



DECISION OF QUEENSTOWN LAKES DISTRICT COUNCIL

RESOURCE MANAGEMENT ACT 1991

Applicant:	P PHISKIE
RM Reference:	RM 140465
Location:	Domain Road, Hawea Flat
Proposal:	Clearance of indigenous vegetation.
Type of Consent:	Land use
Legal Description:	Lot 1 DP 461155, Lot 2 DP 24534, Sections 11, 17, 22 & 23 and Part Section 24 Block IV Lower Hawea Survey District
Valuation Number:	2908206104
Zoning:	Rural General
Activity Status:	Restricted Discretionary Activity
Notification:	4 December 2014
Commissioner:	W D Whitney
Date of Decision:	23 June 2015
Decision:	Consent is granted subject to conditions.

A. INTRODUCTION

A.1 Background

1. Mr P Phiskie has applied to the Queenstown Lakes District Council for resource consent to clear indigenous vegetation on a rural property that has frontage to Domain Road at Hawea Flat. The site subject to the application is described as Lot 1 DP 461155, Lot 2 DP 24534, Sections 11, 17, 22 & 23 and Part Section 24 Block IV Lower Hawea Survey District as held in Computer Freehold Register Identifier 606082 in the Otago Land Registration District. The indigenous vegetation subject to the application is located on that part of the site described as Section 23 Block IV Lower Hawea Survey District.
2. The subject site has a total area of 289.5954 hectares more or less and is a generally triangular shaped farm property that extends south and west of Domain Road to an unformed legal road that runs along the true left bank of the Hawea River. The site is in open pasture with an occasional shelter belt. The topography of the site is generally flat with occasional low river terraces. The site is dissected into various parcels by unformed legal roads that run through the site.
3. The unformed legal road on the true left bank of the Hawea River contains the Hawea River Track which is a metal track that is popular for walking and cycling. This portion of the Hawea River Track extends some 4 kilometres between Lake Hawea and Camp Hill Road; and the Track then continues to the south of Camp Hill Road. The Hawea River Track is located in close proximity to the western boundary of the subject site and at one point passes over the site on land subject to an easement granted by a previous owner to the Upper Clutha Tracks Trust in 2010. At other points the Track appears to encroach onto the site on an informal basis as fencing is located within the property boundary.
4. The applicant purchased the property in January 2012. At that time there was an existing (but then unconsented) centre pivot irrigator on the site which enabled the irrigation of 147 hectares of the land. Since that time the applicant has embarked on a programme of irrigation development which has involved the establishment of two further centre pivot irrigators.

5. On 16 October 2012 land use consent RM 120576 was granted to Mr Phiskie to undertake 28,400m³ of earthworks to construct a water storage pond for the purpose of irrigation. On 11 December 2012 land use consent RM 120748 was also granted to Mr Phiskie to establish three centre pivot irrigators on the site, all of which will cross unformed legal roads within the site. It is noted that RM 120748 consented the existing centre pivot irrigator and the additional two centre pivot irrigators proposed for the full development of the site.
6. For completeness it is acknowledged that as a consequence of the Environment Court's declaration in Haldon Station & Others v Mackenzie District Council [2014] NZ Env C 136 (which held that an irrigator is a vehicle) land use consent is no longer required for pivot or linear irrigators in the Queenstown Lakes District.
7. The centre pivot irrigators authorised by RM 120748 are now located on the subject site.

A.2 The Proposal

8. Retrospective land use consent is sought for the clearance of approximately 2.23 hectares of indigenous vegetation which occurred prior to the applicant becoming aware that land use consent was required for the indigenous vegetation clearance. Mr Phiskie was acting under the misapprehension that the land use consent RM 120748 for the centre pivot irrigators authorised the clearance of this indigenous vegetation.
9. Land use consent is also sought for the clearance of an additional 4700m² of indigenous vegetation that is located between two of the areas previously cleared and within the arc of the westernmost centre pivot irrigator that is located on the subject site.
10. In total land use consent is sought for the clearance of approximately 2.7 hectares of indigenous vegetation on the subject site.
11. It is noted that the application as originally lodged proposed the clearance of approximately 1.1 hectares of indigenous vegetation in addition to the (then stated) approximately 2.2 hectares for which consent was sought on a retrospective basis.

Subsequently the applicant proposed that the area to be cleared be reduced to an area of 85m² being the area to be used for the wheel track only. Tall vegetation on the balance of the 4700m² was to be trimmed or topped. In correspondence dated 20 May 2015 Mr Patterson of Paterson Pitts Group Wanaka Limited (for the applicant) confirmed that the applicant now wishes to remove a total of 4700m² of vegetation under the centre pivot irrigator; being the vegetation which was to be previously trimmed or topped and the area to be used for the wheel track.

12. The Commission accepts that the clearance of a total area of 2.7 hectares of indigenous vegetation is within scope of the original application which promoted the clearance of a total of approximately 3.3 hectares of indigenous vegetation.

13. In the application documentation, in further information provided by the applicant and as confirmed at the hearing the applicant has volunteered a range of conditions to mitigate effects. These include the following (or to like effect):

- (i) The setting aside of 6 hectares of land on the site for indigenous vegetation regrowth.
- (ii) The establishment of appropriate indigenous vegetation within the 6 hectares along with a regime of weed and pest control.
- (iii) The 6 hectares to be subject to either a QEII (Queen Elizabeth The Second National Trust) Open Space Covenant or a Resource Management Act 1991 (RMA) covenant to ensure the protection of the 6 hectares in perpetuity.
- (iv) No clearance of indigenous vegetation to occur outside the arc of the centre pivot irrigator.
- (v) The outer sprinkler of the centre pivot irrigator to be turned off where it could irrigate any indigenous vegetation unless watering of newly planted indigenous vegetation is directed by an ecologist.
- (vi) Management of the 6 hectares in accordance with an approved Restoration Plan which provides for the planting of at least 80 indigenous plants and performance criteria targets for weed control and planting.

14. The Commission confirms that it has assessed the proposal on the basis of the application as amended and on the basis of the conditions offered by the applicant at the hearing.

A.3 Zoning

15. The site is zoned Rural General as shown on Maps 17 and 18 of the Queenstown Lakes Operative District Plan (District Plan/Operative District Plan). Part of the site is shown on Map 17 as being designated for “Wastewater Treatment and Disposal” Purposes (D 68) and as being subject to a Building Restriction Area notation (which relates to the Hawea Oxidation Pond). For the avoidance of doubt D 68 and the Building Restriction Area have no particular relevance to the application to clear indigenous vegetation on Section 23 Block IV Lower Hawea Survey District which is located well to the south of the land subject to the designation and Building Restriction Area.
16. The clearance of indigenous vegetation breaches Site Standard 5.3.5.1x as the area of indigenous vegetation to be cleared is greater than 0.5 hectares and is less than 200 metres from any other indigenous vegetation which is greater than 0.5 hectares in area. A breach of Site Standard 5.3.5.1x is a restricted discretionary activity in terms of Rule 5.3.3.3xi.
17. Site Standard 5.3.5.1x confirms that discretion is restricted to the effect on nature conservation, landscape and visual amenity values and the natural character of the rural environment.
18. The Commission has considered the proposal as an application for land use consent to a restricted discretionary activity pursuant to section 104C of the RMA.

A.4 Submissions

19. The application was publicly notified and eight submissions were received within the statutory submission period which closed on 22 January 2015. The submissions by Sam Brooks, Rachel Brown, Kim Fogelberg, John Langley & Helen Clarke, Ulla Reymann, The Royal Forest & Bird Protection Society of New Zealand Inc and the Upper Clutha Environmental Society Inc oppose the application; and the Department of Conservation neither supported nor opposed the application.

20. The Commission has given consideration to the submissions lodged in response to the application.

A.5 Reports and Hearing

21. The Commission has had the benefit of a section 42A planning report dated 23 March 2015 and an Addendum to that report dated 2 June 2015 prepared by Ms Jane Sinclair, Consultant Planner; a Landscape Assessment Report dated 18 March 2015 and an Addendum to that report dated 25 May 2015 prepared by Ms Helen Mellsop, a Registered Landscape Architect; and an Ecology Report dated 2 October 2014 and an Addendum to that report dated 27 May 2015 prepared by Mr Glenn Davis, Principal Environmental Scientist at the Davis Consulting Group.

22. At the hearing on 10 June 2015 the Commission was assisted by Ms Sinclair, Ms Mellsop and Mr Davis. Ms Rachel Beer, the Planning Support Co-ordinator with the Queenstown Lakes District Council, provided administrative support at the hearing.

23. Prior to the hearing the Commission had the opportunity to consider the application and supporting material including the further information filed by the applicant together with the submissions. In the company of Ms Sinclair the Commissioner made a site inspection on the morning of Monday 8 June 2015.

24. At the hearing the applicant was represented by Mr David Jackson, Counsel, of Berry & Co who called evidence from Mr Peter Phiskie being the applicant; Dr Peter Espie a Director of AgScience Limited; Dr Kelvin Lloyd a Senior Ecologist with Wildland Consultants Limited; and Mr Robin Patterson a Director of Paterson Pitts Partners who provided planning evidence. Mrs Yvonne Phiskie was also in attendance in support of the application along with Ms Kate Scott of Landpro Limited.

25. Mr Langley and Ms Clarke appeared at the hearing in support of their submission.

26. The Royal Forest & Bird Protection Society of New Zealand Inc was represented by Ms Susan Maturin the Otago Southland Regional Conservation & Volunteer Manager for the Society. Ms Maturin called evidence from Ms Anne Steven a Registered Landscape Architect and from Dr Susan Walker a Botanist and Plant Ecologist,

Researcher, and Research Programme Leader in the Crown Research Institute Landscape Research.

27. The planning, landscape and ecology reports were taken as read and Ms Mellsop, Mr Davis and Ms Sinclair were invited to comment following the presentation of submissions and evidence. Leave was granted for Mr Jackson to submit a reply in writing. The hearing was adjourned pending receipt of Mr Jackson's reply which was received on 12 June 2015.

A.6 Principal Issues in Contention

28. The principal issues in contention are the adverse effects on the environment of the clearance of indigenous vegetation at the subject site and whether such adverse effects are satisfactorily mitigated by the conditions offered by the applicant.

B. EFFECTS ON ENVIRONMENT

B.1 Permitted & Consented Baseline

29. The clearance of indigenous vegetation is a permitted activity if it complies with Site Standard 5.3.5.1x. Trimming of indigenous vegetation does not fall within the definition of "Vegetation Clearance" contained in the Operative District Plan which means:

"... the felling, clearing of [sic] modification of trees or any vegetation by cutting, crushing, cultivation, spraying or burning. Clearance of vegetation shall have the same meaning."

30. Farming activities including the grazing and cultivation of land, the routine repair of operational farm tracks and earthworks of under 300m³ over an area of less than 1,000m² in one year are permitted activities in the Rural General Zone. The installation and use of pivot or linear irrigators for the irrigation of land is also a permitted activity in the Rural General Zone.

31. In this instance the consented baseline includes the three centre pivot irrigators consented under RM 120748 albeit that pivot irrigators are now deemed to be a permitted activity in the Rural General Zone.

B.2 Affected Persons Approvals

32. No affected persons approvals have been received to the application.

B.3 Assessment Matters

33. The District Plan became fully operative on 10 December 2009. The Operative District Plan contains assessment matters in Part 5 that are relevant to development generally and to the clearance of indigenous vegetation in particular in the Rural General Zone.

34. The officers' reports and the evidence presented at the hearing have assessed the effects of the activity in terms of the relevant assessment matters in Part 5. This approach is appropriate in this instance and the Commission has assessed the actual and potential effects of the proposed activity having regard to relevant assessment matters.

