BEFORE THE HEARINGS PANEL
FOR THE QUEENSTOWN LAKES PROPOSED DISTRICT PLAN

IN THE MATTER	of the Resource Management Act 1991
AND	
IN THE MATTER	of the Rezoning Hearing Stream 12 – Upper Clutha mapping

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CASEBOOK FOR QUEENSTOWN LAKES DISTRICT COUNCIL REPLY

Hearing Stream 12 – Upper Clutha mapping

10 July 2017

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TAB 1

BEFORE THE ENVIRONMENT COURT

Decision No. [2015] NZEnvC139

IN THE MATTER	of the Resource Management Act 1991
AND	of an appeal pursuant to Clause 14 of the First Schedule of the Act
BETWEEN	APPEALING WANAKA INCORPORATED (ENV-2014-CHC-46) Appellant
AND	QUEENSTOWN LAKES DISTRICT COUNCIL Respondent
AND	NORTHLAKE INVESTMENTS LIMITED Applicant

Court:	Environment Judge J R Jackson Environment Commissioner J R Mills Environment Commissioner A C E Leijnen
Hearing:	In Wanaka on 2, 3, 4 and 5 March 2015 Site inspection 30 April 2015 (Final submissions received 4 May 2015)
Appearances:	Mr P Page and Ms J Caunter for Appealing Wanaka Incorporated Ms J Macdonald for Queenstown Lakes District Council Mr W Goldsmith and Ms M Baker-Galloway for Northlake Investments Limited
Date of Decision:	21 August 2015
Date of Issue:	21 August 2015

THE SEAL OF THE ENVIRONMENT COURT OF NEW ZEALAND

INTERIM DECISION

A: Under clause 15 of the First Schedule to the Resource Management Act 1991, the Environment Court:

(1) subject to (2) and Orders [B] and [C] approves Plan Change 45; and

(2) directs the Queenstown Lakes District Council to amend the "Amended Structure Plan" which is part of PC45 as indicated in the attached 'Reasons' unless any party indicates by 30 September 2015 that they wish to call evidence on the issue;

B: We reserve leave for:

(1) Appealing Wanaka Incorporated:

(a) to advise the court and other parties whether it wishes to continue with any of its *ultra vires* allegations (other than those about Chapter 4.9 of the Queenstown Lakes District Plan which have been adjudicated on); and

(b) if so, to lodge a memorandum of counsel setting the issue(s) and arguments out in detail;

— by 4 September 2015;

(2) the other parties to respond by 18 September 2015; and

(3) any reply from Appealing Wanaka Incorporated to be lodged and served by 2 October 2015.

C: We direct that the parties confer on:

(1) our powers to amend PC45 (see the last paragraph of the Reasons); and

(2) on the matters of detail raised in part 10 of the Reasons attached; and

— in the absence of agreement lodge affidavits (if necessary) and submissions on the issues under the following timetable:

- 30 September — submissions by Northlake
- 14 October — submissions by Queenstown Lakes District Council
- 21 October — submissions by Appealing Wanaka Incorporated

THE SEAL OF THE ENVIRONMENT COURT OF NEW ZEALAND

- 4 November — replies by Queenstown Lakes District Council and Northlake Investments Incorporated

D: Leave is reserved for any party to apply for further or other directions in case we have overlooked any matter or if they have major difficulties with the timetables.

E: Costs are reserved.

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REASONS

1. Introduction

1.1 Plan Change 45

[1] The issue in this proceeding is whether or not to confirm Plan Change 45 ("PC45") to the Queenstown Lakes District Plan. That is a private plan change which proposes the residential development of a large area between the town of Wanaka and the Clutha River. The land in question is approximately 219.26 hectares ("the site") and is held in four separate ownerships as shown on the ownership plan annexed to this decision as "A".

[2] The question for us to decide is whether to confirm PC45 and rezone the site for both residential development and protection of special areas of landscape and ecological value or to cancel the decision of the Council. The principal difficulty in this case is that the objectives and policies about residential development in the district plan of the Queenstown Lakes District Council are so many, various and complex that the witnesses for the parties have not been able to agree which are the most relevant and/or whether they head in the same general directions. Those problems are compounded by the fact that all people concerned with resource management are still working through the

ramifications of the Supreme Court's decision in *Environmental Defence Society Inc v New Zealand King Salmon Company Ltd*[1] *("EDS v NZ King Salmon").*

1.2 The history of Plan Change 45, the appeal and the parties

[3] A request to amend the Queenstown Lakes District Plan ("the QLDP") under clause 21 of the First Schedule to the Resource Management Act 1991 ("the RMA" or "the Act") was made by a Ms Lucy Meehan in July 2013. That request was accepted[2] and then notified by the Queenstown Lakes District Council on 1 August 2013. A summary of the decisions requested in submissions was publicly notified on 25 September 2013 and the period for further submissions closed on 9 October 2013.

