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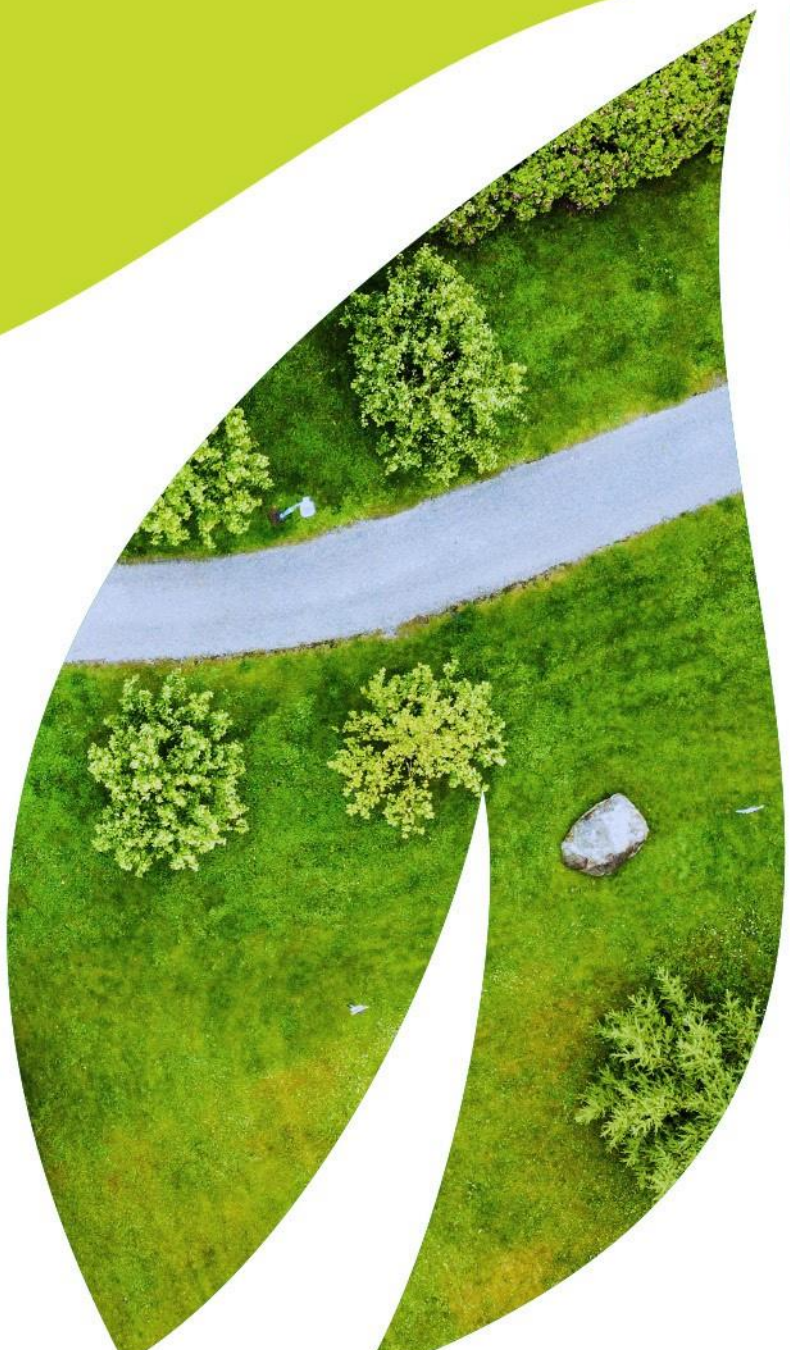
The Far North District Council Notable Tree Plan Review and Recommendations



Executive Summary

This report reviews the current Notable Tree rules for the Far North District Council and provides a number of recommendations to enhance tree protection and retention, advance best practice and minimum standard guidelines for permitted activities, and provides a summation on prerequisites required to allow work near and on notable trees. Also provided is a review on the Standard Tree Evaluation Methodology and use, and recommends appropriate thresholds required to achieve notable status using the STEM scoring system. In this case, it is recommended that 130 points is appropriate for the District.

