to direct the tree away from sensitive areas and this level of control would be absent if the machine was required to avoid the setback area.

Harvesting within or across a riparian zone

Regulation 68(6) places additional controls on *harvesting* within or across *riparian zones,* recognising that these areas play an important ecological function (i.e. providing shade, moderating stream temperature and litter inputs to a stream) and can be sensitive to adverse effects from *harvesting*. *Riparian zone* is defined in the NESPF as *"that margin and bank of a water body, including the area where direct interaction occurs between land and water systems, that is important for the management of water quality and ecological values"*.

Regulation 68(6) requires disturbed vegetation, soil and debris to be deposited in a way that it would the adverse effects referred to in clauses (a)-(c). The most appropriate methods to ensure that any disturbed vegetation, soil or debris are deposited in such a way that it avoids the adverse effects referred to in Regulation 68(6) will need to be determined on a case by case basis. Section 4.8 provides examples of *sediment control measures* that can be used to reduce sedimentation. Foresters can also draw on techniques to manage disturbed vegetation, soil or debris during *harvesting* from the Forestry Practice Guides (which will be available on the Foresters Owners Association website) and existing council and industry guidance.

5.6.13 Regulation 69 – Slash and debris management

Regulation 69 sets out a number of requirements relating to *slash* management during *harvesting*. Regulation 69(1) applies to *slash* that is being placed (i.e. moved or deposited) - it does not apply to *slash* that breaks off trees during *harvesting.* It requires that *slash* is deposited which will generally be achieved though avoiding steep areas and areas prone to slips/flows. This reduces the likelihood of large volumes of the *slash* moving downhill because it has become unstable as it rots.

Regulation 69(2) relates to placement of *slash* on the edge of *landing* sites. *'Landing'* is defined in the NESPF as *"an area of land where logs or tree lengths extracted from a plantation forest are accumulated, processed and loaded for removal".* Foresters need to ensure that *slash* deposited around *landing* sites (also known as 'birds' nests') is managed to ensure there is no collapse of *slash* piles. Best practice slash management at skids and landings involves deciding at the start where to put *slash*, ensuring that *slash* piles are put on stable ground, and deciding on an appropriate methodology for containing the piles.

Foresters must include procedures to manage slash as part of the harvest plan (Schedule 3 Clause 5(c)).

A thorough approach to *slash* planning and management will generally involve consideration of the following matters:

- Estimate the quantity of *slash*;
- Identify where there is risk of slope failure. *Slash* areas should be on stable land, and well away from waterways, steep slopes, *fill,* slips, gully heads and *riparian zones*;
- Sites or zones around a *landing* for safe *slash* disposal;
- "No-Go" zones where *slash* is not to be deposited;
- If off-site *slash* disposal sites are required and where they will be located; and
- The potential for storing *slash* on *landings* once harvesting has been completed.

Regulations 69(3) and 69(4) are consistent with the *slash* management conditions for *pruning and thinning to waste* (Regulation 20) and require that *slash* not be deposited in water bodies or land that would be covered by water during a 5% *AEP* event (**section 4.10** provides general guidance on how to calculate *AEP*). Where this occurs, *slash* must be removed from the water body or land prone to following unless it is unsafe to do so.

Regulation 69(4) does not specify how soon *slash* is deposited that it must be removed. It is expected that foresters will remove *slash* **as soon as practicable** in order to avoid the adverse effects listed in clauses (a)-(d). This will generally be as soon as it is safe (e.g. a storm event has passed or equipment to remove *slash* has arrived on site). It is also expected that foresters and councils will take a pragmatic approach to determine when it is 'unsafe' to remove *slash* from these areas, taking into account health and safety requirements in other legislation.

5.7 MECHANICAL LAND PREPARATION (REGULATIONS 72 – 75)

5.7.1 Overview of plantation forestry activity

Mechanical land preparation is a regulated activity under Regulation 5(1)(f) of the NESPF. The NESPF ancillary activity regulations (Part 2, subpart 9) and general provisions (Part 2, subpart 10) must be complied with as relevant for *mechanical land preparation*.

Mechanical land preparation[59] is defined in the NESPF as follows:

> *(a) means using machinery to prepare land for replanting trees, including root-raking, discing, ripping, roller crushing, clearing slash, and mounding the soil into raised areas; but*
>
> *(b) does not include—*
>
> *(i) the creation of alternating drains and planting mounds using a V-shaped blade attached to the front of a bulldozer; or*
>
> *(ii) earthworks or forestry quarrying*

Mechanical land preparation comprises a range of operations that are often necessary for the successful establishment or re-establishment of *plantation forests*. *Mechanical land preparation* addresses issues such as poor drainage, the impact of frost, weeds, heavy slash deposits and compacted or dense soil. If the land is not prepared properly, it may limit tree growth or cause crops to die. *Mechanical land preparation* activities include:

- Mechanical cultivation (*ripping* and/or mounding) and spot cultivation to improve the condition of the soil;
- Mechanical raking, mulching, windrowing and *dicing* to clear residual *slash* and create planting sites; and
- *Roller crushing* of weeds or woody debris to prepare sites for planting.

5.7.2 Potential adverse environmental effects

Mechanical land preparation can result in the following adverse environmental effects:

- *Sediment* discharge to waterways with associated adverse effects on freshwater quality and aquatic ecosystems;
- Adverse effects on indigenous fauna and flora resulting from ground disturbance; and
- Activation of erosion-prone areas.

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[59] *Discing*, *ripping*, and *roller crushing* are also all defined in the NESPF: ***"discing** means breaking up or tilling the soil surface with a series of large saucer-shaped steel blades joined at the centre of an axle", "**ripping** means disturbing the subsoil to a depth of 30 to 90 cm with a single-tine or double-tine (or winged) ripper mounted on an agricultural tractor or a bulldozer" and **"roller crushing** means crushing and breaking up vegetation using a large heavy roller released down a slope or towed by a bulldozer or tractor".*

5.7.3 Permitted activity and conditions

Mechanical land preparation is a permitted activity in relation to **territorial authority** functions. *Mechanical land preparation* is a permitted activity in relation to **regional council** functions if Regulation 74 is complied with and it is located in any:

- Green or *yellow zone*;
- Orange or *red zone* where the land slope is less than 25 degrees;
- Orange or *red zone* where the land slope is 25 degrees or more and subsoil is not affected; and
- Orange or *red zone* where the land slope is 25 degrees or more, subsoil is affected, but the area covered by the *mechanical land preparation* is 2ha or less in any calendar year.

A summary of the permitted conditions for *mechanical land preparation* is provided in Table 16 below. For the exact wording of the conditions, refer to the NESPF which can be accessed through the hyperlinks in the table.

Table 16: Permitted activity conditions for mechanical land preparation.

<table>
<tr><th>Condition</th><th>Regional Council</th></tr>
<tr><td>Methods (Regulations 74(1) -(5))</td><td>

Mechanical land preparation must be carried out parallel to the contour of the land, except if roller crushing, downhill ripping, or working in parallel would be unsafe. In these cases, sediment control measures must be used to minimise sediment discharges to water bodies;
Continuous downhill ripping of soil must be less than 50m, and sufficient distance must be maintained between ripping so that entrained water does not reach another ripping furrow;
Downhill ripping is not permitted on land with a gully or tunnel gully erosion risk identified in the erosion susceptibility classification as severe or greater; and
Exposed areas of soil that may result in sediment entering water must be stabilised as soon as practicable after completion of the activity, and no later than 30 November or 31 May, whichever is sooner.

</td></tr>
<tr><td>Sediment (Regulations 74(6) and 74(7))</td><td>

Sediment originating from mechanical land preparation must be managed to ensure that, after reasonable mixing, it does not cause the following effects in receiving waters:

A conspicuous change in colour or visual clarity;
Rendering fresh water unsuitable for consumption by farm animals;
Significant adverse effect on aquatic life.

Disturbed soil must be stabilised or contained to minimise the movement of sediment into any water body or coastal water resulting in specified adverse effects.

</td></tr>
<tr><td>Setbacks (Regulation 74(8))</td><td>
Mechanical land preparation must not occur within the setbacks specified below.
<table>
<tr><th>5 meters</th><th>10 meters</th><th>30 meters</th></tr>
<tr><td>• Perennial river with a</td><td>• Perennial river with a bankfull channel width of 3m or more; or</td><td>• Coastal marine area</td></tr>
</table>
</td></tr>
</table>

	bankfull channel width of less than 3m; or • *Wetland* larger than 0.25ha.	• Lake larger than 0.25ha; or • *Outstanding freshwater body.* • Water body subject to a Water Conservation Order.	

5.7.4 Determining whether a resource consent is required

Figure 14 below shows the process to determine whether *mechanical land preparation* needs resource consent and the activity status when consent is required. *Mechanical land preparation* is also required to comply with the ancillary activity regulations (Part 2, subpart 9) and general provisions (Part 2, subpart 10) as relevant to be a permitted activity.

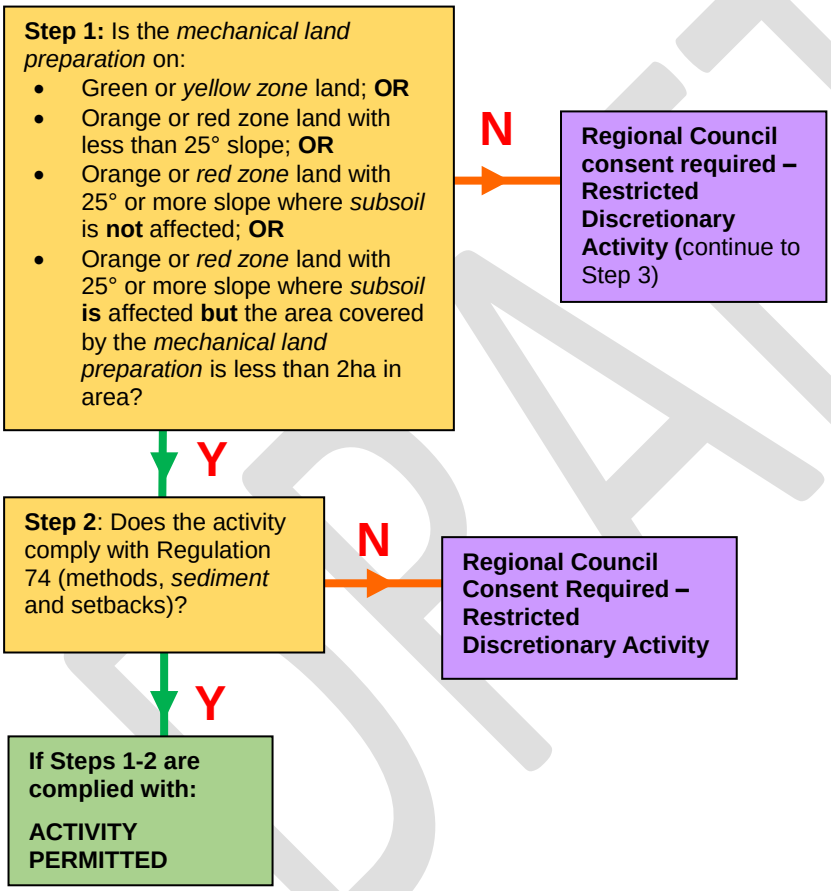

Figure 14: Flow chart to determine whether resource consent is required for mechanical land preparation.