B.4 Part 5 : VAL

35. Clause 5.4.2.1 advises that there are three steps in applying the assessment criteria. These include Step 1 – Analysis of the Site and Surrounding Landscape, Step 2 – Determination of Landscape Category and Step 3 – Application of the Assessment Matters.

36. Ms Mellsop and Ms Steven agreed that the site is within a Visual Amenity Landscape (VAL). Ms Mellsop noted that the subject site forms part of the glacial outwash plains south of Lake Hawea. She observed that the outwash plains of the Hawea Flats have been modified by farming and forestry activities, and by rural living development, but she considered that the vistas available to the surrounding mountain ranges mean that the rural landscape retains a high level of visual amenity. Ms Mellsop also noted that the Hawea River forms a significant natural feature within the landscape albeit that she does not consider that the river possesses distinctive natural or aesthetic values that would qualify it as outstanding within the District.

37. Clause 5.4.2.2(3) contains assessment matters that apply to development in the Rural General Zone on land categorised as VAL. Each assessment matter stated in the District Plan is presented in italics below, followed by the Commission's assessment of the proposal in terms of the assessment matter.

38. The opening paragraphs of Assessment Matter 5.4.2.2(3) state as follows:

"These assessment matters should be read in the light of the further guiding principle that existing vegetation which:

- (a) was either
 - planted after; or
 - self seeded and less than 1 metre in height at - 28 September 2002; and*
- (b) obstructs or substantially interferes with views of the landscape (in which the proposed development is set) from roads or other public places*
- shall not be considered:
 - (1) as beneficial under any of the following assessment matters unless the Council considers the vegetation (or some of it) is appropriate for the location in the context of the proposed development; and
 - (2) as part of the permitted baseline.*
- nor shall removal of such vegetation be considered as a positive effect of any proposal."*

39. The Commission acknowledges that the assessment matters in Assessment Matter 5.4.2.2(3) are to be read in light of the above guiding principle.

"(a) Effects on natural and pastoral character

In considering whether the adverse effects (including potential effects of the eventual construction and use of buildings and associated spaces) on the natural and pastoral character are avoided, remedied or mitigated, the following matters shall be taken into account:

- (i) where the site is adjacent to an Outstanding Natural Landscape or Feature, whether and the extent to which the visual effects of the development proposed will compromise any open character of the adjacent Outstanding Natural Landscape or Feature;*
- (ii) whether and the extent to which the scale and nature of the development will compromise the natural or arcadian pastoral character of the surrounding Visual Amenity Landscape;*

- (iii) *whether the development will degrade any natural or arcadian pastoral character of the landscape by causing over-domestication of the landscape;*
- (iv) *whether any adverse effects identified in (i) – (iii) above are or can be avoided or mitigated by appropriate subdivision design and landscaping, and/or appropriate conditions of consent (including covenants, consent notices and other restrictive instruments) having regard to the matters contained in (b) to (e) below;”*

40. The site is not adjacent to any Outstanding Natural Landscape or Feature within the Upper Clutha Basin.

41. The indigenous vegetation subject to clearance for which retrospective land use consent is sought comprised indigenous kanuka-dominated vegetation which extended beyond the narrow riparian zone of the Hawea River onto the adjacent glacial outwash terraces. The Commission accepts Ms Mellsop's opinion that the cleared vegetation contributed to natural patterns of dryland vegetation spread and regeneration within the northern Hawea Flat landscape and made a significant contribution to the natural character and aesthetic values of the site and its vicinity. Further modification is proposed being the additional 4700m² of indigenous vegetation that is proposed to be cleared.

42. The Commission accepts Ms Mellsop's opinion that the completed and proposed vegetation clearance will result in moderate adverse effects on the natural character of the landscape; but will enhance pastoral character. This is because the land is to be used for farming purposes which is a permitted activity in the Rural General Zone.

43. In her Addendum report dated 25 May 2015 Ms Mellsop acknowledged that the mitigation measures proposed by the applicant will provide more certainty that the fenced mitigation areas will be protected and enhanced in the long term. Ms Mellsop concluded that the adverse effects of the amended proposal on the natural character of the area would be adequately mitigated by the proposed vegetation protection and enhancement. In all the circumstances the Commission is satisfied that adverse effects on natural and pastoral character are to be sufficiently avoided, remedied or mitigated in this instance. The Commission also acknowledges in the context of Assessment Matter 5.4.2.2(3)(a)(iv) that a covenant is proposed in this instance.

“(b) Visibility of Development

Whether the development will result in a loss of the natural or arcadian pastoral character of the landscape, having regard to whether and the extent to which:

- (i) the proposed development is highly visible when viewed from any public places, or is visible from any public road and in the case of proposed development in the vicinity of unformed legal roads, the Council shall also consider present use and the practicalities and likelihood of potential use of unformed legal roads for vehicular and/or pedestrian, equestrian and other means of access; and*
- (ii) the proposed development is likely to be visually prominent such that it detracts from public or private views otherwise characterised by natural or arcadian pastoral landscapes;*
- (iii) there is opportunity for screening or other mitigation by any proposed method such as earthworks and/or new planting which does not detract from or obstruct views of the existing natural topography or cultural plantings such as hedge rows and avenues;*
- (iv) the subject site and the wider Visual Amenity Landscape of which it forms part is enclosed by any confining elements of topography and/or vegetation;*
- (v) any building platforms proposed pursuant to rule 15.2.3.3 will give rise to any structures being located where they will break the line and form of any skylines, ridges, hills or prominent slopes;*
- (vi) any proposed roads, earthworks and landscaping will change the line of the landscape or affect the naturalness of the landscape particularly with respect to elements which are inconsistent with the existing natural topography;*
- (vii) any proposed new boundaries and the potential for plantings and fencing will give rise to any arbitrary lines and patterns on the landscape with respect to the existing character;*
- (viii) boundaries follow, wherever reasonably possible and practicable, the natural lines of the landscape and/or landscape units;*
- (ix) the development constitutes sprawl of built development along the roads of the District and with respect to areas of established development.”*

44. Ms Mellsop advised that prior to clearance the indigenous vegetation was visible to walkers and cyclists on an approximately 200 metre stretch of the Hawea River Track (from about 150 metres north of the unformed legal road crossing the property) and from the Track easement that crosses the subject site north-west of the cleared areas. Ms Steven considers that Ms Mellsop's 200 metre distance is closer to 500-600

metres, as track users approach the clearance area from the north and south and pass directly by.

45. Ms Mellsop also noted that the vegetated areas, especially the low escarpment where the pivot irrigator ramps have been constructed on the site, are also likely to have been visible from the rural living properties to the west of the river (including those at Te Awa Drive).
46. Ms Mellsop opined that for members of the public using the Hawea River Track the clearance will have resulted in moderate adverse effects on the naturalness, pleasantness and coherence of views to the east. From some sections of the Track an experience of enclosure by predominantly indigenous vegetation, and separation from the adjacent farmland, will have been replaced by views across open pasture and potentially to the closest centre pivot irrigator consented by RM 120748. Ms Mellsop advised in her Addendum report that the additional clearance of 4,700m² will exacerbate the adverse effects of existing clearance on the naturalness and amenity values from the Track, but only to a minor extent.
47. Ms Mellsop's overall conclusion is that the adverse effects of the application on visual amenity will be moderate in extent for users of the Hawea River Track and small in extent for more distant observers west of the river. She noted that views from those properties are more focussed on the retained escarpment vegetation to the north of the cleared areas.
48. The Commission acknowledges in the context of visibility that the Hawea River Track varies in elevation relative to the areas where indigenous vegetation has been cleared or is proposed to be cleared. At some points these areas are clearly visible whereas at others they are obscured as the Track is located below that portion of the site where the clearance is proposed. The Commission also notes that existing and proposed indigenous vegetation within the 6 hectares to be set aside by the applicant provides or will serve to provide screening into the future.
49. The Commission also acknowledges that the Hawea River Track adjacent to the site at some points provides vistas of the river and of existing development and plantation forestry on the west side of the river. A mixture of vistas are available for users of the

Track. Users of the Track experience a sense of enclosure with indigenous vegetation on either side at some points and at other points they experience views across pastoral farmland to the east (which is evident to the south of the site, to the north of Camp Hill Road).

50. In all the circumstances the Commission does not consider it appropriate to require a continuous fenced buffer strip of at least 10 metres in width from the western site boundary or track easement boundary as recommended in the reports of Ms Mellsop and Ms Sinclair. The Commission also confirms that it does not consider it appropriate to fence out and set aside the “southern basin” or the “triangle” areas, as proposed by Ms Steven in her evidence.

51. The effect of the proposal in visual terms is to open up views across a pastoral landscape which contains a centre pivot irrigator. The Commission acknowledges in this context that pastoral farming and the use and operation of centre pivot irrigators are permitted activities in the Rural General Zone and are expected in the context of the Rural General Zone. The Commission does not consider it appropriate to require screening of these permitted activities; or to require the fencing out of pieces of land which are of productive value to the applicant as confirmed in paragraphs 9 and 10 of Mr Jackson’s reply.

52. The Commission’s conclusion is that the proposal will result in a loss of natural character but that any adverse effects in terms of visual amenity will be no greater than moderate.

“(c) Form and Density of Development

In considering the appropriateness of the form and density of development the following matters the Council shall take into account whether and to what extent:

- (i) there is the opportunity to utilise existing natural topography to ensure that development is located where it is not highly visible when viewed from public places;*
- (ii) opportunity has been taken to aggregate built development to utilise common access ways including pedestrian linkages, services and open space (ie. open space held in one title whether jointly or otherwise);*

- (iii) *development is concentrated in areas with a higher potential to absorb development while retaining areas which are more sensitive in their natural or arcadian pastoral state;*
- (iv) *the proposed development, if it is visible, does not introduce densities which reflect those characteristic of urban areas.*
- (v) *If a proposed residential building platform is not located inside existing development (being two or more houses each not more than 50 metres from the nearest point of the residential building platform) then on any application for resource consent and subject to all the other criteria, the existence of alternative locations or methods:*
 - (a) *within a 500 metre radius of the centre of the building platform, whether or not:*
 - (i) *subdivision and/or development is contemplated on those sites;*
 - (ii) *the relevant land is within the applicant's ownership; and*
 - (b) *within 1,100 metre radius of the centre of the building platform if any owner or occupier of land within that area wishes alternative locations or methods to be taken into account as a significant improvement on the proposal being considered by the Council*
- *must be taken into account.*
- (vi) *recognition that if high densities are achieved on any allotment that may in fact preclude residential development and/or subdivision on neighbouring land because the adverse cumulative effects would be unacceptably large."*

53. This assessment matter is of particular relevance to built development. Accordingly this assessment matter is considered to be of little relevance in the context of the current application.

“(d) Cumulative effects of development on the landscape

In considering whether and the extent to which the granting of the consent may give rise to adverse cumulative effects on the natural or arcadian pastoral character of the landscape with particular regard to the inappropriate domestication of the landscape, the following matters shall be taken into account:

- (i) *the assessment matters detailed in (a) to (d) above;*

- (ii) *the nature and extent of existing development within the vicinity or locality;*
 - (iii) *whether the proposed development is likely to lead to further degradation or domestication of the landscape such that the existing development and/or land use represents a threshold with respect to the vicinity's ability to absorb further change;*
 - (iv) *whether further development as proposed will visually compromise the existing natural and arcadian pastoral character of the landscape by exacerbating existing and potential adverse effects;*
 - (v) *the ability to contain development within discrete landscape units as defined by topographical features such as ridges, terraces or basins, or other visually significant natural elements, so as to check the spread of development that might otherwise occur either adjacent to or within the vicinity as a consequence of granting consent;*
 - (vi) *whether the proposed development is likely to result in the need for infrastructure consistent with urban landscapes in order to accommodate increased population and traffic volumes;*
 - (vii) *whether the potential for the development to cause cumulative adverse effects may be avoided, remedied or mitigated by way of covenant, consent notice or other legal instrument (including covenants controlling or preventing future buildings and/or landscaping, and covenants controlling or preventing future subdivision which may be volunteered by the applicant).*
- ...