Contents

1. Introduction

1.1. The Far North District Council (FNDC) has engaged Arborlab Consultancy Services to undertake a review of the District Plan in relation to Notable Tree Rules and provide a recommendation on the Standard Tree Assessment Method (STEM).

1.2. This review focuses on tree protection and rules appropriate to implement from an arboricultural perspective with no technical urban planning, cultural or historical input. Some concepts and/or recommendations outlined in this review may be covered within other areas of the District Plan.

2. FNDC District Plan

2.1. Rules used in this review are outlined in Part 3, Chapter 12 Natural and Physical Resources and in particular section 12.5 Heritage.

Overview

2.2. The following information has been taken from the operative district plan that is relevant to Notable Trees.

12.5.3 Objectives

12.5.3.3 To protect the notable trees of the District.

12.5.4 Policies

12.5.4.3 That notable trees be provided protection, except where it can be demonstrated that they pose a hazard to people or habitable buildings.

12.5.5 Methods of Implementation

12.5.5.1 The Plan includes schedules of notable trees, historic buildings and objects, Sites of Cultural Significance to Maori, and registered archaeological sites and the items listed in these schedules (refer to Appendices 1D – 1G in Part 4) are shown on the District Plan Maps. While activities that will have minor effects, or, in certain circumstances, emergency works and in the case of notable trees trimming, maintenance and, in limited circumstances felling, will be permitted, an application for resource consent will be required for significant modifications to those items/places that are scheduled and/or mapped.

12.5.5.2 The Council may add to the schedules of notable trees, historic buildings and objects, and Sites of Cultural Significance to Maori, when it is advised of new items, provided that:

(a) there is proof of consultation with the owner of the land on which the heritage resource is located;

(b) a written narrative about the heritage resource is provided; (c) adequate mapping is

carried out.

New heritage resources will be added to the Plan only by a Variation or Plan Change.

Commentary:

*The District has many trees which have been identified as having significant amenity, cultural and historic values and, for this reason, the most highly valued trees are given protection from indiscriminate removal or life-threatening work (refer **Objective 12.5.3.3, Policy 12.5.4.3** and **Method 12.5.5.1**). These trees are shown on the **Zone Maps** and listed in **Appendix 1D**, which also sets out the criteria and process for identification.*

Rules

2.3. The following information outlines the relevant rules associated with Notable Trees.

12.5.6.1.1 Notable Trees (Permitted Activities)

(a) The trimming and maintenance of a Notable Tree listed in ***Appendix 1D*** and shown on the ***Zone Maps***, or the felling of a Notable Tree which has died, is a permitted activity, provided that the activity is carried out by, or under the supervision of, a member of the New Zealand Arboricultural Association who has advised the Council in advance of the work to be carried out; and/or

(b) A Notable Tree listed in ***Appendix 1D*** and shown on the ***Zone Maps*** may be limbed or felled:

i where this is required as emergency work to safeguard life or habitable buildings from immediate danger; or

ii where this is required as emergency work to maintain or restore utilities, including networks for energy, telecommunications and transport;

provided that such work is done to the minimum extent required to protect human life, habitable property or the network.

(c) **Note:** The felling or destruction of a Notable Tree as listed in ***Appendix 1D*** and shown on the ***Zone Maps***, other than provided for in (a) or (b) above is a discretionary activity.

(d) Excavation, filling and impermeable surfaces (including buildings) shall not occur within the area covered by the crown periphery (drip line) of any Notable Tree listed in Appendix 1D and shown on the Zone Maps, but the planting and weeding of garden plants is permitted.

12.5.6.3 Discretionary Activity

An activity is discretionary if:

(a) it does not comply with one or more of the standards for permitted or restricted discretionary activities as set out under ***Rules 12.5.6.1*** and ***12.5.6.2***;

3. FNDC District Plan Review

3.1. The following information provides a 'high-level' feedback on the objectives, implementation and rules outlined in Chapter 12.5 Heritage.

3.2. Objectives:

12.5.3.3 To protect the notable trees of the District.

- The addition of 'identify and retain' may be more comprehensive and represent the Plan's objectives better.

3.3. Policies:

12.5.4.3 That notable trees be provided protection, except where it can be demonstrated that they pose a hazard to people or habitable buildings.