5.7.5 Guidance on key conditions for mechanical land preparation

This section provides guidance on a selection of *mechanical land preparation* regulations to assist with interpretation and implementation. Not all *mechanical land preparation* regulations are included in this section as they are sufficiently explained by the summary table above, or by reading the NESPF.

5.7.6 Regulation 73 – Land slope

Regulation 73 requires a resource consent when *mechanical land preparation* is proposed over a certain threshold on steeper land in *orange* and *red zones* and where the *subsoil* is affected. This recognises that, in most cases, the steeper the land, the greater the potential

for adverse environmental effects. Section 4.4 of this User Guide provides guidance on how to calculate the slope of land.

Regulation 73 permits *mechanical land preparation* in any *orange* or *red zone* where the land slope is 25 degrees or more where the preparation is undertaken at a depth where the *subsoil* is not affected. *Subsoil* is defined in the NESPF as "*the layer of soil with low organic content:*

(a) With colour varying from brown, yellow-brown, red, or olive, or containing speckled colours patterns where poorly drained; and

(b) At depths of 25 cm or more below the surface of the land.

Clauses (a) and (b) of this definition are intended to work together – the soil needs to be of the colours or patters described in (a) and at least of a depth of 25cm. This effectively means that *mechanical land preparation* on steeper sites can only affect *topsoil* material as a permitted activity. *Topsoil* is defined in regulation 55(5) as *"the surface layer of soil, enriched by organic matter and dark brown to black in colour, to a maximum depth of 25cm".* While this definition only applies to Regulation 55, it helps to clarify the difference between *topsoil* and subsoil.

5.7.7 Regulations 74(1)-(5) – Methods

Methods

There are a number of *mechanical land preparation* techniques; all of which aim to provide better site access or a better growing environment for the tree seedlings. For example, frost mounding is a technique to elevate the seedlings slightly above the surrounding ground so they are not exposed to the coldest part of the ground. Root raking and *slash* raking are used to clear woody debris from the previous crop. Some techniques identified and defined mentioned in the NESPF are used rarely but are identified and defined for completeness (e.g. downhill *ripping*).

Stabilisation of exposed soil

Regulation 74(5) states that '*exposed areas of soil that may result in sediment entering water must be stabilised as soon as practicable after the completion of the activity, but no later than 30 November or 31 May, whichever is sooner, after completion of the activity.'*

This requirement is similar to the stabilisation condition for *earthworks* (Regulation 32), except that this regulation refers to specific dates. The intent is the same – to ensure that exposed soil is stabilised no longer than 6 months after completion of the activity. These deadlines do not override the key requirement of Regulation 74(5), which is that exposed areas of soil which may result in *sediment* entering water **'must be stabilised as soon as practicable'** after the completion of *mechanical land preparation*.

5.7.8 Regulation 74(6) and (7) – *Sediment*

Regulation 74(6) is consistent with other regulations in the NESPF relating to the effects of *sediment* in receiving waters. Section 4.9 provides general guidance on the water quality standards in the NESPF for sediment discharges in receiving environments after reasonable mixing.

Regulation 74(7) requires disturbed soil to be stabilised or contained to minimise the movement of *sediment* into water bodies or coastal water, resulting in the damming or diversion of any water body, or damage to downstream infrastructure, property or receiving environments. The most appropriate methods to stabilise or contain soil disturbed during *mechanical land preparation* will need to be determined on a case by case basis, based on the scale and nature of the disturbance and proximity to water bodies. Section 4.8 provides general guidance on the sediment control measures. Foresters may also draw on the

Forestry Practice Guides developed by MPI and industry, and existing council and industry guidance on sediment control and stabilisation measures to comply with Regulation 74(7).

5.7.9 Regulation 74(8) – Setbacks

Regulation 74(8) sets out regional *setbacks* from different types of water bodies and the coastal marine area for *mechanical land preparation*. Section 4.3 provides general guidance on regional *setbacks* in the NESPF

5.8 *REPLANTING* (REGULATIONS 77 – 81)

5.8.1 Overview of plantation forestry activity

Replanting is a regulated activity under Regulation 5(1)(h) of the NESPF. The NESPF ancillary activity regulations (Part 2, subpart 9) and the general provisions (Part 2, subpart 10) must also be complied with as relevant for *replanting*.

Replanting is defined in the NESPF as follows:

> *'means the planting and growing of plantation forestry trees on land less than 5 years after plantation forestry harvesting has occurred'*

The 5-year window for *replanting* is the key requirement of this definition – *replanting* of trees must occur within 5 years after *harvesting* of a *plantation forest*. If this 5-year period is exceeded, the activity is no longer *replanting* under the NESPF, but is instead treated as *afforestation*.

5.8.2 Potential adverse environmental effects

The potential adverse environmental effects of *replanting* are similar to *afforestation* but generally significantly less. For example, a second-generation *plantation forest* is likely to produce less sedimentation than a new *plantation forest* because *forestry infrastructure* will already be in place and the amount of soil disturbance from maintenance and upgrades will be lower than during initial construction. Similarly, effects on landscape and amenity from *replanting* are likely to be significantly less as the area to be planted is already an established *plantation forest*. However, wilding conifer spread is potential adverse effect from *replanting* that requires similar management to *afforestation*.

5.8.3 Permitted activity and conditions

Replanting is a permitted activity if:

- **Territorial authority** – regulations 78(1) and 79 are complied with; and
- **Regional councils** – regulations 78(2) and (3) and 79 are complied with and the *replanting* is in any:
    - Green, yellow, or *orange zone*; or
    - *Red zone* where the land proposed for *replanting* is 2ha or less in any calendar year.

A summary of the permitted conditions for *replanting* is provided in Table 17. For exact wording of the conditions, refer to the NESPF which can be access through the hyperlinks in the table.

Table 17: Permitted activity condition for replanting.

<table>
<tr><th>Condition</th><th>Territorial Authority</th><th>Regional Council</th></tr>
<tr><td>Setbacks (Regulation 78)</td><td>Replanting must not occur in any area closer than the stump line to an adjacent significant natural area.</td><td>Must not occur within the setbacks specified below.
<table>
<tr><th>5 metres</th><th>10 metres</th><th>30 metres</th></tr>
<tr><td>• Perennial river with a bankfull channel width of less than 3m; or
• Wetland larger than 0.25ha.</td><td>• Perennial river with a bankfull channel width of 3m or more; or
• Lake larger than 0.25ha; or
• Outstanding freshwater body; or
• Water body subject to a water conservation order.</td><td>Coastal marine area</td></tr>
</table>
Replanting must not occur in any area closer than the stump line to an adjacent:
○ Perennial river; or
○ Wetland; or
○ Lake; or
○ Coastal marine area; or
○ Significant natural area.</td></tr>
<tr><td>Wilding tree risk and control (Regulation 79)</td><td colspan="2"><u>Calculator</u>
The wilding tree risk calculator score must be completed when the replanting is of a conifer species which is different from the tree species most recently harvested. Replanting of a different conifer species must not be carried out in an area with a score of 12 or more and the score is higher than the score of the tree last harvested.
The calculation must be completed in accordance with the wilding tree risk guidelines by a suitably competent person no more than 6 months before replanting is carried out. A copy of the wilding tree risk calculator calculation sheet and score must be given to the relevant council upon request.
<u>Control measures</u>
All wilding conifers must be removed before replanting begins, and every 5 years following replanting, where they have established in wetlands or significant natural areas:
• On the same property where the replanting activity occurs; and
• Adjacent properties under the same ownership or management as the property where the replanting occurs.</td></tr>
</table>

5.8.4 Determining whether a resource consent is required

The flow chart in Figure 15 summarises the process to determine whether *replanting* is a permitted activity or requires resource consent, the activity status if resource consent is required, and whether consent is required from the regional council and/or territorial authority. *Replanting* is also required to comply with ancillary activity regulations (Part 2, subpart 9) and the general provisions (Part 2, subpart 10) as relevant to be a permitted activity.