54. The adverse effects of the completed and proposed indigenous vegetation clearance are cumulative with those of historical clearance of indigenous vegetation on the Hawea Flats for agricultural activities and forestry and the ongoing modification of the dryland landscape through irrigation, forestry and rural living developments. Ms Mellsop was of the initial view that given the relatively small area of remaining kanuka-dominant forest on the Hawea Flats that cumulative adverse effects of the clearance on the natural character of the landscape would be small to moderate in extent. In her Addendum report she acknowledged that the amended application provides more certainty that areas set aside for indigenous vegetation protection and enhancement will provide effective mitigation; and as a result she considered that the remaining adverse cumulative effects on the natural character of the landscape would be small in extent. The Commission concurs with this assessment.

55. Ms Mellsop raised in the context of adverse cumulative effects the potential for a buffer at least 10 metres wide to provide sufficient visual screening and enclosure over

time along the western site boundary. As discussed in paragraphs 50 and 51 of this decision (above) the Commission does not consider that it is appropriate to require a 10 metre wide buffer along the western site boundary. The Commission acknowledges in this context that the fenceline within the site is a variable distance back from the site boundary which varies from about zero (at the southern end of Section 23) to in excess of 30 metres at one point between the boundary and the fence in the immediate vicinity of the areas to be cleared, and to the north of those areas.

“(e) Rural Amenities

In considering the potential effect of the proposed development on rural amenities, the following matters the Council shall take into account whether and to what extent:

- (i) the proposed development maintains adequate and appropriate visual access to open space and views across arcadian pastoral landscapes from public roads and other public places; and from adjacent land where views are sought to be maintained;*
- (ii) the proposed development compromises the ability to undertake agricultural activities on surrounding land;*
- (iii) the proposed development is likely to require infrastructure consistent with urban landscapes such as street lighting and curb [sic] and channelling, particularly in relation to public road frontages;*
- (iv) landscaping, including fencing and entrance ways, are consistent with traditional rural elements, particularly where they front public roads.*
- (v) buildings and building platforms are set back from property boundaries to avoid remedy or mitigate the potential effects of new activities on the existing amenities of neighbouring properties.”*

56. Ms Mellsop considers that the indigenous vegetation clearance, both completed and proposed, will not adversely affect views across open space to pastoral land. Such views are enabled by the indigenous vegetation clearance. Ms Mellsop was of the opinion, however, that the amenity of the newly opened vistas will be reduced by the presence of the consented pivot irrigator which she considered to be a large and visually dominating structure. As previously noted pivot irrigators form part of the permitted and consented baseline in this instance.

57. The Commission is satisfied that the proposal will not compromise the ability to undertake agricultural activities on surrounding land.
58. The proposed development will not require infrastructure consistent with urban landscapes.
59. No buildings and building platforms are proposed in this instance.
60. The Commission is satisfied that any effects of the proposed development will be no more than moderate in the context of the VAL.

B.5 Assessment Matters General

61. Assessment Matter 5.4.2.3 contains Assessment Matters – General which have been considered by the Commission. The Commission does not propose to reproduce these assessment matters in detail (except for those that relate to the clearance of indigenous vegetation).

Nature Conservation Values

62. Assessment Matter 5.4.2.3i General – Nature Conservation Values contains assessment matters that are relevant to the current proposal. These are as follows:

- “(a) The extent to which activities will result in opportunities for the protection and enhancement of indigenous bio-diversity or indigenous ecosystems.*
- (b) Any adverse effects of the activity on indigenous ecosystems from animal pests and domestic animals.*
- (c) Any need to avoid, contain, manage and/or monitor the adverse effects of introduced plant species/forms, which have potential to spread and naturalise.*
- (d) The extent to which the activity provides opportunities for making available information regarding indigenous ecosystems.*
- (e) The extent to which activities will protect and enhance the survival and wellbeing of indigenous plants and/or animals that are rare, vulnerable or endangered, or significant within the District, Region or nationally.*
- (f) In the case of activities proposed in the vicinity of rock outcrops, the extent to which the activity will adversely affect, or provide opportunities to enhance, the protection of lizard populations and their habitat.*

(g) The extent to which the inherent values of the site, and its ecological context, have been recognised and provided for.”

63. In terms of Assessment Matter 5.4.2.3i(a) it is acknowledged that in this instance the applicant is to set aside some 6 hectares of land for protection. This will serve to protect and enhance indigenous biodiversity and indigenous ecosystems along the western boundary of the site. The long term control of woody plants will assist with protecting the ecological values and functions of indigenous habitats and the proposed protection area will be enhanced by planting to re-establish indigenous woody species. Mr Davis concurs with Dr Lloyd that these measures will be sufficient to mitigate the adverse effects of the completed and proposed indigenous vegetation clearance.
64. In terms of Assessment Matter 5.4.2.3i(b) the Commission acknowledges that the proposed Restoration Plan prepared by Dr Lloyd states that stock will be excluded from the land to be protected and that all planted trees will be protected from rabbits and hares. Measures are being taken to actively protect the indigenous ecosystem from the adverse effects of animal pests and domestic animals.
65. In terms of Assessment Matter 5.4.2.3i(c) it is acknowledged that the application addresses the ongoing management of wilding trees and woody plants. Mr Davis agrees with Dr Lloyd that the measures promoted will avoid, remedy and mitigate adverse effects on the indigenous ecosystem from wilding pines.
66. Dr Walker emphasised that the shortage of water is a critical factor that allows only drought-tolerant woody species (trees and shrubs) to establish and grow. Dryness also allows only a relatively sparse, short, permanent ground cover of drought-tolerant species to establish. Dr Walker referred to experience with reserves on the Canterbury Plains to demonstrate the “edge effects” that result from the irrigation of adjacent farmland. She referred to the “rolling fronts” of exotic grasses which advance inwards from the reserve boundaries following conversion of the adjacent farmland to irrigated dairying.
67. Based on the “edge effects” described by Dr Walker Royal Forest & Bird have promoted a 20 metre wide buffer beyond the edge of the Protected Area proposed in the Society’s submission. The combination of the extended Protection Area and 20

metre buffer would be to significantly constrain the area to be developed as irrigated farmland by the applicant.

68. Dr Walker advised that at least 4.0 hectares of dryland indigenous vegetation will either be directly cleared or will be indirectly lost (2.23 hectares cleared plus 4,700m² proposed to be cleared plus 1.3 hectares affected by “edge effects”). She also advised that less than 4.8 hectares of existing dryland indigenous vegetation would be retained and potentially enhanced in mitigation. This confirms that the area to be retained and potentially enhanced exceeds the area that has been or is proposed to be cleared and the additional area that Dr Walker has identified as being affected by edge effects.
69. In all the circumstances the Commission does not consider it necessary or appropriate to impose the Protected Area or the 20 metre buffer to mitigate edge effects as proposed by the submitter.
70. Assessment Matter 5.4.2.3i(d) is of no particular relevance in this instance.
71. Dr Lloyd and Mr Davis have concluded that the indigenous vegetation is ecologically important and that the clearance of over 2 hectares [for which retrospective consent is sought] will have an adverse effect. Dr Lloyd and Mr Davis are of the opinion that the adverse effect will be mitigated by the proposed legal protection, weed control and planting of indigenous species on the land to be set aside for protection purposes.
72. Mr Davis concurs with Dr Lloyd that the proposed additional clearance of 4700m² located underneath the existing centre pivot irrigator will have minor adverse effects, provided the mitigation is implemented. It is acknowledged in this context that the permitted baseline provides for the trimming of indigenous vegetation and this is relevant with respect to assessing the effects of clearing the 4700m² of indigenous vegetation on the site.
73. Clearance is not proposed in the vicinity of rock outcrops and accordingly Assessment Matter 5.4.2.3i(f) is of no particular relevance in this instance.

74. In the context of Assessment Matter 5.4.2.3i(g) Mr Davis has advised that given the severe lack of indigenous vegetation in this area that the removal will have ecological effects, but that such adverse effects will be mitigated by the measures now proposed by the applicant and volunteered as conditions of consent.
75. The Commission acknowledges that Dr Lloyd provided helpful background information with respect to the national classification of land environments being Land Environments of New Zealand (LENZ). He referred to various limitations with respect to the LENZ based Threatened Environment Classification (TEC) which results in the TEC being best used as a meso-scale context tool. The TEC uses LENZ Level IV (being the most detailed level) which relates to 500 land environments across New Zealand. The subject site lies in two different land environments being Environment N5.1c which is mostly restricted to Central Otago and comprises droughty, gently-undulating inland plains; and Environment N1.1a which is predominantly found on the Canterbury Plains and on flat plains that are warmer than those of Environment N5.1c.
76. Dr Lloyd noted that the effects of the kanuka clearance largely fall within Environment N5.1c, while the mitigation activities are mainly located on Environment N1.1a. As both of these land environments have been assessed as having less than 10% of their original indigenous cover remaining, they are both classified as Acutely Threatened in the TEC. Dr Lloyd advised that while both of these land environments have been assessed as Acutely Threatened, that the most recent versions of the TEC shows that Environment N1.1a is more threatened with an estimated 0.2% of its original cover remaining, while Environment N5.1c has approximately 2.6% of its original cover remaining.
77. Dr Lloyd advised that the lack of resolution in the database means that there is more indigenous cover remaining on land environments N5.1c and N1.1a than the TEC shows because small and linear remnants are not picked up by the land cover database. In essence Dr Lloyd urged caution with respect to relying on the TEC as uncertainty around the estimates has to be borne in mind. Accordingly he considered that the TEC is best used as a meso-scale tool that helps to provide context, but that the TEC should not be the main determinant of vegetation significance. Dr Lloyd confirmed that the TEC cannot be relied upon as being wholly informative in a site-specific context.

78. The Commission acknowledges that Dr Espie emphasised that site-based ecological evidence is of greater relevance in assessing indigenous vegetation clearance than the application of a generalised modelled high level index [being the TEC].

Natural Hazards

79. In the context of Assessment Matter 5.4.2.3ii Natural Hazards – General the Commission acknowledges that Ms Sinclair observed that the clearance of vegetation along the river margin could exacerbate erosion in periods of rainfall albeit that she considered that such an adverse effect is not considered to be of significance. The Commission concurs.

Clearance of Indigenous Vegetation

80. Assessment Matter 5.4.2.3xxviii relates specifically to Site Standard 5.3.5.1x. The various provisions in Assessment Matter 5.4.2.3xxviii are discussed below and the Commission acknowledges that to some extent these matters overlap with those previously discussed in the context of Assessment Matter 5.4.2.3i (above).