- To ensure that the tree is removed due to an actual risk of harm situation, a professional arborist who has a Council accepted qualification and experience in risk assessment should be used to demonstrate that a sufficient hazard exists.

3.4. Implementation:

12.5.5.1 ~While activities that will have minor effects, or, in certain circumstances, emergency works and in the case of notable trees trimming, maintenance and, in limited circumstances felling, will be permitted, an application for resource consent will be required for significant modifications to those items/places that are scheduled and/or mapped.

- There is no distinction between minor and what is considered to be significant.

3.5. Rules:

'12.5.6.1.1 Notable Trees

(a) *The trimming and maintenance of a Notable Tree listed in **Appendix 1D** and shown on the **Zone Maps**, or the felling of a Notable Tree which has died, is a permitted activity, provided that the activity is carried out by, or under the supervision of, a member of the New Zealand Arboricultural Association who has advised the Council in advance of the work to be carried out; and/or ~'.*

- Standards on trimming specifications should be outlined, which will remove any ambiguity about minor and significant pruning.

- Non-arborists and persons with no formal arboricultural training can become members of the New Zealand Arboricultural Association (NZ Arb).

- A dead or dying Notable tree may still have attributes that are worthy of ongoing retention and protection.

(b) *A Notable Tree listed in Appendix 1D and shown on the Zone Maps may be limbed or felled:*

i. where this is required as emergency work to safeguard life or habitable buildings from immediate danger; or

ii. where this is required as emergency work to maintain or restore utilities, including networks for energy, telecommunications and transport;

provided that such work is done to the minimum extent required to protect human life, habitable property or the network.

– Where practical, the assessment on whether there is an immediate danger should be assessed by a professional arborist who has a Council accepted qualification and experience in risk assessment.

(d) *Excavation, filling and impermeable surfaces (including buildings) shall not occur within the area covered by the crown periphery (drip line) of any Notable Tree listed in Appendix 1D and shown on the Zone Maps, but the planting and weeding of garden plants is permitted.*

– Crown periphery or drip line, is not a good representative of the root growing area and the area required to protect and retain a tree.

Discussion

3.6. Drip line could be altered to Rootzone (often referred to as Tree Protection Zone). The root system of a tree spreads out from perennial, anchor roots to smaller, short-lived fibrous roots (feeding roots). Typically roots spread laterally beyond the canopy within 600mm of the ground surface. Severing roots can have a negative effect on tree function, including stability and the uptake of water and minerals. To avoid adverse impacts to Notable trees, the Rootzone area could be aligned to the Australian Standard (AS 4790-2009) Protection of trees on development sites. Although there are limitations to this system, using trunk diameter at breast hight (DBH) to identify a tree protection / root zone area is an industry accepted method to determine how much area needs to be retained to maintain viability. The formula used is *TPZ = DBH x 12* or for trees with multiple stems, the below formula is used.

$$DBH = \sqrt{(DBH,)^2 + (DBH,)^2 + (DBH,)^2}$$

3.7. Permitted standards for works or alterations within the 'Rootzone' should be introduced to the plan. Examples of permitted activity standards are outlined below.

- Allow for the removal of up to 80mm diameter roots, where no more than 10% of the rootzone is being altered and work remains outside the Structural Root Zone (SRZ). The SRZ is also a concept outlined in the Australian Standards and recognised by the arboricultural industry in New Zealand. The SRZ is an area around the tree's trunk where large, anchorage roots are likely to exist. The SRZ is represented by $SRZ = (D \times 50)^{0.42} \times 0.64$ – the diameter is taken at ground level.
- The rootzone is to be protected during any works by temporary fencing.

- No compaction and/or contamination of the rootzone will occur during the works.
- Directional drilling will occur 800mm below ground level and no works will occur within the Structural Root Zone (SRZ) of the tree.
- All alterations within a Rootzone should be under the supervision of a qualified arborist (New Zealand Certificate in Arboriculture (Level 4)) and who is familiar with best practice and standards, including AS 4097-2009, BS 5837:2012 and ANSI A300.

3.8. Permitted trimming standards should be included. Below is the *Auckland Council* Notable Tree trimming standard. This, or similar, is a reasonable expectation for permitted tree trimming.