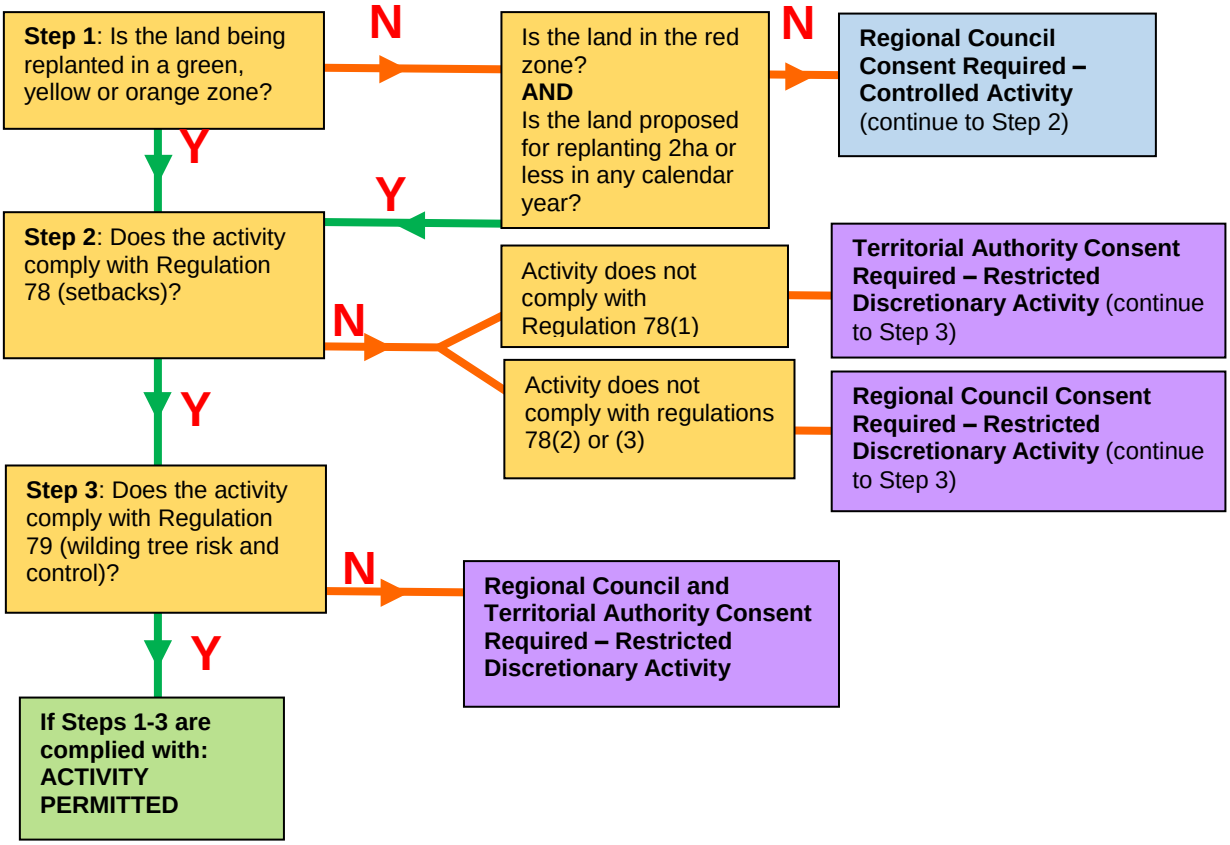

Figure 15: Flow chart to determine when resource consent is required for replanting.

5.8.5 Guidance on key conditions and requirements for *replanting*

This section provides guidance on selected *replanting* regulations to assist with interpretation and implementation.

5.8.6 Regulation 78 – Setbacks and stump line

The regional council *setbacks* from different types of water bodies, *significant natural areas* and the coastal marine area in Regulation 78(2) are consistent with other regional *setback* regulations in the NESPF measured. Section 4.3.1 provides general guidance on the regional council *setbacks* in the NESPF.

Regulations 78(1) and 78(3) are *setbacks* which only apply in relation to *replanting*. These regulations require that *replanting* must not to occur closer than the *stump line* to an adjacent *water body,* coastal marine area, or to a *significant natural area* (which is a *setback* in relation to regional council and territorial authority functions). The NESPF defines *stump line* as:

'means points measured from the centre of the outer stumps of the plantation forestry trees previously harvested'

The purpose of this requirement is to ensure the *replanting* remains within the same boundaries – if it was to extend beyond the *stump line* then planting in the new area would technically be *afforestation*. This also helps ensure that *setbacks* that have been established as a result of plan rules, consent conditions, or by voluntary means are maintained under the NESPF.

The location of the *stump line* of the previous harvest should generally be easily identified through a visual assessment of the area at the time of *replanting*.

5.8.7 Regulation 79 – Wilding tree risk and control

Wilding tree risk calculator

The wilding tree risk calculator is discussed generally in section 2.5.2 of this User Guide and section 5.1.5.2 provides guidance on completing the calculator for *afforestation* which is also applicable to *replanting*. Specific guidance on the calculator can be found on the wilding tree risk calculator webpage[60].

The wilding tree risk calculator score only needs to be completed for *replanting* if the trees being replanted are:

1. *A conifer species;* and

2. *A* different *species* from the trees most recently harvested on the land.

Regulation 79 recognises it is possible that a change of *conifer species* (or a change from non-conifer to a *conifer species*) could result in an increase in the scale and intensity of adverse effects associated with *wilding conifer* spread. It is therefore not appropriate to assume that existing use rights under section 10 and 20A of the RMA[61] will always apply for *replanting* when this involves a different species than was last harvested. Refer to <section 2 of the NESPF Consenting and Compliance Guide> for more detailed guidance on existing use rights under the NESPF.

Regulations 79(3) and (4) address situations where a different conifer species has a wilding risk calculator score of 12 or more:

- Regulation 79(3) states that *replanting* must not be carried out in an area with a calculator score of 12 or more (if replanting in a different *conifer species*), which is consistent with the permitted activity conditions for *afforestation;* and

- Regulation 79(4) states that this condition does not apply when the tree most recently harvested has the same or higher score than the species proposed to be replanted (i.e. the new species must have a higher score for Regulation 79(3) to apply).

This means that resource consent is only required when the **risk of wilding conifer spread increases** as a result of the new species. *Replanting* a *conifer species* with a calculator score of more than 12 may therefore still be a permitted activity, if the trees most recently harvested also had the same or higher wilding tree risk calculator score.

Control measures

Regulation 79(6) states:

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[60] Refer: https://www.mpi.govt.nz/growing-and-harvesting/forestry/national-environmental-standards-for-plantation-forestry/wilding-tree-risk-calculator/

[61] These sections of the RMA allow lawfully established activities to continue (for a certain period of time) provided the effects of the use are the same or similar in character, intensity, and scale to those which existed before the NES took legal effect.

All wilding conifers must be removed before replanting begins, and every 5 years following replanting, where established in wetlands or significant natural areas—

(a) on the same property on which the replanting activity occurs; and

(b) on any other adjacent properties under the same ownership or management as that of the property on which the replanting activity occurs.

The purpose of this condition is to control the spread of wilding conifers into sensitive and valued receiving environments. *Wilding conifer* is defined in Regulation 3 as "*self-established conifer species tree resulting from seed spread from plantation forestry, shelter belts, amenity planting, or an already established wilding conifer species tree population".*

The reference to all *wilding conifers* being 'removed' in Regulation 79(6) does not mean that a wilding conifer must be uprooted and entirely taken away, as this could adversely affect the *wetland* and *significant natural area* they have established in. A *wilding conifer* can also be 'removed' by killing the tree (e.g. poisoning, felling) but leaving it in situ. This ensures its ability spread seeds is removed which is the main purpose of removing the *wilding conifer*. This may also be a preferable technique to physically removing the whole tree from the site for both environmental effect and cost reasons.

The condition is limited to *wilding conifers* on the same property or adjacent properties under the same ownership or management - the NESPF cannot require foresters to implement control measures on land in different ownership or management. It also only applies to the property and adjacent properties to where the *replanting* activity is occurring – larger *plantation forests* may be comprising of multiple property titles and some of these properties may be some distance away from the *replanting* activity and at different stages of the forestry life cycle.

In summary, the requirement to remove wilding conifers in Regulation 79(6) applies to *wilding conifers* that:

- Have established in a *significant natural area* or *wetland* (i.e. removing wildings from surrounding areas of land is not required); and
- Are on land that has the same ownership or management as the property *replanting* is occurring; and
- Are on the same property as the *replanting* activity or adjacent to that property. It does not apply to properties that may be part of the *plantation forest* but not adjacent to the *replanting* activity (e.g. other properties within the *plantation forest* at different states of the forestry life cycle).

5.8.8 Controlled activity – Replanting in *red zone*

Regulation 80 requires a controlled activity resource consent when *replanting* is proposed on more than 2ha of *red zone* (provided regulations 78(2) and (3) and 79 are complied with). A consent requirement for *replanting* on *red zone* recognises that it is an existing a *plantation forest* but, due to the steep and erodible terrain, it may not be appropriate to replant in exactly the same locations as before, or a different species may be better suited to the land slope and soil type. A controlled activity status provides operational certainty to foresters that the land can be replanted as resource consent for controlled activities must be granted.

Regulation 80(2) reserves regional council control to the *"timing, location and species".* This provides the regional council with a level of regulatory oversight and control over the timing of the *replanting*, its location and species being planted to ensure that this does not increase the risk of erosion and sedimentation effects. While the matters control has been reserved to do not specifically state that they relate to erosion and sedimentation effects, this is the purpose of requiring resource consent for *replanting* in very high-risk erosion prone land.

When granting a controlled activity consent, the consent conditions need to be reasonable. A condition that has the effect of frustrating or negating the grant of consent is unacceptable, which has been established through case law[62]. For example, resource consent could not be granted for *replanting* of a *plantation forest* on *red zone* land with a condition that prevented *replanting* on all land over a certain slope angle, which would capture the area for which the consent was sought to replant and effectively prevent the consent from being exercised.

[62] *Residential Management Ltd v Papatoetoe City* A062/86 (PT). See also *Taranaki RC v Willan* EnvC W150/96 and *Ravensdown Growing Media Ltd v Southland RC* EnvC C194/00

6 Guidance on ancillary activities

Part 2, subpart 9 of the NESPF sets out three ancillary activities which are regulated activities under Regulation 5(1)(i): *slash traps*, indigenous vegetation clearance, and non-indigenous vegetation clearance. This section provides an overview of each of these ancillary activities, a summary of the permitted activity conditions and consent requirements, and guidance on key permitted activity conditions**.**

6.1 SLASH TRAPS

6.1.1 Overview of ancillary activity

Slash traps are an ancillary activity regulated under Regulation 5(1)(i). *Slash trap* is defined in the NESPF as:

> ***Slash trap –*** *means a structure set in a river, on the bed of a river, or on land to trap slash mobilised by water*

Slash or debris traps are structures that catch larger pieces of *slash* that would otherwise be flushed out of a catchment in high flow conditions. *Slash* is defined in the NESPF as *'tree waste left behind after plantation forestry activities*'.

The aim of the *slash trap* is to reduce the risk of *slash* leaving the *plantation forest* and limiting its potential adverse effects if it does. It achieves this by limiting the amount of mobilised *slash* that is transported and potentially deposited on downstream properties and infrastructure during high rainfall events. *Slash traps* are generally used during and after *harvesting* when the harvested tree roots start to rot and/or where there is a need to reduce the amount of *slash* moving downstream.

Slash traps are generally made with railway irons threaded with wire rope and anchored solid at each end. Refer to Figure 16 below.