“1. Clearance of indigenous vegetation, including clearance in the alpine environment:

- (a) The nature of the clearance, including:*
 - (i) The amount of land to be cleared.*
 - (ii) The timing of clearance.*
 - (iii) The time since the site was last cleared.*
 - (iv) The form of clearance, whether by burning, spraying or mechanical.*
 - (v) The type of vegetation to be cleared, and the purposes of such clearance.*
 - (vi) Whether a favourable ecological report has been submitted.”*

81. Given that some 2.23 hectares has previously been cleared the Commission acknowledges that the witnesses and reporting consultants were not able to visit the site prior to the initial indigenous vegetation clearance. Ms Mellsop made a number of assumptions in undertaking her assessment of landscape and visual effects being that:

- *The cleared indigenous vegetation was that visible on the 2011 aerial photograph available on Google Earth (used as the base for Patterson Pitts Group Dwg No W4028, Sheet 100, Revision D).*
- *The cleared vegetation was similar in species composition and height to the remaining vegetation on the site and within the river margins.*
- *.... [Sam Brooks] is correct that the clearance of vegetation has opened up some views of farm land from the Hawea River trail that were not available prior to the clearance.*

82. The Commission acknowledges that Ms Steven, who is familiar with the site having walked, cycled and run along the Hawea River Track a number of times, confirmed that Ms Mellsop's assumptions are correct.

83. For the purposes of Assessment Matter 5.4.2.3xxviii 1(a) the evidence of Mr Phiskie confirmed that the approximately 2.23 hectares of indigenous vegetation that has been cleared to date was cleared prior to 8 April 2014. The dryland indigenous vegetation was cleared by mechanical means for the purpose of increased agricultural production. The 4700m² of dryland indigenous vegetation proposed to be cleared is to be cleared by the same means and for the same purpose.

84. Favourable ecological reports have been provided by Dr Lloyd and Dr Espie; and it is acknowledged that Mr Davis generally accepts Dr Lloyd's conclusions.

“(b) The effect of the activity on the ecological values of the site and surrounding environment, including

- (i) The degree of modification of the site and surrounding area.*
- (ii) The ecological values of the site, based on the Criteria listed in Appendix 5 of the Plan.*
- (iii) The extent to which the activity threatens the indigenous plants or animals/birds identified at the site.*
- (iv) The extent to which the site and surrounding environment is sensitive to modification.*
- (v) The potential to adversely affect the natural character of the margins of any river, stream, lake or wetland.*

(vi) *The proximity of any area protected under covenant or other protection mechanism.”*

85. In terms of Assessment Matter 5.4.2.3xxviii 1(b)(i) it is appropriate to acknowledge that indigenous vegetation within the clearance area is highly modified. Mr Davis advised that the vegetation has a long history of modification resulting in a significant reduction in species diversity.
86. It is appropriate to acknowledge that the site has not been identified as an Area of Significant Indigenous Vegetation as listed in Appendix 5 of the Operative District Plan; and that the site was not identified as an area recommended for protection by the Protected Natural Areas Survey for the Lindis Pisa Dunstan Ecological District published in 1995.
87. In the context of Assessment Matter 5.4.2.3xxviii (b)(ii) Dr Lloyd, Dr Espie and Mr Davis have assessed the ecological values of the site based on the Criteria contained in Part II of Appendix 5 of the Operative District Plan. The Commission has chosen not to reproduce these Criteria in this decision and similarly has chosen not to discuss each of the relevant expert's individual assessments in detail.
88. In the context of Representativeness Dr Lloyd and Mr Davis agree that the vegetation community subject to the application is not one of the best examples of kanuka woodland or fescue tussock community in the Ecological District. Mr Davis advised that better and larger examples of these communities are present in Department of Conservation land adjacent to the Clutha and in the Devon Dairies QEII Trust Covenant land 8 kilometres south-east of the site. Dr Espie also considered that better examples have been locally protected at the Reko's Point Conservation Area 9 kilometres south-east of the site.
89. In the context of Rarity Dr Lloyd did not observe any nationally threatened plant or animal species at the site, but he noted that one species found at the site, *Leucopogon nanum*, is currently listed as At Risk – Naturally Uncommon. This species is not listed in Appendix 9 of the Operative District Plan which lists Threatened Plants within Queenstown Lakes District. Mr Davis informed the Commission that this

list is now very old; that the list upon which it is based has been subject to a number of iterations; and that the classification system for threatened species has changed.

90. Dr Lloyd advised that the presence of threatened spring annual plants or invertebrates cannot be discounted and Mr Davis noted that as the vegetation assessment was completed in July spring annuals, such as the Nationally Threatened *Myosurus minimis subsp. novae-zelandiae*, would not have been detected during the assessment even if they were present. That species of herb, which has not been detected, is listed in Appendix 9 of the Operative District Plan.
91. Dr Lloyd observed that ecological functions on outwash plain habitats are rare and threatened. He noted that the cleared indigenous vegetation did not occur on outwash plain habitats, but that some of the proposed mitigation area does. He considered however that the proposed mitigation area is too small and that indigenous vegetation is too sparse and modified to have important ecological function.
92. Indigenous vegetation at the site occurs on Acutely Threatened land environments which have less than 10% of their original indigenous cover remaining at a national level. Dr Lloyd considered that the nationally-reduced context of indigenous vegetation on inland basin floors is an important context factor. The Commission acknowledges again in this context the caution expressed by Dr Lloyd in the context of the TEC as discussed in the context of Assessment Matter 5.4.2.3i commencing at paragraph 75 above. Overall Dr Lloyd assessed indigenous vegetation and habitats at the site as important under the criterion of Rarity.
93. In the context of Diversity and Pattern Dr Lloyd recorded 29 indigenous plant species at the site. All of these were present in the proposed area to be protected, but some were not observed east of the deer fence (which includes the 4700m² to be cleared). Dr Lloyd considered that this represents a moderate species richness for this kind of ecosystem. Overall Dr Lloyd rated the site as being of moderate value for Diversity and Pattern.
94. In terms of Distinctiveness/Special ecological character Dr Lloyd is not aware of any plant species being at their distribution limits within the site, or of any species that are endemic to the area, or of any migratory indigenous fauna that would depend on the

site. Dr Lloyd acknowledged that the site does comprise a sequence of landforms, but he does not describe these as intact. Dr Lloyd also noted that the current kanuka scrubland is not representative of the former natural vegetation. He would not describe the indigenous habitats present as being predominantly intact, as they are depleted of palatable and fire intolerant indigenous plant species, and actively threatened by the invasion of exotic trees. Dr Lloyd noted that there is evidence of considerable kanuka regeneration and that the site provides habitat for a moderate richness of indigenous plant species.

95. Overall Dr Lloyd ranks the site as low against the criterion of Distinctiveness/Special ecological character.
96. In the context of Size and Shape Dr Lloyd observed that prior to clearance of kanuka shrubland, indigenous vegetation at the site was more compact and larger than it is now. Dr Lloyd noted that the shape of the remaining area of indigenous vegetation at the site is now narrow, which is generally considered poor in terms of sustaining ecological processes. He noted however that this kind of ecosystem shape is less relevant than size.
97. Dr Lloyd considered that the site would have had moderate value for size, with shape being less relevant for this kind of ecosystem.
98. In the context of Connectivity Dr Lloyd observed that the site occurs on a section of the Hawea River with little other indigenous vegetation and habitat; and on that basis he considered it very likely that the site would act as a “stepping stone” for common indigenous forest birds to travel between other areas of indigenous habitat in the locality. Dr Lloyd also considered that the linear nature of the vegetation and habitat is conducive to it being used as a corridor for dispersal. Dr Lloyd assessed the site as being potentially important with respect to the criterion of Connectivity.
99. In terms of Long Term Sustainability Dr Lloyd noted that there is evidence of resilience of the dominant species, with frequent regeneration of kanuka present. He observed that current management has had both negative and positive effects on ecological values. The clearance of indigenous vegetation has been negative, while woody weed control west of the deer fence has been positive, and necessary for the long term

future of the indigenous vegetation of the site. Dr Lloyd considered that restoration of significant ecological values is achievable at the site, as formerly present indigenous tree and shrub species could be returned, improving the site's representativeness and habitat values. He commented that this, however, would be true of practically any inland basin site. Dr Lloyd assessed the site as having moderate value for the Long Term Sustainability criterion.

100. Dr Lloyd's overall opinion is that the cleared indigenous vegetation would not have reached the threshold of ecological significance under section 6(c) of the Act; but would have had sufficient ecological value to warrant mitigation of the adverse effects of clearance.

101. The Commission acknowledges that Dr Espie also addressed the criteria stated in Part II of Appendix 5. He emphasised that the 869.7 hectares of conservation land in this locality (including the Reko's Point Conservation Area) adequately protects the communities and species present on the subject site. In essence Dr Espie considered that the indigenous vegetation on the subject site was of less significance than that found on the land protected in the conservation estate in this locality.

102. In terms of Assessment Matter 5.4.2.3xxviii(b)(iii) the clearance of indigenous vegetation has had an adverse effect on the indigenous plants which have been cleared or which are proposed to be cleared. These adverse effects need to be assessed having regard to the mitigation that is being offered by the applicant.

103. In terms of Assessment Matters 5.4.2.3xxviii(b)(iv), (v) and (vi) the Commission considers that the site is sensitive to modification in the sense that indigenous vegetation has been lost; that the proposal will not have a significant adverse effect on the natural character of the margins of the Hawea River; and that the legal road through which the Hawea River Track passes is managed by the Department of Conservation, being a form of protection mechanism.

“(c) The effect of vegetation clearance on landscape and visual amenity values, including:

(i) The extent to which indigenous vegetation is an integral part of, or enhances, the landscape values and natural character of the area.

- (ii) *The visibility of the site from transport routes, townships, and other tourist destinations, including ski fields.*
- (iii) *The landscape values of the site and surrounding environment, and its sensitivity to modification.”*

104. Landscape and visual amenity effects have been fully considered in part B.4 of this decision. The Commission has concluded that the indigenous vegetation clearance will have moderate adverse effects on the landscape values and natural character of the area. It is also appropriate to acknowledge that the indigenous vegetation clearance has occurred in the context of a pastoral landscape which is not particularly sensitive to modification.

- “(d) The degree to which the clearance will adversely affect natural features, geomorphological or geological sites.”*

105. The clearance will not adversely affect natural features, geomorphological or geological sites to a more than a minor extent. Clearance is to occur within the fenceline which is well above the Hawea River.

- “(e) The degree to which any possible alternative locations or methods for undertaking the activity could occur.*
- (f) The degree to which clearance will enable the efficient use of the land for production purposes.”*

106. The clearance is to facilitate farm development, enabling the operation of the centre pivot irrigator on the site. Given that the indigenous vegetation is located on the site alternative locations or methods are of limited relevance. Again it is acknowledged in this context that pastoral farming and the establishment and use of a centre pivot irrigator for irrigation are permitted activities in the Rural General Zone.

107. Possible alternatives with respect to the additional 4700m² of indigenous vegetation proposed to be cleared would be to realign the centre pivot irrigator to avoid any further clearance of the vegetation; clearance only of a wheel track through the vegetation as previously sought; or not allowing the additional clearance now sought. The Commission emphasises in this context that Dr Lloyd and Mr Davis agreed that

the clearance of the 4700m² will have only minor adverse effects provided the mitigation is implemented. It is also noted in this context that a condition has been offered to the effect that the outer sprinklers of the irrigator will be turned off to avoid wetting effects on indigenous vegetation.

108. The clearance will enable the efficient use of the land for productive purposes in terms of Assessment Matter 5.4.3.2xxviii 1(f).

(g) *The degree to which the clearance will result in a loss of natural character and/or any recreational values associated with any nearby waterbody.*

109. The Commission considers that the clearance will not result in a loss of natural character and/or any recreational values associated with the Hawea River. There will be an effect on natural character as perceived from the Hawea River Track which traverses the unformed legal road above the river and which passes adjacent to and within the site. Such effects will be mitigated by the conditions of consent proposed by the applicant, or by conditions to like effect.