[4] 124 primary submissions were lodged on PC45. The plan change went to a hearing by Council-appointed Commissioners Messrs D Whitney and L Cocks. They released their report and recommendations on 17 June 2014. After the Council accepted those recommendations — to approve PC45 as amended by the Commissioners — a notice of appeal by an unincorporated body of submitters was lodged with the Registrar of the Environment Court on 5 September 2014.

[5] Both the original requestor and the appellants have been succeeded by others. First, the original applicant, Ms Meehan, has been succeeded by Northlake Investments Limited ("Northlake"), a company in which she retains an interest. Second, on 24 February 2015 the court issued a (further) procedural decision[3] confirming that Appealing Wanaka Incorporated ("AWI") is the successor appellant to one of the earlier groups of submitters.

[6] PC45 is opposed by AWI on a number of grounds. First it says that the existing supply of land zoned for residential purposes in Wanaka is more than sufficient to meet the community's needs[4]; second it says that the lack of an identified urban growth boundary means that the court only has part of the picture[5]; third the plan change is premature because an upcoming review of the district plan will determine the

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1 *Environmental Defence Society Inc v New Zealand King Salmon Company Ltd* [2014] NZSC 38; [2014] 1 NZLR 593; [2014] NZRMA 195; (2014) 17 ELRNZ 442.
2 Under clause 25(2)(b) of Schedule 1 to the RMA.
3 *Appealing Wanaka and Others v Queenstown Lakes District Council* [2015] NZEnvC 23.
4 Submissions by the appellant dated 24 April 2015 para 17.3.
5 Submissions by the appellant dated 24 April 2015 para 17.4.

appropriate solution for urban growth; fourth PC45 does not achieve the objectives and policies of the operative district plan, nor is it the better option under section 32 RMA. Some *vires* issues are also raised. AWI only called two — albeit very experienced — witnesses: an urban designer Mr I C Munro and the planner Mr D F Serjeant. Mr Munro had previously prepared for the Council an urban design report[6] on PC45 which was presented at the Commissioners' Hearing. He was later engaged to support AWI in this proceeding, where he maintains the advice he gave in his earlier report to the Council.

[7] The Council played no active part at the hearing — it called no witnesses — but supports the plan change. However, an independent planner Ms V S Jones, who had been contracted by the Council to report on the plan change, was called by AWI under a witness summons. Ms Jones produced her section 42A report and some supporting documents to the Court. She also took the trouble — for which the court is grateful — to read the evidence lodged with the Registrar and then to lodge and serve a brief statement of evidence updating her expert opinions.

[8] It is common ground that the version of the RMA that must be applied is that in force between 1 October 2011 and 3 December 2013, that is before the Resource Management Amendment Act 2013 came into force[7].

1.3 The environment

The existing rural area

[9] The site is to the north and east of the residential areas of Wanaka town. Aubrey Road runs along the southern boundary of the site, and Peak View Road runs to its western boundary (but terminates short of the high point). Beyond that terminus a pine plantation known as "Sticky Forest" — a popular mountain bike recreational area[8] — covers the hill separating the site from Lake Wanaka. Outlet Road, the road to where the Clutha River begins, runs through the site. Adjacent to the site's eastern boundary is the Hikuwai Conservation Area, a kanuka shrubland managed by the Department of Conservation. This area contains a significant representative[9] sample of the Upper

6 I C Munro evidence-in-chief Appendix 2: 2013 Report [Environment Court document 17].

7 This is because the closing date for submissions was (as recorded above) 9 October 2013, and therefore, under clause 2 of Schedule 12 to the RMA the form of section 32 in existence between 1 October 2011 and 3 December 2013 applies.

8 J B Edmonds evidence-in-chief para 3.2.4 [Environment Court document 14].

9 J B Edmonds evidence-in-chief para 3.14 [Environment Court document 14].

Clutha kanuka shrubland and cushionfield: a modified but apparently relatively uncommon vegetation type.

[10] To the southwest a residential area known as the Kirimoko Block borders the site. It contains a plantation of conifers and a (largely undeveloped) low density residential zoning. Immediately north of the Kirimoko Block a Council water reservoir[10] is situated. A right of way provides vehicle access to the reservoir across part of the site connecting to Peak View Road (currently a private access road).