Figure 16: Photo of a slash trap*.*

6.1.2 Potential adverse environmental effects

Well designed, constructed and maintained *slash traps* can be effective at mitigating adverse environmental effects if. However, they can also result in adverse environmental effects when debris builds up behind the structure creating a weir or scouring the bank and river bed. If not designed properly, *slash traps* can also result in the mobilisation of large amounts of built up *slash* in a heavy rainfall event, causing adverse effects on downstream properties and receiving environments. *Slash traps* may also alter the natural alignment of the river bed if not designed properly.

6.1.3 Permitted activity and conditions

The construction, installation, use, maintenance, or removal of a *slash trap* on land, including land within the riparian zone, is a permitted activity in relation to **territorial authority** functions. There are no permitted activity conditions.

In relation to **regional council** functions, the construction, installation, use, maintenance, or removal of a *slash trap* in the bed of a river or on land is a permitted activity if regulations 84 to 91 are complied with. A summary of the permitted conditions for *slash traps* is provided in Table 18. For the exact wording of the conditions, refer to the NESPF which can be accessed through the hyperlinks in the table.

Table 18: Summary of permitted activity conditions for slash traps.

Condition	Regional Council
Design (Regulation 84)	• Design must allow water to flow through freely and not dam the river; and • Height must be no higher than 2m above the bed of the river.
Placement (Regulation 85)	• Where upstream catchment is greater than 20ha, a *slash trap* must not be located within the *bankfull channel width* of the river; and • *Slash trap* must be located to allow machine access for clearing and maintenance.
Inspection and clearance (Regulation 86)	• A *slash trap* must be: ○ Inspected within 5 working day of any significant rainfall event in the upstream catchment likely to mobilise debris; ○ Cleared of debris at least 20 working days after a 5% *AEP* flood event; and ○ Maintained to avoid erosion of the river bed and maintained in a structurally sound and effective condition. • Cleared *slash* must be removed to a safe and stable location beyond the river bed and land covered by a 5% *AEP* flood event.
Effects on other structures and user (Regulation 87)	A *slash trap* must not: ○ Alter the natural alignment or gradient of the river; ○ Compromise the structural integrity or use of any other lawfully established infrastructure or activities in the bed of river or lake; or ○ Cause flooding or ponding on any property under different ownership from that of the *plantation forest*; or ○ Cause or induce erosion of the river bed, or erosion or instability of the banks of the river.
Passage of fish (Regulation 88)	A *slash traps* must be designed, located, and maintained to provide for the passage of fish.
Contaminant discharges (Regulation 89)	If a *slash trap* is being constructed, installed, removed, maintained, or cleared: ○ The activity must not release contaminants into the water (other than *sediment*); ○ All practicable steps must be taken to: ○ Avoid depositing organic matter or discharging *sediment* to water (either into a *water body,* or onto the bed of river or land in circumstances that may result in it entering water); ○ Minimise disturbance of the river bed; and

Condition	Regional Council
	○ Avoid wet concrete or concrete ingredients coming into contact with flowing or standing water. ○ Elevated *sediment* levels in a river resulting from the construction, installation, maintenance, or removal of a *slash trap* must not occur for more than 8 consecutive hours; and ○ Excess materials and equipment must be removed from the river bed within 24h of completing the construction, installation, maintenance or removal of a slash trap.
Sediment (Regulation 90)	*Sediment* must be managed to ensure that, after reasonable mixing, it does not give rise to following effects in receiving waters: ○ A conspicuous change in colour or visual clarity; ○ Rendering fresh water unsuitable for consumption by farm animals; and ○ Significant adverse effect on aquatic life.
Reporting requirements (Regulation 91)	• A written report must be provided within 20 working days of construction detailing the location, design and construction of the *slash trap* (including photographic evidence of the slash trap). • A written report must be provided annually by 31 March detailing: ○ Frequency of maintenance and clearance; and ○ *Slash trap* condition and performance, (including any of the following adverse effects: ▪ Damage to downstream properties, infrastructure, receiving environments; ▪ Disturbance of the bed of the river; and ▪ Blockages to the passage of fish.

6.1.4 Determining whether resource consent is required

The flow chart in Figure 17 outlines how to determine whether a *slash trap* needs resource consent. Where the permitted activity conditions for *slash traps* are not complied with, resource consent is required as a restricted discretionary activity under Regulation 92. *Slash traps* are also required to comply with the general provisions (Part 2, subpart 10) where relevant.

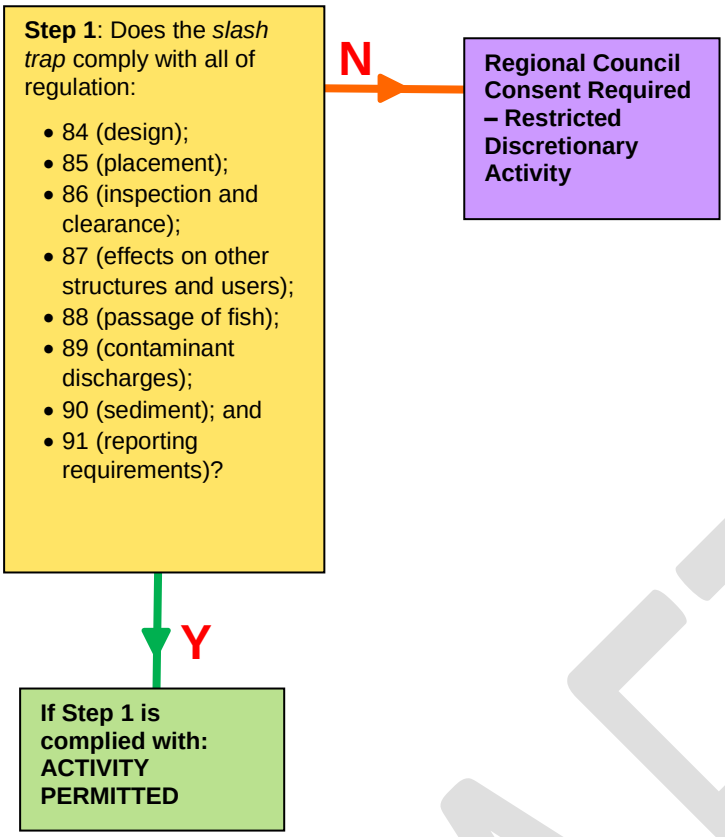

Figure 17: Flow chart to determine whether a resource consent is required for slash traps *under the NESPF.*

6.1.5 Guidance on key conditions

This section provides guidance on selected *slash trap* regulations to assist with interpretation and implementation. Not all regulations are discussed as they are sufficiently explained by the summary table above or simply by reading the regulations.

6.1.6 Regulation 86 – Inspection and clearance

Regulation 86 sets out requirements to inspect and clear *slash traps* to ensure there are functional and to avoid large amounts of slash building up behind the *slash trap*, potentially becoming mobilised during high rainfall events.

Regulation 86(1)(a) requires that a *slash trap* must be inspected within 5 working days of the date of *'any significant rainfall event in the upstream catchment that is likely to mobilise debris'*. The NESPF does not provide any guidance on what a 'significant rainfall event' is. This will vary on a case by case basis and depend on the nature of the rainfall event both in terms of intensity and duration. It is expected that foresters will use their judgement to determine whether *slash traps* may be at risk following a significant rainfall event.

Regulation 86(1)(b) requires that *slash traps* must be cleared of debris within 20 working days of a 5% *AEP* flood event. This works in combination with Regulation 86(1)(a) and it may be more cost-effective to clear the debris during the initial inspection rather than returning to the site a few days later.

Regulation 86(2) requires that '*slash cleared from the slash trap must be removed to a safe and stable location beyond river bed and land covered by the 5 % AEP flood event'*. The NESPF does not provide any guidance on what constitutes a 'safe and stable location' as the topography around waterbodies is highly variable. It is expected that foresters will use their judgement to identify a suitable location for cleared *slash.* This will generally be well away from potentially high river flows and steeper land where the *slash* could be mobilised.

Section 4.10 provides general guidance on how to calculate a 5% *AEP* flood event. Ideally the area covered by a 5% *AEP* flood event would have been identified during the preparation of the harvest plan and/or suitable locations for cleared *slash* already identified as part of the process to comply with Regulation 69 (slash debris and management).

6.1.7 Regulation 87 – Effects on other structures and users

Regulation 87 sets out conditions for *slash traps* to not cause certain adverse effects on both the river itself and other structures and properties. When read together, the four sub-clauses require that *slash traps* are designed properly and structurally sound so it will not cause problems within the river in its normal operation or structurally fail causing damage to other structures or downstream properties. Complying with this condition will require a good knowledge of the catchment, and the likely amount of *slash* that may enter the river and be caught by the *slash trap*, in order to design a fit-for-purpose *slash trap*.

6.1.8 Regulation 89 – Contaminant discharges and depositing organic matter

Sub-part (d) of Regulation 89 requires that '*elevated sediment levels in any river resulting from the construction, installation, maintenance, or removal of a slash trap must not occur for more than 8 consecutive hours'.* The NESPF does not provide any quantitative parameters to measure elevated *sediment* levels as this will vary significantly across the country based on baseline levels of *sediment* in different water bodies. It is expected that councils will use their existing protocols and guidelines to measure elevated *sediment* levels over eight consecutive hours.

6.1.9 Regulation 91 – Reporting requirements

A written report must be provided to the regional council within 20 working days of constructing a *slash trap.* Regulation 91(1) requires the report to include photographic evidence of the *slash trap* which can be used as a basis to assess future performance and compliance of the *slash trap.*

Regulation 91(2) requires that:

> *'A written report must be provided to the regional council annually by 31 March detailing the frequency of maintenance and clearance of the slash trap, and slash trap condition and performance, including any of the following adverse effects…'*

This annual maintenance and performance report is different from the construction report required by Regulation 91(1). The annual report must detail if the *slash trap* has caused any of the specified adverse effects in Regulation 91(2)(a)-(c) during the time it has been operational, including:

- Damage to downstream infrastructure and properties;
- Disturbance of the bed of the river; or
- Blockages to the passage of fish.

If any of these effects have occurred, it is good practice for the report to explain what repairs or changes to the *slash trap* are proposed to prevent these adverse effects occurring in the future. It may also be useful for foresters and councils to discuss the annual reporting requirements in Regulation 91(2) in terms of the preferred format and level of detail required. Generally, a very concise report which contains the required details would be sufficient to meet the requirements of Regulation 91(2) and photographic evidence can be the primary method to demonstrate the condition of the *slash trap* and its performance.