B.7 Summary : Effects and Assessment Matters

110. The Commission finds that overall any adverse effects of the proposal are limited and can be satisfactorily mitigated through adherence to appropriate conditions of consent. The proposal is appropriate having regard to the relevant assessment matters being those stated in Part 5 of the Operative District Plan, as discussed above.

C. THE QLDC DISTRICT PLAN : OBJECTIVES & POLICIES

111. Parts 4 and 5 of the Operative District Plan contain objectives and policies for the whole district being District Wide and for Rural Areas, respectively. The objectives and policies from Parts 4 and 5 have been presented in Ms Sinclair's report and her Addendum to that report; and to a large degree the objectives and policies relate to matters discussed in the context of the assessment matters. It is neither desirable or necessary, therefore, to undertake a line by line analysis of every objective and policy as this would involve a significant amount of repetition without materially advancing the Commission's analysis of this application.

C.1 Part 4

Nature Conservation Values

112. Clause 4.1.4 contains Objective 1 which relates to Nature Conservation Values. This states as follows:

“Objective 1 – Nature Conservation Values

The protection and enhancement of indigenous ecosystem functioning and sufficient viable habitats to maintain the communities and the diversity of indigenous flora and fauna within the District.

Improved opportunity for linkages between the habitat communities.

The preservation of the remaining natural character of the District’s lakes, rivers, wetlands and their margins.

The protection of outstanding natural features and natural landscapes.

The management of the land resources of the District in such a way as to maintain and, where possible, enhance the quality and quantity of water in the lakes, rivers and wetlands.

The protection of the habitat of trout and salmon.”

113. In this instance while an area of approximately 2.7 hectares of indigenous vegetation has been or is to be cleared; approximately 6 hectares is to be set aside for indigenous vegetation restoration. The Commission finds that this is consistent with the first two limbs of Objective 1. The remaining limbs of Objective 1 are of little or no relevance in the context of the current application.

114. Policies 1.1, 1.2 and 1.4 that follow Objective 1 seek to promote and encourage the long term protection of indigenous ecosystems and significant nature conservation values. While the clearance of 2.23 hectares and the additional clearance of a further 4700m² of indigenous vegetation does not protect or enhance the ecosystems it is appropriate to acknowledge that the applicant has offered to set aside 6 hectares of land which will be protected from stock and farming activities. Dr Lloyd and Mr Davis are in agreement that the adverse effect can be mitigated by the protection of this area, by the proposed weed and pest control and by the restorative indigenous

planting. The Commission considers that the proposal is generally consistent with these policies.

115. Policy 1.5 relates to the spread of introduced vegetation. In this context it is acknowledged that the applicant promotes the continuous and long term management of wilding pines and other pest plant species. Dr Walker's evidence expresses concern at the potential for "edge effects" associated with irrigation would could affect 1.3 hectares of the land to be protected. Dr Walker noted that less than 4.8 hectares of existing dryland indigenous vegetation will be retained and potentially enhanced in mitigation beyond the area affected by such edge effects.

116. In terms of Policy 1.7 Mr Davis and Ms Mellsop consider that the proposed mitigation is adequate to avoid adverse effects on natural character and on indigenous ecosystems.

117. Policies 1.6 and 1.10 relate to rare, vulnerable or endangered species. As noted above the At Risk – Naturally Uncommon species *Leucopogon nanum* was observed on the site by Dr Lloyd and the presence of threatened spring annual plants or invertebrates cannot be discounted.

118. The proposal is consistent with Policy 1.11 which encourages the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna notwithstanding that Dr Lloyd does not consider that the vegetation on the site is "significant" for the purposes of section 6(c) of the RMA.

119. The proposal is also consistent with Policy 1.16 which is to encourage and promote the regeneration and reinstatement of indigenous ecosystems on the margins of rivers.

120. Overall the Commission concurs with Ms Sinclair that the proposal is not contrary to Objective 1; and the Commission considers that the proposal is generally consistent with those associated policies which are relevant in this instance.

Landscape Values

121. Clause 4.2.4(3) confirms that the Visual Amenity Landscapes (VAL) are those landscapes which wear a cloak of human activity much more obviously [than outstanding natural landscapes] being pastoral or arcadian landscapes with more houses and trees, greener (introduced) grasses; and VAL tend to be on the District's downlands, flats and terraces. The key resource management issues for VAL are managing adverse effects of subdivision and development (particularly from public places including public roads) to enhance natural character and to enable alternative forms of development where there are direct environmental benefits.

122. Objective 4.2.5 is:

“Objective:

Subdivision, use and development being undertaken in the District in a manner which avoids, remedies or mitigates adverse effects on landscape and visual amenity values.”

123. Ms Mellsop has found that the vegetation clearance already undertaken or that is proposed would have moderate adverse effects on the natural character of the landscape and on the visual and recreational amenity values of the Hawea River Track. Adverse landscape and visual effects will be mitigated to a considerable extent by the setting aside of land for protection as proposed by the applicant. The Commission also recognises that given that the VAL relates to pastoral or Arcadian landscape the effects of clearance in terms of exposing a pastoral landscape to view from the Hawea River Track is not an adverse effect of any significance.

124. Objective 4.2.5 is supported by a number of policies. Policies of potential relevance include Policy 4 which relates to Visual Amenity Landscapes; and Policy 8 that relates to Avoiding Cumulative Degradation.

125. Policy 4 – Visual Amenity Landscapes states as follows:

“4. Visual Amenity Landscapes

(a) To avoid, remedy or mitigate the adverse effects of subdivision and development on the visual amenity landscapes which are:

- highly visible from public places and other places which are frequented by members of the public generally (except any trail as defined in this Plan); and***

- *visible from public roads.*
- (b) *To mitigate loss of or enhance natural character by appropriate planting and landscaping.*
- (c) *To discourage linear tree planting along roads as a method of achieving (a) or (b) above.”*

126. The proposal will serve to avoid, remedy or mitigate adverse effects of development on the VAL. In this instance the area from which the indigenous vegetation has been cleared or is proposed to be cleared is highly visible at certain points from the Hawea River Track which is located within the unformed legal road and which is frequented by members of the public. The loss of natural character is to be mitigated by the management regime proposed within the area to be set aside for indigenous vegetation regeneration. Where screening is not to occur a vista will be available across a pastoral landscape which is expected in the context of the VAL. The Commission also notes for completeness that while the site is dissected by unformed legal roads actual public use of these roads appears infrequent with more convenient access to the Hawea River being provided by the Hawea River Track.

127. In terms of Policy 8 – Avoiding Cumulative Degradation – the Commission is satisfied that the proposal will not offend this policy which relates to the cumulative degradation associated with subdivision and development on landscape values. In this instance a pastoral landscape will be maintained and domestication is not proposed in this instance.

128. The Commission acknowledges that the proposal will have a cumulative adverse effect as it will reduce the indigenous dryland vegetation ecosystem of the Upper Clutha. As a consequence the proposal will have an adverse cumulative effect albeit that the Commission is satisfied that this is no greater than minor.

Open Space and Recreation

129. Objective 4 include Clause 4.4.3 states as follows:

“Objective 4 – Esplanade Access

A level of public access to and along the District’s rivers, lakes and wetlands, adequate to provide for the current and foreseeable recreational and leisure needs of residents and visitors to the District.

130. The recent establishment of the Hawea River Track adjacent to the site is entirely consistent with Objective 4. The proposal will have no effect on public access along

the Track. The associated Policy 4.5 is to have regard to any adverse effects along the margins of the District's lakes, rivers and wetlands when considering resource consents. While the clearance which has occurred and the clearance that is proposed will have an effect on views from the Hawea River Track, any such adverse effects are no greater than moderate.

C.2 Part 5

131. Part 5 of the Operative District Plan contains objectives and policies that specifically relate to Rural Areas. Objective 1 and its associated policies seek to allow the establishment of a range of activities that are managed in such a way as to protect the character and landscape values of the rural area:

“Objective 1 – Character and Landscape Value

To protect the character and landscape value of the rural area by promoting sustainable management of natural and physical resources and the control of adverse effects caused through inappropriate activities.

Policies:

1.1 *Consider fully the district wide landscape objectives and policies when considering subdivision, use and development in the Rural General Zone.*

1.2 *Allow for the establishment of a range of activities, which utilise the soil resource of the rural area in a sustainable manner.*

...

1.6 *Avoid, remedy or mitigate adverse effects of development on the landscape values of the District.*

...”

132. In terms of Policy 1.1 the district wide landscape objectives and policies have been considered fully above. In terms of Policy 1.2 the Commission acknowledges that the clearance is proposed in conjunction with the development of the land for farming purposes. The Commission considers that the proposal is consistent with Policy 1.6 having regard to the revegetation that is proposed in the areas to be set aside for indigenous vegetation restoration.

133. The Commission considers that the proposal is consistent with those other objectives and policies stated in Part 5 which have relevance in the context of the current proposal.

C.3 Summary : Objectives and Policies

134. Following the above analysis, the Commission finds that the proposal is consistent with those objectives and policies that are relevant to the application.

D. OTHER MATTERS

135. Section 104(1)(c) of the Act requires the consent authority to have regard to any other matter the consent authority considers relevant and reasonably necessary to determine the application.

136. Ms Sinclair raised the matter of precedent and she noted that the proposal may set a precedent for how future applications for the clearance of indigenous vegetation are considered by the Council; and the Commission acknowledges that this comment was made in the context of the proposal as it stood prior to amendment by the applicant on 20 May 2015. In all the circumstances, and given that the proposal has status as a restricted discretionary activity, the Commission does not consider that the proposal will establish a significant precedent.

137. Ms Sinclair also drew the Commission's attention to the proposed National Policy Statement on Indigenous Biodiversity (NPS) which had also been referred to by Mr Davis. Ms Sinclair advised that the Ministry for the Environment website states that the proposed NPS is currently on hold; and in these circumstances the Commission considers the proposed NPS to be inchoate.

138. The Commission also notes that section 104(1)(b)(iii) of the RMA refers to the relevant provisions of a "a national policy statement"; and that a "National policy statement" is defined in section 2 of the RMA as meaning a statement issued under section 52 [of the RMA]. Given that an NPS can only be issued after it has been approved the Commission concludes that no particular weight should be placed on the proposed NPS.

139. No other matters in the context of section 104(1)(c) of the Act were referred to in the reports presented to the Commission on this application.

E. PART 2 OF THE ACT

140. Part 2 of the Act contains sections 5 to 8. These are referred to in reverse order.

141. Section 8 requires the Commission, in exercising its functions on this application, to take into account the principles of the Treaty of Waitangi. No issues were raised in reports or evidence in relation to section 8.

142. Section 7 directs that in achieving the purpose of the Act the Commission is to have particular regard to certain matters which include, of relevance here, the efficient use and development of natural and physical resources; the maintenance and enhancement of amenity values; intrinsic values of ecosystems; maintenance and enhancement of the quality of the environment; and any finite characteristics of natural and physical resources. The Commission is satisfied, having regard to the matters addressed in Parts B and C of this decision that the proposal is consistent with the relevant matters stated in section 7 of the Act. There are no other matters stated in section 7 which are of any particular relevance to the current application.

143. Section 6 sets out a number of matters which are declared to be of national importance and directs that these be recognised and provided for. Matters of potential relevance are listed in section 6(a), 6(c) and 6(d) being the preservation of the natural character of rivers and their margins, and the protection of them from inappropriate subdivision, use and development; the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna; and the maintenance and enhancement of public access to and along rivers.