(a) The maximum branch diameter must not exceed 50mm at severance

(b) No more than 10 per cent of live growth of the tree may be removed in any one calendar year.

(c) The works must meet best arboricultural practice.

(d) All trimming or alteration must retain the natural shape, form and branch habit of the tree.

(e) All trimming of Notable trees should adhere to the Minimum Industry Standards: MIS308 – Tree Pruning, which has been produced by Arboriculture Australia and NZ Arb. This Standard also provides for retrenchment pruning, which can be a valuable tool in the preservation of veteran trees. Trimming works will be undertaken by a competent arborist or company that has a proven track record of such works.

3.9. The use of permitted standards also provides a guideline of what could be considered minor effects.

3.10. The removal of trees (including dead trees) should only be allowed following assessment by a competent, qualified arborist. Given the complexities of Notable Trees, any determination on removal should be assessed by an arborist with a Diploma in Arboriculture (Level 6). All alternatives to removal should be assessed prior to removal. Trees where a hazard is identified, should be risk assessed using recognised tree risk method/system. Three systems which are industry recognised and adopted in New Zealand are outlined below.

- Quantified Tree Risk Assessment (QTRA)
- Tree Risk Assessment Qualification (TRAQ)
- VALID Tree Risk-Benefit Assessment and Management

4. FNDC Notable Tree Scores

4.1. Currently the Notable trees listed in Appendix 1D are scored using the Royal New Zealand Institute of Horticulture's (RNZIH) Tree Evaluation Method (1988). This method uses 13 categories to assess a tree, with each category worth 1-4 points. The points of each category are then multiplied by the previous points to provide the total points. The threshold adopted for the FNDC is 1000 points. Using this method can result in a wide range of points, even where trees are of similar values and characteristics.

4.2. The RNZIH has been superseded by the Standard Tree Evaluation Method (1988) STEM. STEM - was created by Ron Flook and published in 1996. It is the tree evaluation method adopted by most regulatory bodies in New Zealand for assessing and inclusion of trees within notable tree schedules.

4.3. The following table provides a sample where the two scoring systems can be compared and also the variances within STEM. Not all existing trees within the Arborlab assessments were provided with a STEM score.

Table 1: Scoring Systems Comparison

Site / FNDC ID	Existing RNZIH score	2017 STEM score	Arborlab score
36	13824	222	186
37	2304	150	132
52	1152	129	105
64	27648	198	162
89	6912	231	198
90	1152	114	-
109	1728	132	132
114	1728	126	108
117	3888	198	186
130	1563	171	-
133	3456	103	-
134	1515	142	-

4.4. Using the 2017 assessment undertaken by Mr Kent Thwaites, 46 existing notable trees that will have had to meet the 1000 points to be added to Appendix 1D, scored below 130 STEM points.

5. STEM

5.1. There are three sections in STEM; Condition (Health) and Amenity (Community benefit) as well as a section for Notability (Distinction). The Condition and Amenity sections are designed to be assessed by arborists, while the Notability section is only used to qualify trees of major importance, such as a link to a historic act or person. In using the Notability section, supporting information, outside the arboricultural field should be provided.

5.2. Within the three sections – Condition, Amenity and Notability, there are subsections that are used to assess the tree and provide 'points', which will then be totalled to provide the STEM evaluation score. The points are 3, 9, 15, 21 and 27. Three points would indicate a tree of poor attributes for that subsection and 27 would indicate a specimen tree with high attributes.

Table 2: STEM Categories

Section	Condition Evaluation	Amenity Evaluations	Notable Evaluation
Subsection	Form Occurrence Vigour and Vitality Function Age	Stature Visibility Proximity Role Climate	Stature • Feature • Form Historic • Age 100+ • Association • Commemoration • Remnant • Relict Scientific • Source • Rarity • Endangered

5.3. Table 2 below outlines the Local Authorities currently using STEM as of Dec 2019 and the STEM scoring used as a minimum requirement for notable tree status of that region – the information has been provided by Mr Brad Cadwallader, manager of the New Zealand Notable Tree Register. Please note that some of the below councils use a slightly modified STEM assessment system so their scoring may not be comparable.