6.2 INDIGENOUS VEGETATION CLEARANCE

6.2.1 Overview of ancillary activity

Indigenous vegetation clearance is an ancillary activity regulated under Regulation 5(1)(i) of the NESPF. *Indigenous vegetation* and *vegetation clearance* are defined in the NESPF as follows:

> **Indigenous vegetation –** *means vegetation that is predominantly vegetation that occurs naturally in New Zealand or that arrived in New Zealand without human assistance*
>
> ***vegetation clearance—***
>
> *(a) means the disturbance, cutting, burning, clearing, damaging, destruction, or removal of vegetation that is not a plantation forest tree; but*
>
> *(b) does not include any activity undertaken in relation to a plantation forest tree*

Regulations 93 and 94 set out the circumstances in which *indigenous vegetation* clearance associated with *plantation forestry activities* can occur as a permitted activity, and when resource consent will be required. This only applies to *indigenous vegetation* clearance that occurs during or after *afforestation* as the NESPF does not apply to vegetation clearance carried out before *afforestation* (Regulation 5(3)(a)).

As a land use, *plantation forestry* differs from most other types of cultivation in that the crop area remains undisturbed for lengthy periods of time until the crop is ready for *harvesting*. In that time, non-*forest species* often within and adjacent to the *plantation forest* trees, including indigenous species. Some level of *indigenous vegetation* clearance is therefore often necessary for operational reasons. For example, *harvesting* and associated *earthworks* (including the construction of *forestry roads*) often involves removal of *indigenous vegetation* alongside the *forest species* being harvested where *indigenous vegetation* has grown up in the understory of the *plantation forest.*

6.2.2 Potential adverse environmental effects

The potential environmental adverse effects of *indigenous vegetation* clearance relate to the biodiversity values of the vegetation – this will vary significant depending on the specie being affects, the size of the area affected the ecological significance of the area. There are generally very limited adverse effects on biodiversity when the area of *indigenous vegetation* being cleared, disturbed or damaged is limited and there are no significant ecological values associated with that area of *indigenous vegetation*. The potential for adverse effects will be greater when the ecological values of the indigenous vegetation are higher and/or the area affected increases.

The other potential adverse environmental effects of *indigenous vegetation* clearance are:

- *Slash* reaching water with the main effects relating to the direction or damming of the water body, leading to changes in water chemistry and water quality; and
- Soil disturbance and soil erosion, leading to sedimentation in waterbodies which can affect instream habitats.

6.2.3 Permitted activity and conditions

Vegetation clearance of *indigenous vegetation* associated with a *plantation forestry activity* is within **territorial authority functions** under the NESPF and is a permitted activity if:

- Conditions 93(2), (3) or (4) are complied with; and
- It is not within a *Significant Natural Area* (unless vegetation is overgrowing a forestry track, and the track has been used within the last 50 years).

Regional councils have no functions in relation to the *indigenous vegetation* clearance under Regulation 93 and 94 of the NESPF.

Regulations 93(2), (3) and (4) allow *indigenous vegetation* clearance to occur in three alternative scenarios. A summary of the permitted conditions under each scenario is provided in Table 19. For the exact wording of the conditions, refer to the NESPF which can be access through the hyperlinks in the table.

Table 19: Summary of permitted activity conditions for indigenous vegetation clearance.

Condition	Territorial Authority
***Vegetation clearance* within *plantation forest* (Regulation 93(2))**	*Vegetation clearance* of *indigenous vegetation* may occur within an area of *plantation forest* if it: • Has grown up under (or overtopped) *plantation forestry*; or • Is within an area of a failed *plantation forest* that failed in the last rotation period (*afforestation* to *replanting*); or • Is within an area of *plantation forest* that has been harvested within the previous 5 years; or • Is overgrowing a forestry track and the track has been used within the last 50 years.
***Vegetation clearance* within or adjacent to plantation forest (Regulation 93(3))**	*Vegetation clearance* of *indigenous vegetation* located within or adjacent to a *plantation forest* may be carried out if the: • Area of *indigenous vegetation* and the *plantation forest* are held in the same ownership; and • Cumulative clearance doesn't exceed 1ha or 1.5% (whichever is the greater) of the total area of *indigenous vegetation* within or adjacent to the *plantation forest* in which the clearance is proposed but excluding any vegetation clearance listed in Regulation 93(2).
***Vegetation clearance* – *incidental damage* within or adjacent to a plantation forest (Regulation 93(4) and (5))**	*Vegetation clearance* of *indigenous vegetation* that is *incidental damage* may occur in an area that is within or adjacent to any *plantation forest*, including a *riparian zone*.

6.2.4 Guidance on key conditions

This section provides guidance on the *indigenous vegetation* clearance regulations to assist with interpretation and implementation.

6.2.5 Regulation 93(2) – Where indigenous vegetation clearance may occur

Regulation 93(2) outlines four circumstances where clearance of *indigenous vegetation* within a *plantation forest* is permitted. In most cases, it is expected that it will be straightforward to determine when *indigenous vegetation* clearance falls into one of these four categories. For example, when *indigenous vegetation* has grown up within a *plantation forest* while the *forest species* also grow.

The clearance of *indigenous vegetation* in any of these circumstances is not subject to the clearance limits in Regulation 93(3). Foresters can clear the amount of *indigenous vegetation* that is necessary to meet their operational requirements within the *plantation forest* provided:

- The *indigenous vegetation* falls within one of the circumstances listed in Regulation 93(2); and
- It is not within a *significant natural area* (except in the case of clearance of a *forestry track* described in subclause (2)(d)).

6.2.6 Regulation 93(3) – Clearance limits

Regulation 93(3) limits the area of *indigenous vegetation* that can be cleared as a permitted activity within or adjacent to a *plantation forest* when it does not fall into any of the categories listed in Regulation 93(2*).* This only applies to areas of *indigenous vegetation* that are in the same ownership as the *plantation forest*.

Regulation applies two limits on the cumulative amount of vegetation clearance that can occur – 1ha or 1.5% (whichever is the greater) of the total area of indigenous vegetation within or adjacent to a *plantation forest.* These limits exclude any *indigenous vegetation* clearance permitted under Regulation 93(2).

For smaller *plantation forests*, the maximum amount of cumulative *indigenous vegetation* clearance will generally be 1 ha. For larger *plantation forests*, the 1.5% threshold is likely to be greater limit. The maximum cumulative area of *indigenous vegetation* clearance that is permitted is 0.015 x the total area (ha) of the *indigenous vegetation* within or adjacent to the *plantation forest*. Applying the 1.5% threshold will therefore require a good understanding of the amount of *indigenous vegetation* within the *plantation forest* and this can be extensive for some *plantation forests*. The 1.5% threshold should be calculated as the total area of *vegetation clearance* per *plantation forest* rather than individual land parcel.

6.2.7 Regulations 93(4) and (5) – Incidental damage

Regulations 93(4) and 93(5) permit *incidental damage* to *indigenous vegetation* in certain circumstances.

Incidental damage is defined in Regulation 93(5) as:

> *(a) damage where the ecosystem will recover to a state where it will be predominantly indigenous vegetation species common to the ecological district within 36 months of the occurrence of the damage; or*
>
> *(b) damage to indigenous vegetation canopy trees that are greater than 15 m in height, where the damage does not exceed—*
>
> *i. 30% of the crown of any indigenous vegetation canopy trees and no more than 30% of those trees per 100 m of the indigenous vegetation perimeter length; or*
>
> *ii. 10 m in continuous length per 100 m of a riparian zone length (with the applicable riparian zone width); or*
>
> *(c) if it occurs adjacent to a significant natural area, damage that does not significantly affect the values of that significant natural area.*

Incidental damage in this definition captures three distinct types of vegetation damage and it will be up to the forester to determine what type of *incidental damage* applies to their activity. For example:

- *Incidental damage* to *indigenous vegetation* canopy trees caused by work adjacent to or within a *riparian zone* is regulated under Regulation 93(5)(b)(ii); and

- *Incidental damage* adjacent to a *significant natural area* is regulated under Regulation 93(5)(c).

Incidental damage to *indigenous vegetation* only needs to fall within one of the categories listed in Regulation 93(5) to be permitted under Regulation 93(4).

36-month recovery timeframe

In areas of *indigenous vegetation* within or adjacent to a *plantation forest* there is a naturally occurring collection of species. If some of the species in this collection are damaged, Regulation 93(5)(a) states the ecosystem must recover to a state where it will be predominantly *indigenous vegetation* common to that ecological district[63] within 36 months. Therefore, there should be a high level of confidence that the same assemblage of *indigenous vegetation* species would be present 36 months after incidental damage occurs. For example, the *indigenous vegetation* species being damaged may be known as a particularly hardy species that is very common within that ecological district.

In the case of *riparian zones* (often the area most likely to incur *incidental damage* during *harvesting*), much of the vegetation is shrubby hardwood, adapted to recover from damage (e.g. due to normal flooding of the adjacent stream). In these areas, species recovery from *incidental damage* can generally be expected within the 36-month timeframe.

If after 36 months of the *incidental damage* occurring, there is a significant change in the type of vegetation present (e.g. the *indigenous vegetation* has been replaced by introduced weed species), and the ecosystem has not recovered to a state where it is predominately an indigenous species common to that ecological district, then compliance with Regulation 93(5)(a) has not been achieved. To avoid potential compliance issues with Regulation 93(5)(a), it may be helpful to have some geo-referenced photos to be able to compare vegetation cover and broad vegetation type prior to after the *incidental damage*.

Damage to canopy trees

Regulation 93(5)(b) permits *incidental damage* to canopy trees over 15m tall within and adjacent to a *plantation forest* and within a *riparian zone*.

Regulation 93(5)(b)(i) permits *damage* to indigenous canopy trees that does not exceed 30% of canopy trees per 100m of *indigenous vegetation* perimeter length and 30% of the crown of the tree. The crown of the tree is the branches, leaves, and reproductive structures extending from the trunk or main stems. The 30% limit is set on the basis that any damage that exceeds this is likely to result in the death of the tree. The most likely scenario Regulation 93(5)(b)(i) will apply is where an indigenous forest remnant is surrounded by a *plantation forest .* Some damage of these canopy trees is likely to occur during the *harvesting* of the *forest species*.