144. The Hawea River Track passes through the unformed legal road at the margin of the Hawea River. The proposal will have no particular effect in terms of the preservation of the natural character of the Hawea River and will have no more than a minor effect in terms of the preservation of the river margins (to the extent that they include the area within which indigenous vegetation has been cleared or is to be cleared in terms of the proposal). Having regard to the proposal, and in particular to the mitigation that

is proposed by the applicant (which includes the setting aside of land for the protection and restoration indigenous vegetation along the river margin), the Commission is satisfied that the proposal does not represent inappropriate use and development for the purposes of section 6(a) of the Act.

145. Dr Lloyd has come to the view that the indigenous vegetation is not significant for the purposes of section 6(c); and no evidence was presented to the Commission to demonstrate that habitats of indigenous fauna are significant for the purposes of section 6(c). Accordingly the Commission is not satisfied that any indigenous vegetation or habitats on the subject site constitute “significant indigenous vegetation and significant habitats of indigenous fauna” for the purposes of section 6(c).
146. The proposal will not affect in physical terms the public access which is available along the Hawea River Track within the unformed legal road and over the site via the existing easement. Accordingly the Commission has concluded that section 6(d) is of no particular relevance in the context of the current proposal.
147. The Commission is satisfied that there are no other matters stated in section 6 which are of any particular relevance to the application.
148. Section 5 sets out the purpose of the Act – to promote the sustainable management of natural and physical resources. Taking into account the definition of sustainable management contained in section 5(2), the Commission has reached the view that the land use activity subject to this application will achieve the purpose of the Act.
149. Sustainable management means managing the use, development and protection of natural and physical resources within certain parameters. The physical resources of this site will be developed in such a way that the social and economic wellbeing of the applicant is provided for, while the potential of natural and physical resources will be sustained to meet the reasonably foreseeable needs of future generations. Adverse effects of the activity can be avoided, remedied or mitigated by adherence to appropriate conditions of consent.

F. OUTCOME

150. Section 104 of the Act directs that when considering an application for resource consent and any submission received in response to it, the Commission must, subject to Part 2, have regard to the actual and potential effects on the environment of allowing the activity together with the relevant provisions of the Operative District Plan. In the course of considering the application and submissions and in reaching this decision the Commission has followed this process. Under section 104C the Commission has discretion to grant consent to the application and the Commission hereby does so subject to the imposition of conditions of land use consent as attached in a Schedule to this decision.

This decision on RM 140465 is dated 23 June 2015.

A handwritten signature in black ink, appearing to read 'W D Whitney', with a long horizontal flourish extending to the right.

W D Whitney
COMMISSIONER

SCHEDULE : CONDITIONS OF CONSENT FOR RM 140465 : P PHISKIE

General Conditions

1. That the land use activity be carried out in accordance with the plans **that are stamped as approved on 23 June 2015:**
 - a) 'P & Y Phiskie, Hawea Flat, Proposed Areas of Vegetation Clearance, Revision E, dated 20 May 2015, drawn by Paterson Pitts Group'
 - b) 'P & Y Phiskie, Hawea Flat, Proposed Areas of Vegetation Protection and Vegetation Clearance, Revision B, dated 20 May 2015, drawn by Paterson Pitts Group'
 - c) Restoration Plan for Mitigation of Kanuka Shrubland Clearance, Hawea River, Central Otago prepared by Wildlands Consultants Limited.

and the application as submitted, with the exception of the amendments required by the following conditions of consent.

2. This consent shall not be exercised and no work or activity associated with it may be commenced or continued until the following charges have been paid in full: all charges fixed in accordance with section 36(1) of the Resource Management Act 1991 and any finalised, additional charges under section 36(3) of the Act.
3. The consent holder is liable for costs associated with the monitoring of this resource consent under section 35 of the Resource Management Act 1991 and shall pay to Council an initial fee of \$240. This initial fee has been set under section 36(1) of the Act.
4. In order to protect the natural character of the landscape and provide a visual buffer between the Hawea River Trail and intensive agricultural activities on the application site, the following areas shall be managed in accordance with the Restoration Plan for Mitigation of Kanuka Shrubland Clearance prepared by Wildlands Consultants (dated May 2015) and in accordance with the approved Restoration Plan certified in accordance with Condition 8:
 - areas shown as 'Phiskie land to be set aside for indigenous vegetation regrowth' on the plan referred to in Condition 1b (above);
 - a fenced buffer strip up to 50 metres from the western site boundary or track easement boundary along the western site boundary as fenced on 10 June 2015.
5. The consent holder shall ensure that no clearance of kanuka shrubland is to occur outside the pivot irrigator arc as shown on the plan referred to in Condition 1a).
6. The consent holder shall turn off the outer sprinkler of the pivot irrigator where it would otherwise irrigate kanuka shrubland, with the exception of the indigenous vegetation located under the arc as shown on the plan referred to in Condition 1a) and with the further exception of watering of newly planted indigenous plants as explicitly directed by an ecologist.
7. All indigenous trees and vegetation within the areas shown as 'Phiskie Land to be set aside for indigenous vegetation regrowth' on the plan referred to in Condition 1b) shall be allowed to grow to a natural form and not be pruned, trimmed or altered in any manner so as to provide effective visual and ecological mitigation.
8. Within six weeks of the date of the commencement of this consent pursuant to section 116 of the Resource Management Act 1991, the consent holder shall submit to the Manager; Resource Consents, Queenstown Lakes District Council for certification, a Restoration Plan. Once this plan is certified it shall become the approved Restoration Plan. The contents of this plan shall be amended to include the following;

- a) Details of the numbers and species of plants to be included in the restoration. A minimum of at least 10 specimens of the following species shall be included: kowhai, kohuhu, broadleaf, cabbage tree, lowland ribbonwood, fierce lancewood, Hall's totara and matai; and closure criteria shall be stated to show when establishment has been reached.
 - b) Performance criteria targets for weed control and planting shall be specified to ensure the objectives of the approved Restoration Plan are achieved. Such criteria are as follows:
 - Survival of the same number of specimens as planted, across at least four of the eight nominated species listed in condition 8(a), after two years following planting.
 - Maintain zero densities of *Pinus nigra*, ponderosa pine, and hawthorn within the mitigation area.
 - Control all radiata pine trees within the mitigation area, except where track stability issues mean trees have to be retained
 - Control Scotch broom to an inconspicuous level of live plants.
9. The consent holder shall ensure that indigenous vegetation within the areas shown as 'Phiskie land to be set aside for indigenous vegetation regrowth' as shown on the plan referred to in condition 1b) is managed, monitored and enhanced in accordance with the approved Restoration Plan in perpetuity
 10. The consent holder shall within 18 months of the commencement of this consent pursuant to section 116 of the Resource Management Act 1991 register on the Computer Freehold Register, a QEII (Queen Elizabeth The Second National Trust) Open Space Covenant for the area of land shown as 'Phiskie land to be set aside for indigenous vegetation regrowth' on the plan referred to in condition 1b), such land to be set aside for the protection, maintenance and enhancement of the natural character, landscape value and indigenous biodiversity; or the consent holder shall enter into a covenant, in favour of the consent authority, pursuant to section 108(2)(d) of the Resource Management Act 1991 in the event that the Queen Elizabeth The Second National Trust is not agreeable to the granting of an Open Space Covenant in respect of the land. Any such covenant pursuant to section 108(2)(d) shall be entered into within 21 months of the commencement of this consent pursuant to section 116 of the Resource Management Act 1991.
 11. Any fencing to be erected shall be traditional 'post and wire'. For the avoidance of doubt rabbit proof fencing is authorised in terms of this condition.
 12. Within ten working days of each anniversary of the date of this decision the Queenstown Lakes District Council may, in accordance with sections 128 and 129 of the Resource Management Act 1991, serve notice on the consent holder of its intention to review the conditions of this resource consent for any of the following purposes:
 - (a) To deal with any adverse effects on the environment that may arise from the exercise of the consent which were not foreseen at the time the application was considered and which it is appropriate to deal with at a later stage.
 - (b) To deal with any adverse effects on the environment which may arise from the exercise of the consent and which could not be properly assessed at the time the application was considered.
 - (c) To avoid, remedy and mitigate any adverse effects on the environment which may arise from the exercise of the consent and which have been caused by a change in circumstances or which may be more appropriately addressed as a result of a change in circumstances, such that the conditions of this resource consent are no longer appropriate in terms of the purpose of the Resource Management Act 1991.



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APPROVED PLAN:
RM140465
23 June 2015

NOTES:

Coordinates are in terms of
Lindis Peak 2000

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Client & Location:

P & Y Phiskie
Hawea Flat
Sec 23 Blk. IV
Lower Hawea S.D.

Purpose & Drawing Title:

Proposed Areas of
Vegetation Protection &
Vegetation Clearance

Surveyed by:

TK

Designed by:

TK

Drawn by:

TK

Checked by:

Approved by:

Job No:

W4028

Original Size:

A3

Scale:

N.T.S @ A3

DO NOT SCALE

Sheet No:

110

Revision No:

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Date Created:

20/05/2015



NOTES:

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Client & Location:

P & Y Phiskie
Hawea Flat
Sec 23 Blk. IV
Lower Hawea S.D.

Purpose & Drawing Title:

**Proposed Areas of
Vegetation Clearance**

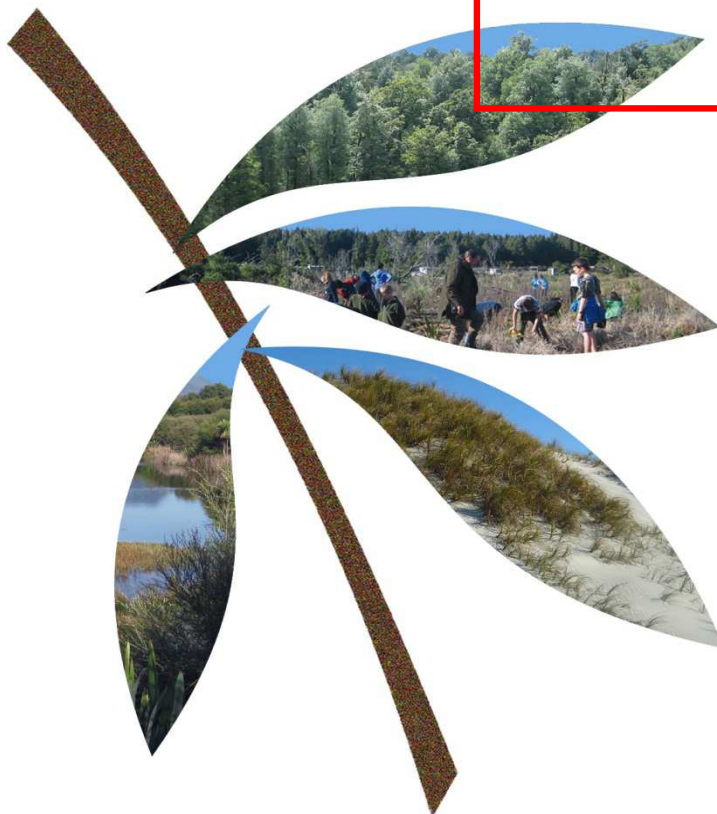
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Approved by:			DO NOT SCALE
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			20/05/2015

RESTORATION PLAN FOR MITIGATION OF KĀNUKA SHRUBLAND CLEARANCE, HAWEA RIVER, CENTRAL OTAGO

QUEENSTOWN LAKES DISTRICT COUNCIL

APPROVED PLAN:
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 providing
outstanding
ecological
services to
sustain
and improve our
environments



RESTORATION PLAN FOR MITIGATION OF KĀNUKA SHRUBLAND CLEARANCE, HAWEA RIVER, CENTRAL OTAGO

Contract Report No. 3684b

May 2015

QUEENSTOWN LAKES DISTRICT COUNCIL

**APPROVED PLAN:
RM140465**

Project Team:

Kelvin Lloyd - Report author

23 June 2015

Prepared for:

Peter and Yvonne Phiskie
Hawea

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23 June 2015

Reviewed and approved for release by:



W.B. Shaw
Director/Principal Ecologist
Wildland Consultants Ltd

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1. INTRODUCTION

Peter and Yvonne Phiskie have applied for retrospective consent to clear c.2.2 ha of kānuka (*Kunzea serotina*) shrubland near the Hawea River in Central Otago. As mitigation for this clearance, the Phiskie's have offered to legally protect c.6 ha of kānuka shrubland and dry grassland on the margin of the Hawea River, and to begin a process to restore mixed indigenous forest habitat at the site.