Table 3: Local Authorities using STEM

Regional Council	Score
Napier City	180
Thames-Coromandel District	170
Hastings District	160
Palmerston North City	160
Carterton District	150

Table 3: Local Authorities using STEM

Regional Council	Score
Horowhenua District	150
Kaipara District	150
Manawatu District	150
Marlborough District	150
Whanganui District	150
Dunedin City	145
Kapiti Coast District	140
Matamata-Piako District	140
Rotorua District	140
Whakatane District	135
South Taranaki District	130
Tauranga City	130
Lower Hutt City	120
Queenstown-Lakes District	120
Tasman District	120
Western Bay of Plenty District	120
Taupo District	110
Waipa District	110
Wellington City	110
Nelson City	100
Upper Hutt City	100
Waitaki District	100
Whangarei District	100
Waimakariri District	90
Hauraki District	87

5.4. STEM does not stipulate a set threshold as it is up to each local authority to determine what's appropriate within the region's context, however, it is considered that notable trees should be recognised, regionally or nationally, to be unique for the species, of exceptional age, stature, character and/or visibility, quality, dimensions or value, are endangered or rare, or commemorate events and history.

5.5. STEM can be used to assess groups of trees by combining the tree characteristics. For example, within the 'Stature' category of STEM, the combined width of the group can be used; the entire tree group will be used in the 'Proximity' category; and the 'Climate' category will also be likely to score higher than an individual tree. Often, within significant groups of trees, individuals within the group may score poorly, but are nevertheless an important component of the overall group.

5.6. To assist the FNDC with establishing a STEM score/points 'threshold' for inclusion into the District Plan, 71 nominated trees and 35 existing notable trees were assessed using STEM. The average STEM score using both nominated and existing trees is 138. Prior to this assessment, 147 trees

currently listed in Appendix 1D were assessed with STEM in 2017 by Mr Kent Thwaites. The average score from the 2017 assessment was 150.

5.7. Using a comparison of the 35 existing notable trees assessed in 2017 by Mr Thwaites and by Arborlab (2020 and 2021), the 2017 assessment had a higher scoring average (153) to Arborlab's scoring (144). This highlights the fact that interpreting tree attributes using the same formula can vary between assessors and/or that trees are dynamic organisms that can change through seasonal variation and over-time.

5.8. Using the above data, it would be reasonable to use the average STEM score for this region, which is 138, rounded to 140. However, as part of the Arborlab survey of nominated trees, a yes / no assessment (arborist opinion) based on a general appraisal of existing community trees, the general tree characteristics and attributes, species profile and potential conflicts was conducted. This yes / no assessment found seven trees scoring 132, fell below the average of 138. These trees have the attributes that should be considered for notable status. Conversely, using this yes / no assessment, three trees scoring 132 would not be suitable for notable tree inclusion.

5.9. Given all the information provided, a STEM threshold set at 130 for the Far North District would be reasonable, with the ability to exclude certain trees where it is assessed the tree characteristics, attributes, species profile or potential conflicts warrant. Some of these undermining factors are outlined below;

- Species included in the National Pest Plant Accord or pest plants identified regionally.
- Trees that only marginally make the allotted STEM threshold where they are growing in close proximity to public footpaths, carriageways, infrastructure within children's play area/grounds.
- Trees that could interfere with overhead public powerlines.
- Where it has been assessed that the tree's risk of harm is unacceptable and cannot be mitigated.

5.10. It is to be noted that although STEM has been designed to bring consistency to tree assessments, the method has limitations, which in some cases has led to informal modifications. There are also inconsistences with the interpretation of the method's parameters which can lead to variations. Notwithstanding, STEM provides arborists a standard method for scoring trees that is widely used, industry accepted and recommended by NZ Arb, however, to indorse notable status input from landscape architects, historians and in some cases, ecologists should be considered – which is provided for in the Notable Evaluation section of STEM.

6. Recommendations

6.1. The amendment and enhancement of the current Notable Tree rules. A number of considerations

have been provided in the report above. The concepts outlined in the report will need to be further refined for use.

6.2. The method used to identify and ratify notable trees is changed to STEM. The minimum score should be 130

6.3. As existing trees are reviewed or reassessed, an updated STEM score should be provided.