Regulation 93(5)(b)((ii) applies to *incidental damage* of canopy trees over 15m tall in a *riparian zone*. *Riparian zone* is defined in the NESPF as:

> *'that margin and bank of a water body, including the area where direct interaction occurs between land and water systems, that is important for the management of water quality and ecological values.'*

Many *plantation forests* are located directly adjacent to *riparian zones* and these are also located within *plantation forests*. Regulation 93(5)(b)((ii) allows incidental damage of up to 10m of continuous length per 100m of a *riparian zone* (within the applicable *riparian zone* width). This allows for some damage to these trees for operational reasons while ensuring the function of the *riparian zone* to manage water quality and ecological values is maintained.

[63] General information on New Zealand's ecological districts can be found here: http://www.doc.govt.nz/documents/science-and-technical/Ecoregions1.pdf and there is also updated information avaliable for ecological disticts throughout New Zealand.

Compliance with Regulation 93(5)(b)((ii) should generally be able to achieved through a visual inspection supported by photographic evidence as appropriate.

Adjacent to significant natural area

Regulation 93(5)(c) provides that *incidental damage* can occur adjacent to a *significant natural area* provided it does not significantly affect the values of that *significant natural area.* This regulation needs to be assessed based on the specific values identified for the adjacent *significant natural area.*

The reasons that the site received *significant natural area* status and its values should be able to be identified from the *significant natural area* description in the plan and/or background reports. These are the values that should be assessed when considering the impact of *incidental damage*. For example, if a *significant natural area* was protected because it contained a rare or threatened species, but the *incidental damage* was not going to occur adjacent to the part of the *significant natural area* containing that species (and would not significantly affect that species in any other way), the damage would likely be *'incidental damage'* under Regulation 93(5)(c). Generally, small-scale peripheral damage associated with *harvesting* (the most likely activity to cause such damage) adjacent to a *significant natural area* will not significantly affect the values of a *significant natural area.*

6.3 NON-INDIGENOUS VEGETATION CLEARANCE

6.3.1 Overview of ancillary activity

Non-indigenous *vegetation clearance* is regulated activity under Regulation 5(1))i). *Vegetation clearance* is defined in the NESPF as follows:

> ***Indigenous vegetation –*** *means vegetation that is predominantly vegetation that occurs naturally in New Zealand or that arrived in New Zealand without human assistance*
>
> ***vegetation clearance—***
>
> *(a) means the disturbance, cutting, burning, clearing, damaging, destruction, or removal of vegetation that is not a plantation forest tree; but*
>
> *(b) does not include any activity undertaken in relation to a plantation forest tree*

Non-indigenous *vegetation clearance* applies to the clearance of vegetation associated with a *plantation forest activity* that is not:

- *Indigenous vegetation* clearance regulated under regulation 93 and 94 in the NESPF; and
- *Harvesting* as this is a regulated *plantation forestry activity* under Regulation 5(1)(f) and has a specific set of regulations in Part 2, subpart 6. The definition of *harvesting* also specifically excludes *vegetation clearance* that is not *plantation forest* trees.

6.3.2 Permitted activity and conditions

Regulation 95 permits non-indigenous vegetation clearance associated with a *plantation forestry activity* in relation to **territorial authority** functions and **regional council** functions provided that the relevant permitted activity conditions are met for the associated *plantation forestry activity* causing the clearance. The purpose of this Regulation is to make it clear that non-indigenous *vegetation clearance* associated with a *plantation forestry activity* is authorised under the NESPF (if the conditions relevant to the activity are complied with). This is for the avoidance of doubt and to ensure foresters do not need to check the relevant plan to determine whether there are any non-indigenous *vegetation clearance* rules they need to comply with. For example, Regulation 95 authorises the removal of weeds, pest plants and shrubs that have established within or adjacent to the *plantation forest* over the forestry life cycle when this is associated with a *plantation forestry activity.*

7 Guidance on general provisions

Part 2, subpart 10 contains the general provisions of the NESPF. The general provisions are regulated under Regulation 5(1)(j) and must be compiled with in addition to the specific requirements and conditions for the core *plantation forestry activities* and ancillary activities in the NESPF (Regulation 5(2)). The general provisions cover the following activities and effects:

- Discharges of sediment, disturbances of the bed or a river or lake or of a *wetland*, and diversions of water in terms of the effects on *fish spawning*;
- *Noise and vibration*;
- Dust;
- Indigenous bird nesting; and
- *Fuel* storage and refuelling.

This section provides guidance on each of the general provisions.

7.1 DISCHARGES, DISTURBANCES, AND DIVERSIONS

7.1.1 Overview of the general provision

Regulation 97 provides specific conditions to manage the effects of *plantation forestry* activities on *fish spawning* which is defined in the NESPF as *"means the bearing of live spawn or the deposit of eggs by fish*". Regulation 97 incorporates the Fish Spawning Indicator into the NESPF requirements and applies to the following types of discharges, disturbances and diversions that may be associated with certain *plantation forestry activities*;

- Discharge of *sediment* into water or to land in circumstances where it may result in it entering water;
- Disturbance of the bed or vegetation in the bed of a river or lake;
- Diversion of water; and
- Disturbance of a *wetland* of a specific size (including vegetation and soil disturbance).

Regulation 97 operates with the relevant conditions for each *plantation forestry activity* that may involve discharges, disturbances and diversions and sets out additional requirements to manage the effects of these activities on *fish spawning*. The *fish spawning* conditions in Regulation 97(4)-(5) are based on the Fish Spawning Indicator which is incorporated into the NESPF in Item 9 of Schedule 2. Section 2.5.3 and the MPI Fish Spawning Indicator webpage[64] provides general information on the Fish Spawning Indicator.

1.1.1 Permitted activity and conditions

Regulation 97 is a **regional council** function and **territorial authorities** have no functions in relation to discharges, disturbances and diversions under Regulation 97. Regulation 97(1) states that any **discharge** of sediment into water or to land in circumstances that may result in it entering water**, disturbance** of the bed or vegetation in the bed of a river or lake, or **diversion** of water associated with a *plantation forestry activity* is a permitted activity if:

- Regulation 97(3) and (4) relating to the Fish Spawning Indicator are complied with; and

[64] Refer: https://www.mpi.govt.nz/growing-and-harvesting/forestry/national-environmental-standards-for-plantation-forestry/fish-spawning-indicator/

- The permitted activity conditions for the core *plantation forestry activity* or ancillary activity are complied with[65]:
    - *Pruning and thinning to waste* complies with regulations 19(2) and 20;
    - *Earthworks* comply with regulations 24 to 33;
    - *River crossings* comply with regulations 37 to 46;
    - *Forestry quarrying* complies with regulations 51(2), 52, 54(3) and (4), and 55-59;
    - *Harvesting* complies with regulations 63(2) and (3), 64, and 65 to 69;
    - *Mechanical land preparation* complies with regulations 73(2) and 74; and
    - *Slash traps* comply with regulations 83(2) and 84 to 91.

Regulation 97(2) states that disturbance of a *wetland* (including vegetation or soil disturbance) associated with a *plantation forestry activity* is a permitted activity if Regulation 97(5) is complied with and the size of the *wetland* is:

- Greater than 100m² and less than 0.25 ha; or
- Greater than 100m² if the associated activity is *harvesting*.

A summary of the permitted conditions for disturbances of the beds of river and lakes and disturbance of *wetlands* is provided in Table 20. For the exact wording of the conditions, refer to the NESPF which can be accessed through the hyperlinks in the table below.

Table 20: Permitted activity conditions for disturbance or beds and lakes and disturbance of wetlands*.*

Condition	Regional Council

Disturbance of bed of lake or river (Regulation 97(3) and (4))	Disturbance of the bed or vegetation in the bed of a perennial river or lake must not occur unless:
	• The Fish Spawning Indicator indicates that in the segment of river or lake marked in the Fish Spawning Indicator where the bed or vegetation in the bed would be disturbed that:
	  ○ There is no presence of a fish species listed in Group A or B where the disturbance will occur; or
	  ○ Group A or B fish species are present but disturbance is not during the relevant *fish spawning* period; or
	• For the segment of the river or lake marked in the Fish Spawning Indicator where the bed or vegetation in the bed would be disturbed, a *suitably competent person* has:
	  ○ Confirmed that the species observed do not spawn where disturbance will occur; or
	  ○ Undertaken a fish survey and observed no presence of the species listed in Group A or B using the fish sampling/monitoring methods specified for rivers or lakes and referred to in Schedule 2 of the NESPF.

Disturbance of *wetlands* (Regulation 97(5))	Disturbance of *wetlands* must not occur unless: • The Fish Spawning Indicator indicates that: ○ There is no presence of mudfish species listed in Group B where the disturbance will occur;

[65] This excludes *afforestation, replanting*, indigenous and non-indigenous vegetation removal.

Condition	Regional Council
	○ Group B mudfish species are present but disturbance is not during the relevant spawning period; or • For the *wetland* marked in the Fish Spawning Indicator where the disturbance would occur, a *suitably competent person* has: ○ Confirmed that the species observed do not spawn where the disturbance will occur; or ○ Undertaken a mudfish survey in accordance with the specified methodology in Schedule 2 of the NESPF and observed no mudfish presence.

Regulation 97(6) sets out three exclusions to what is considered to be **disturbance of the bed or vegetation in the bed of a perennial river** that are not subject to the conditions in Table 20 as follows:

- Vehicles using a *ford* to cross the wetted river at a rate of up to 20 axle movements per day (actual number of movements will depend on the size of the car or truck);
- Hauling logs over the bed of a river less than 3m wide where *butt suspension* is achieved, unless any species listed in Group B in the Fish Spawning Indicator is present; or
- Clearing a *slash trap*.

These exclusions only apply to disturbance of a perennial river – they do not apply to the disturbance of lakes or *wetland*s, or to other discharges or diversions regulated under Regulation 97. These exclusions are intended to provide for the operational requirements of certain *plantation forestry activities.* The three listed exceptions also typically have no adverse effects on *fish spawning*.

7.1.2 Guidance on conditions

The sections below provide guidance on the *fish spawning* conditions for the disturbance of beds of *perennial rivers* and lakes, and the disturbance of *wetlands*.