Proposed restoration actions include the control of woody weeds, and planting of indigenous tree species that would formerly have been present at the site. This report comprises a restoration plan containing more detail on how these activities should be implemented to meet the conditions of consent.

2. SITE CONTEXT

The site comprises outwash plain and river terrace habitat located on the boundary of two ecological districts: Wanaka Ecological District in the west (in the Lakes Ecological Region) and Lindis Ecological District in the east (in the Central Otago Ecological Region). Outwash plains above the confluence of the Clutha River and Lindis River are predominantly located in the Lindis Ecological District. The site therefore has closer affinities with the Central Otago Ecological Region, and the Lindis Ecological District, as it comprises an outwash plain habitat that has been eroded by the Hawea River. The Lindis Ecological District has a sub-continental climate with prevailing north-west winds, and annual rainfall of 450-1500 mm (McEwen 1987). Summers are often droughty.

The restoration site comprises three discrete parcels of land, but they are linked by an adjacent land parcel which runs along the true left side of the Hawea River. A cycle trail passes across this land. Three main landforms are present, with the edge of an outwash plain in the northern part of the site, a stony scarp below this, and a river terrace in the southern part of the site, which has been cut into by the Hawea River at one point. Current vegetation within the restoration sites comprises kānuka shrubland (c.3.3 ha), short tussock grassland and herbfield (c.2 ha), and dense wilding pine (*Pinus* spp.) trees emergent over these vegetation types (c.0.5 ha) (Figure 1).

3. RESTORATION OBJECTIVES

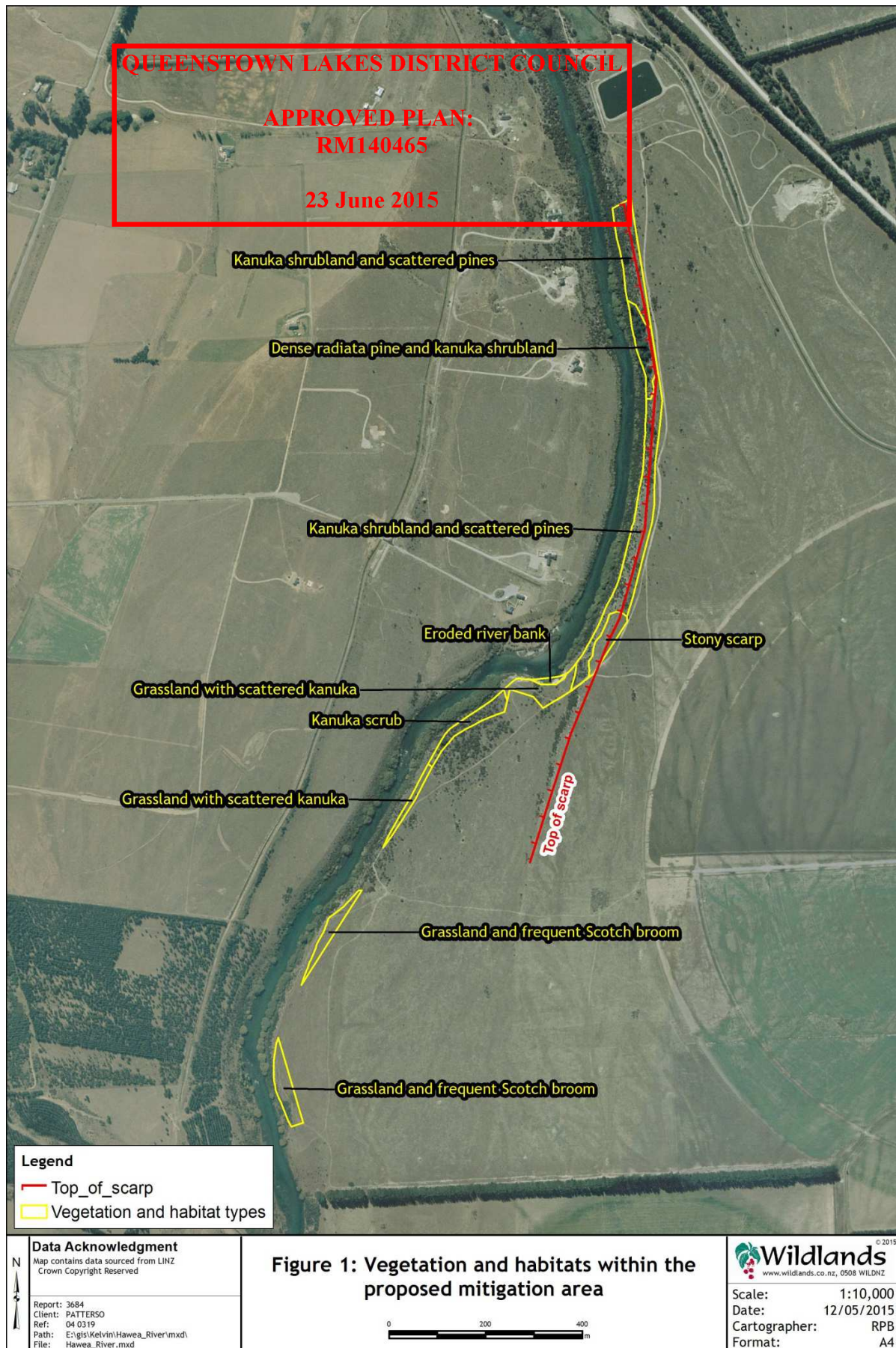
Four basic restoration objectives can be applied to this site:

- Legally protect the site for its indigenous biodiversity values, for example by establishing an open space covenant with the Queen Elizabeth the Second National Trust.
- Exclude domestic stock from the site (this has largely been completed due to recent fencing).

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- Eradicate or control significant woody weeds to levels that do not compromise indigenous vegetation and habitats.
- Undertake ecologically-appropriate planting to restore historic indigenous vegetation to the site, and maintain plantings until they become self-sustaining.

These four objectives are addressed below in more detail.

3.1 Legal protection

Legal protection is a matter that is negotiated between the landholder and a suitable agency which is willing to enter into a protective agreement that governs future use of the land. This is not addressed further in this report, but would be worthwhile. .

3.2 Exclusion of domestic stock

Stock need to be excluded from the site because they are incompatible with plantings of palatable indigenous tree species. Exclusion of domestic stock is almost complete, due to the recent construction of a deer fence along most of the margin of the restoration site. One additional fence is required across a low terrace at the downstream end of the site, as the landowners wish to graze young stock in this area. Any stock entering the mitigation site should be rapidly removed, and any weakness that allowed stock entry should be identified and rectified.

3.3 Woody weed control

Woody weeds are adversely affecting indigenous vegetation and habitats at the site by out-competing indigenous vegetation and altering vegetation structure and composition. The landowners have already undertaken some control, and additional control is necessary if these woody weeds. Several woody weeds are currently present in the site, including radiata pine (*Pinus radiata*), ponderosa pine (*Pinus ponderosa*), *Pinus nigra*, hawthorn (*Crataegus monogyna*), and Scotch broom (*Cytisus scoparius*). Control targets and control methods for each of these species are summarised in Table 1, with more detail on control techniques provided in the sections below.

Table 1: Woody weed control targets and methods for species present at the restoration site.

Species	Common Name	Control Target	Method
<i>Crataegus monogyna</i>	Hawthorn	Control to zero density	Fell, treat stump with herbicide
<i>Cytisus scoparius</i>	Scotch broom	Control to inconspicuous	Spray with herbicide
<i>Pinus nigra</i>		Control to zero density	Fell large trees, pull small trees
<i>Pinus ponderosa</i>	Ponderosa pine	Control to zero density	Fell
<i>Pinus radiata</i>	Radiata pine	Control as far as is practicable	Fell large trees, pull small trees

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3.3.1 Ponderosa pine and *Pinus nigra*

To control ponderosa pine and *Pinus nigra*, in the first instance all coning (mature) trees should be felled. Only one ponderosa pine tree was observed during a recent site visit. Care should be taken to cut *Pinus nigra* trees below the level of the lower-most green shoots, and remove any green shoots that are left below the cut, otherwise resprouting from cut stumps will occur. Control of existing *Pinus nigra* saplings, and any subsequently regenerating seedlings and saplings, can then be undertaken. Control methods for these saplings include hand-pulling of young seedlings and saplings, cutting them at the base with saws or hand tools, or spraying with an appropriate herbicide.

3.3.2 Radiata pine stand

In the first instance, any Scotch broom shrubs growing within the radiata pine stand should be controlled using herbicide. Hawthorn trees should be felled, with subsequent herbicide application (for example Vigilant gel) to the stumps.

Secondly, all of the smaller radiata pine trees, which can be controlled without affecting the cycle track, should be progressively felled or killed by basal bark application of herbicide (for example X-tree basal bark herbicide). If these pine trees are felled, felling should aim to avoid damage to existing kānuka trees.

The site should then be thoroughly assessed by an experienced tree-feller to assess whether any of the larger radiata pine trees can be felled or poisoned, and if felled, whether they could be felled so as to avoid adverse effects on the cycle way or ecological features.

3.3.3 Hawthorn

Hawthorn trees can be killed either by felling and treating the stump with appropriate herbicide to stop re-sprouting, or by application of an appropriate basal bark herbicide. Basal bark spraying must be undertaken in dry weather, as wet conditions result in an emulsion on the bark surface that prevents uptake of herbicide.

3.3.4 Scotch broom

Spraying with herbicide is appropriate for the control of Scotch broom. Care should be taken to avoid accidentally spraying kānuka, as it is very sensitive to herbicide.

3.3.5 Coordination with weed control on adjacent land

If possible, weed control should be coordinated with weed control on the adjacent land on which the cycle trail is located. This will to reduce the potential for weed spread from one landholding to the other.

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3.4 Planting of indigenous tree species

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3.4.1 Suitable species

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Kānuka shrubland occurs naturally at the site because it is tolerant of grazing and regenerates after fire, but would not have been the dominant species historically. Also, there is considerable natural regeneration of kānuka at the site. Thus there is no need to plant kānuka, but enhancement of the woody vegetation can be undertaken by returning indigenous tree species that may once have been present. Indigenous trees that would potentially grow at the site, and which could be planted, include kowhai (*Sophora microphylla*), cabbage tree (*Cordyline australis*), kohuhu (*Pittosporum tenuifolium*), lowland ribbonwood (*Plagianthus regius*), matai (*Prumnopitys taxifolia*), Hall's totara (*Podocarpus cunninghamii*), fierce lancewood (*Pseudopanax ferox*), and broadleaf (*Griselinia littoralis*) (Table 2). Kowhai and cabbage tree occur at the site, and Hall's totara, kohuhu and broadleaf are naturally present elsewhere in the area, but lowland ribbonwood, matai, and fierce lancewood are species that would very likely have been present historically, but which are no longer present in Central Otago. Thus the Hawea River site would provide an opportunity to reintroduce these species to a somewhat natural Central Otago environment. The advantage of including a range of different species is that if some perform poorly at the site, this can be compensated for by better performance of other species.