[11] The topography of the site is quite complex in that it is a mix of old moraine hummocks and riverine terraces incised by smaller (and formed later) water courses. The high point in the northwest is 410 metres above sea level ("masl") and the lowest point, 330 masl, is at the south-eastern end adjoining Aubrey Road. The vegetation of the site is largely introduced pasture, but there are areas of kanuka and smaller ones of matagouri and native tussocks. There are shelterbelts of mature pines, and some plantations of conifers as well as some wildings.

[12] The site borders an outstanding natural landscape which includes Lake Wanaka, although the lake cannot be seen from the site because its high point is at its western end. The site is immediately to the south of the Clutha River (itself an outstanding natural feature) which commences about one kilometre to the northwest where the water flows out of Lake Wanaka. Part of that landscape is the Council-owned Clutha River Reserve[11] to the north of the site. The reserve extends from Beacon Point/Outlet Road to Albert Town and contains a walking and cycling trail along the river edge.

The adjacent urban environment

[13] There is an enclave of "Rural-residential" land between part of the site and Aubrey Road as a result of an earlier subdivision by one of the site's landowners. That area is interesting because it reveals what Northlake claims is a likely outcome for the site if PC45 does not proceed. Across Aubrey Road, to the south of the site, is more

10 Located on Lot 13 DP 300734 and listed in the District Plan as Designation 314 Local Purpose (Water Reservoir).

11 Listed in the District Plan as Designation 116, 'Clutha Outlet Recreation Reserve'.

partly developed Rural Residential zoned land that extends up the lower slopes of Mount Iron, an Outstanding Natural Feature.

[14] In 2013 there were 6,471 people normally resident in Wanaka (that is 23% of the District's population). The housing statistics[12] are:

- there were 2,781 occupied dwellings and 1,752 unoccupied dwellings — total 4,533 dwellings (about 40% of houses are likely to be second or holiday homes)[13];
- the average household size was 2.4 persons, and 20% of Wanaka's households were single person households;
- in the year to December 2013 the Council issued 159 building consents for residential dwellings.

[15] The Council's 2013 estimates[14] were that zoned capacity for 5,686 dwellings exist in Wanaka and that the number of houses likely to be built in the next 20 years (from 2013) is 2,300. The evidence in respect of the site is that if PC45 proceeds then it is likely[15] that up to 600 of the houses at Northlake will be used for holiday homes, with the remainder (a little less than 900 at maximum build out) being lived in permanently.

[16] The median house price[16] in the Queenstown-Lakes district at January 2014 was $532,500; and the median income in January 2015 was about $74,970. Wanaka is affluent by New Zealand standards with slightly higher incomes than the New Zealand average[17]. Even so, the median multiple of income to house price as at that date was 7.10.

[17] There is one other aspect of the land market (for sections of residential zoned land) in the Wanaka basin which we should record. It is dominated by one family. The

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12 Statistics New Zealand quoted in the evidence of I C Munro evidence-in-chief para 5.13 [Environment Court document 17].
13 J A Long evidence-in-chief para 2.3 [Environment Court document 12].
14 Evidence of I C Munro para 5.15 [Environment Court document 17].
15 J A Long evidence-in-chief para 2.3 [Environment Court document 12].
16 Source: www.interest.co.nz/property/house-price-income-multiples (Accessed 12/13/15 1350).
17 J A Long evidence-in-chief para 2.7 [Environment Court document 12].

attached map[18] marked "B" shows some interests of the Dippie family — being Messrs A and E Dippie and various companies[19] apparently owned or controlled by them and their families — in Wanaka. Counsel for AWI tried to undermine this point by identifying other land — at Lake Hawea — which was zoned for residential development. That point failed when it emerged[20] a day or so later that Dippie family interests own much of that land also. Having recorded that situation we must also say that we received insufficient evidence to rely on[21] of any manipulation of the quality, timing or pricing of sections placed on the market by the interests of the Dippie family. We simply note at this point that the potential for monopolistic behaviour exists.

The value of the site as rural land

[18] After the hearing the Court asked for and received evidence of the value of the entire (original) 245 hectares covered by PC45 in its original version. In his affidavit for Northlake, dated 10 April 2015, Mr S G N Rutland of Auckland, Registered Valuer, deposed that the estimated gross market value of the use *Option 1 (Rural General Option Value)* for the land, assuming (counterfactually) that the land is undeveloped farm land in the Rural General Zone in the vicinity of Wanaka and is not currently subject to a plan change to rezone, is $30,000 per hectare (excluding GST)[22].