7.1.3 Disturbance of the bed of a lake or river

Regulation 97(3) states that disturbance of the bed or vegetation in the bed or a *perennial river* or lake must not occur unless:

- **Regulation 94(4)(a) applies –** this regulation applies when the Fish Spawning Indicator indicates that in the segment of river or lake marked in the Fish Spawning Indicator where the bed or vegetation in the bed would be disturbed:
    - There is no presence of fish species listed in Group A or B of the Fish Spawning Indicator in the segment of the river or lake where the disturbance will occur; or
    - There are fish species listed in Group A or B in the segment of the river or lake where the bed or vegetation in the bed will be disturbed, but the disturbance is outside the relevant fish spawning period.
- **Regulation 94(4)(b) applies –** this regulation applies when a *suitably competent person* has**:**
    - Confirmed that the species observed do not spawn in the river or lake habitat where the disturbance will occur; or

- Undertaken a fish survey[66] and has observed no presence of any of the species listed in Group A or B of the Fish Spawning Indicator.

These regulations incorporate the Fish Spawning Indicator into the NESPF requirements. They are intended to ensure that any disturbance of the bed of a *perennial river* or lake associated with a *plantation forestry activity* occurs outside the *fish spawning* periods of the following species identified in the Fish Spawning Indicator:

- **Group A** – salmonids or species with a high conservation status of 'threatened' or 'at risk'; and
- **Group B** – species with a higher sensitivity to disturbance.

The species and their spawning periods can be found on the Fish Spawning Indicator webpage on the MPI website[67].

Regulation 94(4)(b) recognises that the Fish Spawning Indicator is not based on perfect science and the location and presence of fish species can change over time. It enables a *suitably competent person* to confirm that the species indicated in the Fish Spawning Indicator are actually not present in that segment of the river or lake where the disturbance will occur. A *suitably competent person* for the purpose of Regulation 97 is defined in Regulation 97(6) as follows:

> *"means a person who—*
>
> > *(a) has at least 2 years' experience in use of the document referred to in item 10 of Schedule 2 (New Zealand Freshwater Fish Sampling Protocols), or in the techniques in the document referred to in item 13 of Schedule 2 (Introduction to monitoring freshwater fish), and has completed a specialist course in the identification of New Zealand freshwater fish; or*
> >
> > *(b) has more than 10 years' experience in use of the fish sampling techniques listed in the relevant document and in the identification of New Zealand freshwater fish".*

To demonstrate compliance with Regulation 97(4)(b), foresters should ensure they keep documentation of the advice from the *suitably competent person*. Regional councils may also want to consider developing a list of known freshwater fish specialists in their region that meet the NESPF definition of a *suitably competent person* for the purposes of Regulation 97.

Non-compliance with Regulation 97(4) requires consent as a full discretionary activity under Regulation 97(8). In these situations, regional councils should consider the proposal against the relevant objectives and policies in their plan, such as those relating to aquatic ecosystems and fish populations in their region.

7.1.4 Disturbance of a *wetland*

Regulation 97(5) states that the disturbance of *wetland* that is greater than 100m² and less than 0.25ha, or disturbance of a *wetland* that is greater than 100m² and the activity is *harvesting* may only occur if:

- **Regulation 95(a) applies –** the Fish Spawning Indicator indicates that:
  - There is no presence of mudfish species listed in Group B of the Fish Spawning Indicator in the *wetland* where the disturbance would occur; or

[66] In the case of a river, this must be in accordance with on the of documents referred to in item 10 of Schedule 2 '*New Zealand Freshwater Fish Sampling Protocols'.* In the case of a lake, this must be must be in accordance with on the of documents referred to in item 13 of Schedule 2 '*Introduction to Monitoring Freshwater Fish'.*

[67] Refer: https://www.mpi.govt.nz/growing-and-harvesting/forestry/national-environmental-standards-for-plantation-forestry/fish-spawning-indicator/

- There are mudfish species listed in Group B in the *wetland* where the disturbance would occur, but the disturbance is outside the relevant *fish spawning* period.

- **Regulation 95(b) applies –** a *suitably competent person* has**:**
  - Confirmed that the species observed do not spawn in the *wetland* where the disturbance will occur; or
  - Undertaken a mudfish survey[68] in accordance with the specified methodology and has observed no presence a mudfish species listed in Group B of the Fish Spawning Indicator.

Regulation 97(5) essentially operates the same as 97(4) but applies to mudfish species and *wetlands* rather than the bed of *perennial rivers* and lakes. It states that disturbance of a *wetland* associated with a *plantation forestry activity* occurs outside the spawning periods for mudfish species list in Group B of the Fish Spawning Indicator (e.g. Canterbury mudfish, Northland mudfish, Brown mudfish, Black mudfish) otherwise a resource consent must be obtained. It also allows a *suitably competent person* to confirm that no mudfish species are present in the area of the *wetland* where the disturbance is proposed when the Fish Spawning Indicator indicates these species are present.

Non-compliance with Regulation 97(5) requires consent as a full discretionary activity under Regulation 97(9). In these situations, regional councils should consider the proposal against the relevant objectives and policies in their plan such as those relating to *wetlands*, aquatic ecosystems and fish populations in their region.

7.2 NOISE AND VIBRATION

7.2.1 Permitted activity and conditions

Noise and vibration is a general provision applying to all *plantation forestry activities* under Regulation 5(1)(j) and 5(2) of the NESPF. It applies in addition to the general duty under section 16 of the RMA to avoid unreasonable noise.

Noise and vibration is a **territorial authority** function under the NESPF. **Regional councils** have no functions in relation to *noise and vibration*. Regulation 98 states that *noise and vibration* associated with a *plantation forestry activity* is permitted if the activity complies with Regulation 98(2)-(4).

Regulation 98(7) includes a number of definitions that are specific to Regulation 98 and 99. It also clarifies the types of *noise and vibration* the NESPF regulates and what it excludes as follows:

- **Includes** *noise and vibration* from forestry, machinery, equipment and vehicles undertaking *plantation forestry activities;* and
- **Excludes**:
  - *Noise and vibration* from forestry vehicles on public roads; or
  - *Vibration* affecting heritage buildings or structures.

A summary of the permitted conditions for *noise and vibration* is provided in Table 21. For the exact wording of the conditions, refer to the NESPF which can be accessed through the hyperlinks in the table.

[68] In accordance with the document refer to in item 14 of Schedule 2 '*A revised methodology to survey and monitor New Zealand mudfish'.*

Table 21: Summary of general provisions for noise and vibration.

Condition	Territorial Authority
Noise (Regulation 98(2) and (4))	*Noise* must not exceed the following noise limits at any point within the *notional boundary* of any *occupied building* containing a *noise sensitive activity*[69]: • **Monday to Saturday** - daytime 75 dB *LAeq* (15min) between 7am and 7pm, at any point where forestry noise is received for 20 weeks or less in a year; • **Monday to Saturday** - daytime 70 dB *LAeq* (15min) between 7am and 7pm, at any point where forestry noise is received for more than 20 weeks in a year; • **Sunday daytime** - 45 dB *LAeq* (15min) between 7am and 7pm; • **Night-time** - 45 dB *LAeq* (15min) between 7pm and the following 7am; • **Night-time** - 75 dB *LAFmax* between 7pm and the following 7am; and • **Blasting -**120 dB *LZpeak* and blasting must only be conducted between 7am and 7pm on Monday to Saturday.
Vibration (Regulation 98(3))	*Vibration* must not exceed the guideline values in Tables 1 and 3 of *DIN 4150*[70] inside any building excluding *occupied buildings* located in the *plantation forest* or an adjacent property under the same ownership or management.

7.2.2 Noise associated with a plantation forestry activity

The permitted activity conditions for noise are consistent with the following New Zealand Standards for noise:

- *NZS 6801:2008* Acoustics – Measurement of Environmental Sound; and
- *NZS 6802: 2008* Acoustics – Environmental Noise.

Regulation 98(5) states that *noise* must be measured in accordance with *NZ6801* and assessed in accordance with *NZS* 6802. The *noise* limits in Regulation 98 (2) also have the same meaning as *NZS 6801 – LAeq, LAFmax, LZpeak*. These *noise* standards referred to in item 2 and 6 of Schedule 2 (material incorporated by reference) of the NESPF and can be referred to on the New Zealand Standards website: https://www.standards.govt.nz/ They are consistent with noise standards typically found in district plans.

The key parameters for where noise is to be measured from are the terms *notional boundary*, *occupied building* and *noise sensitive activity* which are all defined in Regulation 98(7) as follows.

Noise sensitive activity

(a) means any -

(i) residential activity, including activity in visitor accommodation or retirement accommodation:

(ii) educational activity:

(iii) health care activity:

(iv) congregation within any place of worship:

[69] This excludes *occupied buildings* located in the plantation forest or an adjacent property under the same ownership or management.

[70] *DIN 4150-3:1999-02 Structural vibration – Part 3: Effects of Vibration on structures*, referred to in item 11, Schedule 2 of the NESPF.

(v) *activity at a marae.*

(b) *does not include an activity if it was not lawfully established*

Notional boundary *means:*

(a) *a line 20 m for any side of a building; or*

(b) *the legal boundary, where it is closer to the building*

Occupied building *means a building that is regularly occupied by 1 or more people.*

Councils will generally be familiar with the concept of measuring a '*notional boundary*'. The 20m distance for the *notional boundary* should be taken from the exterior face of the closest side of a building.

Each council will need to determine how the activity definitions in their plan align with the *noise sensitive activity* definition in the NESPF. As *plantation forests* regulated under the NESPF do not include *forest species* in *urban areas*, the most common type of *noise sensitive activity* to consider is likely to be rural residential dwellings. In some situations, it may be unclear whether an activity is a noise sensitive activity. For example, libraries are not included in the noise sensitive categories in the NESPF definition but these may have educational activities. In these situations, it is expected that foresters and councils use their judgement to assess whether the activity is likely to be sensitive to noise from *plantation forestry activities* and whether it would typically be considered a *noise-sensitive activity.*

It should generally be clear whether a building meets the definition of *occupied building* in Regulation 98(7). There may be some situations where it is unclear whether a building meets the 'regularly occupied' test. However, the noise limits in Regulation 98(2) only apply to *occupied buildings* that also contain a *noise sensitive activity*. The activities listed as *noise sensitive activities* generally involve regular use of a building therefore it is unlikely that an *occupied building* used infrequently would also meet the definition of a *noise sensitive activity*. Foresters and councils need to consider both these definitions when applying the noise limits in Regulation 98(2).