Table 2: Indigenous tree species suitable for planting at the Hawea River site.

Species	Common Name	Notes
<i>Cordyline australis</i>	Cabbage tree	Fast initial height growth, food source for indigenous birds.
<i>Pittosporum tenuifolium</i>	Kohuhu	Moderate growth rate, hardy.
<i>Prumnopitys taxifolia</i>	Matai	Slow-growing, long-lived, fruit source for indigenous birds when mature. Best planted in sheltered microhabitat.
<i>Pseudopanax ferox</i>	Fierce lancewood	Moderate growth rate, fruit source for indigenous birds when mature.
<i>Griselinia littoralis</i>	Broadleaf	Hardy, exposure tolerant.
<i>Plagianthus regius</i>	Lowland ribbonwood	Fast growth on fertile soils.
<i>Podocarpus cunninghamii</i>	Hall's totara	Slow growing but hardy, fruit source for indigenous birds when mature.
<i>Sophora microphylla</i>	Kowhai	Slow growth, can grow on stony sites, important food source for indigenous birds.

Within the mitigation area, the three main habitats are the margin of the outwash plain, the river terrace, and the scarp that occurs between these features. Most of the species suggested in Table 2 are best planted on the deeper soils of the outwash plain and river terrace. Kowhai is tolerant of dry, rocky sites, and could be planted at the top and/or bottom of the scarp, where its seeds would germinate in future on the scarp.

3.4.2 Ecosourcing

Propagation of the above species should be from populations found in the Wanaka and Lindis Ecological Districts, or from other populations in Otago for species that

are no longer naturally found in these districts. Ecosourcing helps to ensure that plants are locally adapted to the site, and prevents genetic mixing of populations from different sources, which may dilute the effectiveness of any local adaptations.

3.4.3 Moisture requirements

While all of the indigenous species listed in Table 2 are adapted to dry habitats, newly-planted trees often suffer from water deficiency because their root systems are constrained and not capable of accessing more distant water resources. Access to water in the early stages of growth can help them to get through this phase until their root systems spread more widely. Watering is however, often labour-intensive, unless trickle-irrigation systems are available. In addition, watering by ongoing irrigation artificially increases the surrounding soil moisture which is an adverse effect on dryland habitats at the site. Other strategies, including the timing of planting, the size of the planted tree, use of mulches, use of water 'crystals' ('hydrogel' polymers that can be added to the soil matrix), and the degree of shelter provided, can all influence water use by the tree, so should be used in the first instance.

Another option at this site is to take advantage of where an existing centre pivot irrigates a small part of the mitigation area on the outwash plain surface. Planting within this zone would mean the planted trees do not suffer water limitation while the pivot irrigator is operating.

3.4.4 Plant size

Trees grown in PB3 bags or smaller should be used at this site, as larger trees are likely to suffer greater water stress, and be more exposed to wind. In this dry habitat, competition for light from exotic grasses is less important, so larger initial plant sizes are not required.

3.4.5 Hardening off

Planted trees need to be hardened off, i.e. exposed to ambient conditions, for at least one to two months before planting. This ensures that foliage and buds have developed sufficient protection to cope with site conditions (wind, temperature) after planting. Tree shelters can help to ameliorate these effects.

3.4.6 Timing of planting

Factors to take into account when considering the timing of tree planting are soil moisture (which needs to be relatively high, unless supplementary water is available), temperature (neither too hot, nor too frosty), and the prevailing winds and their strength (frequent north-west winds are very drying). These factors mean that planting in the autumn is usually the best scenario. Use of tree shelters can reduce the effects of early frosts.

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3.4.7 Felled pine microhabitats

Felled exotic pine trees can provide good microhabitat for planting. This results from the additional shelter provided by the felled trees, the decomposition of exotic tree foliage and wood, and the decay of exotic tree roots providing easy access through the soil for indigenous tree roots. In addition, planting near the bases of felled exotic pine trees a few months after felling can benefit the planted trees through nutrient release from the decaying pine bases and roots.

3.4.8 Protection from rabbit and hare browse

It is essential that all planted trees are protected from rabbit (*Oryctolagus cuniculus*) and hare (*Lepus europaeus*) browse until their basal stems are sufficiently thick (c.1 cm diameter) to withstand this. It is probably not practical at the site to control rabbits and hares to low enough density that their effects on new plantings would be negligible. A better option would be to surround the newly-planted tree with a shelter that prevents access by rabbits and hares, and also protects the newly-planted tree from exposure, water loss, and frost. Tree shelters need to be approximately 50 cm high to deter rabbit and hare browse, and firmly fixed to the ground to avoid being blown away.

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3.4.9 Use of mulches

The use of a mulch at the base of the planted tree can help to conserve soil moisture around the tree, and also help to prevent weed growth from competing with the tree for light. Squares of woolen carpet are often useful in this respect, as organic mulches may get excavated and scattered by rabbits and birds.

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3.4.10 Distribution and composition of plantings

Planted trees should generally be planted in small groups with mixed composition, with the exception of kowhai, which can be planted alone at the top and bottom of the scarp, in addition to being mixed with other species at other sites. Planting in clusters at 2-5 m spacings will allow small stands of mixed forest to develop, and will enable species that are better adapted to the microsite to compensate for those that are not so well adapted.

Clusters of trees can be planted in and around existing areas of kānuka shrubland, as the kānuka shrubs will provide a degree of shelter for the newly-planted trees. The shade provided by kānuka shrubs also limits the development of vegetation in the ground layer, and provides protection from frost, which means that the ground layer beneath kānuka shrubs will provide good regeneration sites when planted trees are mature and produce seed.

3.4.11 Planting and woody weed control

Indigenous trees should not be planted where felling of exotic trees is likely to damage plants. Hence any felling operations should take place prior to planting. Another benefit of this is that pine trees are heavy water users, and control of them will mean less competition for soil moisture.

Indigenous trees should not be initially planted near shrubs of Scotch broom, because these will need to be controlled using herbicide sprays that would adversely affect planted indigenous trees. Once the process for successful establishment of indigenous trees is well understood, then areas of Scotch broom scrub could be targeted for future planting, as growth of an indigenous tree canopy would ultimately see Scotch broom overwhelmed due to its intolerance of shade.

3.4.12 Contingency strategies

Survival of planted tree species should be monitored, and if there is significant mortality of planted trees in the first year, the planting methods should be reviewed, taking into consideration the causes of mortality and the factors described in the sections above. If only a small amount of mortality is observed, then the dead plantings should be replaced. If mortality is confined to just one or two species, then those species should not be replanted; instead, planting should be of species that have established successfully.

3.4.13 Future indigenous restoration at the site

As a protected site, with several habitat types, the mitigation area would lend itself to additional indigenous vegetation restoration activities in future, once woody weeds are under control and the planted trees become self-sustaining. Restoration of grassland and shrubland communities could be undertaken, for example, on the smaller parcels of land in the south of the site, where kānuka is less abundant. It may also be possible to establish threatened plant species at the site, depending on their habitat requirements. The process of restoring an indigenous treeland or forest at the site will be very visible to users of the adjacent cycle trail, and is likely to help with support for restoration activities on the adjacent land.

4. ECOLOGICAL RESTORATION STRATEGY

The factors discussed above indicate that the following ecological restoration strategy would be most worthwhile at the Hawea River site:

- Fully exclude stock from the site using fencing, and monitor for stock entry. Any stock entering the mitigation site should be removed rapidly, and the weakness that allowed stock entry identified and rectified.
- Undertake control of exotic trees, and spraying of Scotch broom, prior to planting of indigenous tree species.
- Use cabbage tree, kowhai, matai, Hall's totara, kohuhu, fierce lancewood, broadleaf, and lowland ribbonwood as the initial indigenous species to plant at the site. Other indigenous tree and shrub species that would be naturally found at the site could be planted in subsequent years if this selection of species failed to establish, or if more ecological diversity is required for the site.

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- Source propagation material for these species from within the Wanaka or Lindis Ecological Districts for species which are still naturally found in these locations, or from elsewhere in Otago for species which are no longer found in Central Otago.
- Use PB3 or smaller tree saplings for planting.
- ‘Harden off’ propagated trees by growing them in a similar environment to the planting site for the last few months before planting.
- Plant in mid-autumn, or late autumn, when soil moisture has recovered, and temperature extremes are less likely.
- Plant trees in sites with deeper soils, and utilise ‘water crystals’ in the base of the planting hole, or in the potting mix the tree seedling is grown in, to help retain water.
- Choose microsites for planting carefully, including within or adjacent to existing kānuka shrubland, in the shelter of felled pine trees, and near the bases of felled pine trees a few months after felling.
- Place a long-lasting mulch around the base of each plant.
- Surround trees with robust tree shelters approximately 50 cm high, and ensure that tree shelters are firmly fixed to the ground and will not be blown away. These shelters are essential to prevent browse from rabbits and hares, and will also have other positive effects on the plants.
- Plant in clusters of 10-12, at spacings of 2-5 m.
- Do not plant indigenous species where they would be affected by exotic tree control activities.
- Monitor survival of plants, and if necessary, replace any plants that die. Monitoring of survival should be more frequent in the early stages after planting.
- Monitor the distribution and abundance of woody weeds by annual walk-through surveys, to assess weed control priorities.

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5. WORK PROGRAMME AND TIMELINE

An indicative five-year work programme and timeline is set out below.

Year 1 (2015)

Task	Timing
1. Order indigenous tree species from plant nursery, if required.	ASAP, to allow time for collection and propagation
2. Complete fencing to exclude stock.	Before end of 2015
3. Initiate process for legal protection.	Before end of 2015
4. Control coning trees of <i>Pinus nigra</i> and ponderosa pine.	Before end of 2015
5. Control Scotch broom, hawthorn, and smaller radiata pine trees.	Before end of 2015

Year 2 (2016)

Task	Timing
1. Control regenerating pine saplings.	January - March 2016
2. Assess whether any taller pine trees can be felled or killed standing.	March - April 2016
3. Obtain tree shelters.	January - February 2016
4. Begin planting, if suitable stock is available.	April - May 2015
5. Monitor after two weeks, and three months.	May - September 2016
6. Fell or poison any taller radiata pine trees.	September - December 2016
7. Control Scotch broom, if this is required.	October - December 2016

Year 3 (2017)

Task	Timing
1. Surveillance for woody weeds and other pest plants.	January - March 2017
2. Assess survival of planted trees.	March - April 2017
3. Continue planting, if suitable stock is available.	April - May 2017
4. Monitor plantings after two weeks, and three months.	May - September 2017

Year 4 (2018)

Task	Timing
1. Surveillance for woody weeds and other pest plants.	January - March 2018
2. Monitor survival of plantings.	March - April 2018
3. Replace dead plantings, if this is required.	April - May 2018
4. Monitor plantings after two weeks, and three months.	May - September 2018
5. Consider removing tree shelters for any plantings that are sufficiently large.	May 2018

Year 5 (2019)

Task	Timing
1. Surveillance for woody weeds and other pest plants.	January - March 2019
2. Monitor survival of plantings.	March - April 2019
3. Consider removing tree shelters for any plantings that are sufficiently large.	May 2019

QUEENSTOWN LAKES DISTRICT COUNCIL

**APPROVED PLAN:
RM140465**