7.2.3 Vibration associated with a plantation forestry activity

Regulation 98(3) states that *vibration* associated with a *plantation forestry activity* must not exceed the guidelines values in Tables 1 and 3 of *DIN 4150* from inside any building, except buildings in the *plantation forest* or adjacent properties under the same ownership of management as the *plantation forest*. This guideline is incorporated into the NESPF by reference in item 11 of Schedule 2 and is available for inspection and purchase at the Ministry for the Environment's head office.

Vibration must be measured and assessed in accordance with *ISO 4866: 2010 Mechanical vibration and shock – Vibration of fixed structures – Guidelines for the measurement of vibrations and evaluation of their effects on structures*. This standard is incorporated into the NESPF by reference in item 12 of Schedule 2. It can be accessed here: https://www.iso.org/standard/38967.html and is available for inspection and purchase at the Ministry for the Environment's head office.

If there is a concern that vibration from a *plantation forestry activity* may not comply with the guideline values in Regulation 98(3), then specialist advice or site-specific assessment is likely to be required.

7.3 DUST

7.3.1 Permitted activity and conditions

The discharge of dust to air associated with a *plantation forestry activity* is regulated under Regulation 5(1)(j) and 5(2). Regulation 100 is a **regional council** and **territorial authority** function.

Regulation 100(1) states that the discharge of dust associated with a *plantation forestry activity* is permitted when Regulation 100(2) is complied with as follows:

> *"There must be no airborne or deposited dust beyond the boundary of the property from which the dust is sourced that is noxious, dangerous, objectionable, or offensive".*

7.3.2 Guidance on conditions

The permitted activity condition for the discharge of dust in the NESPF is consistent with many dust rules in regional and district plans. The terms used in Regulation 100(2) are also consistent with those in section 17 of the RMA (duty to avoid, remedy or mitigate adverse effects).

The condition only relates to off-site effects of dust *beyond the boundary of the property*. The *boundary of the property* is defined in Regulation 100(3) as:

> *"includes the legal boundary of the property on which the plantation forestry occurs and any other properties adjoin that property under the same ownership or management".*

This definition ensures that the dust condition in the NESPF only applies where there may be adverse effects on a receiving property that is not owned or managed by same person generating the dust.

Many councils will have their own guidelines and protocols to determine whether adverse effects are *"noxious, dangerous, objectionable or offensive"*. The terms "noxious" and "dangerous" are relatively straightforward to assess and understand using common English definitions. Both terms imply that there needs to be some actual or potential harm to people or the environment as a result of the discharge of dust for it to be noxious or dangerous.

The terms "offensive or objectionable" are more subjective. There is case law on the terms "offensive or objectionable" in the context of sections 17 and 314 of the RMA, which can be summarised as follows:

- Whether an activity is offensive or objectionable should be measured by the effect it has on people and the reaction that people have to it[71];
- "Offensive" and "objectionable" refer to an action whose effect on an ordinary reasonable person would necessarily be considered offensive and objectionable[72]. An ordinary reasonable person should be someone who reflects New Zealand society as a whole, not just a segment of society[73];
- The Courts often use the FIDOL factors to help determine whether an activity is offensive or objectionable (Frequency, Intensity, Duration, Offensiveness and Location)[74]; and

[71] *Zdrahal v Wellington CC* [1995] 1 NZLR 700; (1994) 2 HRNZ 196; [1995] NZRMA 289 (HC).

[72] Ibid

[73] *Watercare Services Ltd v Minhinnick* [1998] 1 NZLR 294; [1998] NZRMA 113; (1997) 3 ELRNZ 511.

[74] *Nelson CC v Harvey* [2011] NZEnvC 48, [2011] NZRMA 517.

- If the activity serves an important resource management purpose, and represents the best way of achieving that purpose, it may be appropriate to say that the activity is not objectionable[75].

Regulation 100 is a function of both regional councils and territorial authorities. Where there is a concern that this regulation is not being complied with, it is important that the respective councils work together to avoid duplication of effort and focus on the effects most relevant to their functions under section 30 and 31 of the RMA (e.g. territorial authorities focus on nuisance/amenity effects associated with dust where regional councils consider public health issues and effects of dust on the natural receiving environment).

7.4 INDIGENOUS BIRD NESTING

7.4.1 Permitted activity and conditions

Indigenous bird nesting is a general provision applying to *plantation forestry activities* under Regulation 5(1)(j) and 5(2) of the NESPF. Regulation 102 is a **regional council** and **territorial authority** function as both have functions in relation to indigenous biodiversity under sections 30(1)(ga) and 31(1)(b)(iii) of the RMA. Regulation 102 sets out procedures that must be in place when a *plantation forestry activity* is proposed in an area where certain indigenous bird species are nesting.

Plantation forests can provide a habitat to a number of threatened and valued indigenous bird species. Many forest owners have voluntary measures in place to protect these species, such as predator control and avoidance of operations at known nesting sites. However, these species can be adversely affected where their presence is not known and/or where appropriate procedures are not in place to identify and protect them.

Regulation 102(1) states that the procedures in Regulation 102(2) must be complied with where a *plantation forestry activity* occurs where the following indigenous bird species are nesting:

- Any indigenous bird species with a classification of Nationally Critical, Nationally Endangered, or Nationally Vulnerable in Conservation Status of New Zealand Birds;
- North Island brown kiwi (*Apteryx mantelli*);
- Eastern falcon (*Falco novaeseelandiae novaeseelandiae*);
- Bush falcon (*Falco novaeseelandiae ferox*); and
- North Island weka (*Gallirallus australis greyi*).

Regulation 102(2) outlines the procedures that must be in place and followed when *plantation forestry activities* occur in areas where the above bird species are nesting as follows:

(a) Confirm and recognise the presence of the indigenous bird species identified in subclause (1); and

(b) On confirmation of presence, identify affected nest sites; and

(c) Provide staff with training on recognising the presence of individual bird species if encountered during the plantation forestry activity; and

(d) Avoid or mitigate adverse effects on affected nest sites and indigenous bird species.

[75] *Thompson v Davidson* EnvC C130/97

In addition to the indigenous bird nesting regulations in the NESPF, there are requirements in the Wildlife Act 1953 relating to the protection of wildlife that foresters need to be aware of and comply with.

7.4.2 Guidance on conditions

Compliance with Regulation 102 will require foresters to have procedures in place for identifying where bird species listed in the Regulation 102(1) are nesting and put the procedures outlined in Regulation 102(2) in place if the presence of nesting sites are confirmed. It is good practice for foresters to document the procedures that they intend to follow to meet the requirements of Regulation 102.

The list of bird species that are Nationally Critical, Nationally Endangered, or Nationally Vulnerable (Regulation 102(1)(a)) is based on the Department of Conservation's list of the Conservation Status of New Zealand Birds, which is incorporated into the NESPF by reference (item 8, Schedule 2). This uses the New Zealand Threat Classification System to assess the conservation status of species according to the risk of extinction they face in New Zealand. The list of species can be found on the Department of Conservation website[76].

Regulation 102 also extends to species which are not on the list of Nationally Critical, Nationally Endangered, or Nationally Vulnerable species but are vulnerable to the effects of certain *plantation forestry activities.* The kiwi and weka are ground dwelling species that are commonly found in *plantation forests.* Adverse effects on these species can generally be avoided or mitigated by appropriate procedures during disruptive phases of the forestry life-cycle and many foresters already have procedures in place to protect these species. Regulation 102 is intended to ensure all foresters consider the presence of these species and, where present, implement appropriate procedures to avoid or mitigate adverse effects on nest sites and indigenous bird species.

The NESPF does not prescribe the procedures that must be in place to avoid or mitigate adverse effects on affected nest sites and indigenous bird species listed in Regulation 102(1). This is to allow foresters flexibility to adopt appropriate procedures based on the nature of their operation and the bird species present. It may involve training for staff to recognise the presence of species and procedures to be followed in the event that the species or nest is encountered.

Existing guidance that may be referred to when complying with Regulation 102 includes:

- Forest Owners Association's 'Rare Species' website[77]; and
- The Kiwis for Kiwi's '*Forestry Management Guidelines, North Island Brown Kiwi in Exotic Plantation Forests'* [78].

7.5 FUEL STORAGE AND REFUELLING

7.5.1 Permitted activity and conditions

Fuel storage and refuelling is a general provision applying to *plantation forestry activities* under Regulation 5(1)(j) and 5(2) of the NESPF. Regulation 104 is a **regional council** function and relates to fuel storage, refuelling and oil changing associated with a *plantation forestry activity*. Territorial authorities have no function in relation to *fuel* storage and refuelling.

[76] Refer: http://www.doc.govt.nz/nature/conservation-status/

[77] Refer: http://rarespecies.nzfoa.org.nz/

[78] Refer: https://www.kiwisforkiwi.org/wp-content/uploads/2016/05/030.092-Forestry-Guidelines_-Final.pdf

Regulation 104(1) states that *fuel* storage, refuelling and oil changing are permitted activities if Regulations 104(2) and 104(3) are complied. These conditions are summarised in Table 22. For the exact wording of the conditions, refer to the NESPF which can be accessed through the hyperlinks in the table.

Table 22: Summary of conditions for fuel storage and refuelling.

Condition	Regional Council
Permitted activity (Regulation 104)	• *Fuel* must not be stored, machinery must not be refuelled, and oil must not be changed in any location where *fuel* can enter water, including— o Within 10m of a: – *Perennial river*; or – *Wetland*; or – Lake; or – *Outstanding freshwater body*; or – *Water body* subject to a water conservation order; or o With 30m of the coastal marine area; or o On, over, or in the bed of a *water body* or the coastal marine area; or o Within a *water body* or coastal water. • *Fuel* must not be discharged into water, or onto or into the bed of a *water body*, or onto or into land in circumstances that may result in the fuel entering water.

7.5.2 Guidance on conditions

The conditions in Regulation 104 are expected to be straightforward to understand and comply with. Essentially, they require that *fuel* storage and refuelling does not occur near, on or within waterbodies and coastal waters. They also require that *fuel* is not directly discharged into water or onto land where it may enter water. Section 4.3 provides general guidance on *setbacks* in the NESPF which are relevant to Regulation 104(2)(a) and (b).

Fuel is defined in the NESPF as *'includes, but is not limited to, oil, hydraulic fluids, petrol, and diesel'.* This list is not exhaustive but is expected that the majority of *plantation forestry activities* will use one of the fuels listed in the definition