1.4 The purpose and detail of PC45

[19] The site is proposed to be managed under a new "Section 12.X" of the district plan as the "Northlake Zone". The new zone includes objectives, policies and a Structure Plan intended to guide future development under a staging process, with each stage guided by an "Outline Development Plan" and associated rules. Each Outline Development Plan will require details such as the indicative subdivision design, roading pattern, location of pedestrian and cycling connections, and location of "open space"[23] and recreational amenity spaces.

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18 Ex 14.1.

19 These were identified by Mr Edmonds as Orchard Road Holdings Limited, Willowridge Developments Limited and Beech Cottage Trustees Limited — transcript p 95.

20 Transcript p 96.

21 Quite apart from any natural justice issues: none of these landowners were parties or witnesses.

22 S G N Rutland affidavit dated 10 April 2015 para 9 [Environment Court document 34].

23 This has its own meaning and own chapter (20) in the QLDP.

[20] Rather confusingly, PC45 states its own purpose[24], even though there is no requirement for that under the RMA[25]. This is stated to be:

> … to provide for a predominantly residential mixed use neighbourhood. The area will offer a range of housing choices and lot sizes ranging from predominantly low to medium density sections, with larger residential sections on the southern and northern edges. The zone enables development of the land resource in a manner that reflects the zone's landscape and amenity values.

It also contains express objectives which are[26] to provide a residential development with "a range of medium to low density and larger lots"[27] in close proximity to the wider Wanaka amenities; to attain best practice in urban design[28] and to achieve "high quality residential environments", which are well-connected[29] internally and to infrastructure networks outside the zone; to develop "tak[ing] into account"[30] the landscape, visual amenity, and conservation values of the zone; and to establish[31] areas for passive and active recreation.

[21] There are to be internal roads connecting to Aubrey Road, Outlet Road and Peak View Road. While Peak View Road was apparently always intended as an important walking and cycling route, the adjacent landowner Allenby Farms Limited (here represented by Northlake) has acquired an additional strip of land adjoining that access strip, so that the access strip available for future access use is now a minimum 20m wide along its full length, and wider in places. That width is adequate to accommodate vehicular access and would improve connectivity between PC45 and Wanaka generally[32]. All other infrastructure can connect to existing infrastructure[33], with upgrades to be provided at Northlake's expense where required.

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24 Para 12.X Northlake Special Zone [PC45 p 12X-1].
25 See section 75 for the compulsory and optional contents of a district plan.
26 Proposed Objectives (12.X.2) 1 to 6 [PC45 p 12.X-1 to -4].
27 Proposed Objective (12.X.2) 1 [PC45 p 12.X-1].
28 Proposed Objective (12.X.2) 2 [PC45 p 12.X-2].
29 Proposed Objectives (12.X.2) 3 and 6 [PC45 pp 12.X-3 and 12.X-4].
30 Proposed Objective (12.X.2) 4 [PC45 p 12.X-3].
31 Proposed Objective (12.X.2) 5 [PC45 p 12.X-3 and 12.X-4].
32 A A Metherell rebuttal evidence para 1.11 [Environment Court document 10].
33 J McCartney evidence-in-chief paras 10 and 11 [Environment Court document 13].

[22] Although the Northlake land is currently held in separate holdings by different owners, PC45 attempts to provide for integrated management of the whole site and adjacent land. It attempts this at three levels. First, it proposes a Structure Plan for the site (a copy dated 1 May 2015 is attached as "C"[34]). Second, it divides the Northlake land into different Activity Areas (each called an "AA" as shown on the Structure Plan), each with different management aims and methods. Third, it proposes a detailed level of design for all development in respect of small areas as they are developed: Outline Development Plans would address detailed design.

[23] The Activity Areas are[35]:

- Activity Area A, which contains the currently zoned Rural Residential part of the site. This part of the site[36] has a current "live" subdivision consent[37] for 64 lots, each over 4000m^2 in size and houses are currently being built on it.

- Activity Areas B1 to B5 which provide for housing of a similar nature to existing Wanaka with low density residential areas containing an average of 10 dwellings per hectare (average lot size of 700-800m^2).

- Activity Area D1, which enables more compact low density residential activities that would comprise around 15 dwellings per ha, or an average lot size of 450-500m^2. The planner for Northlake and "architect" of PC45, Mr J B Edmonds, wrote[38]:

> ... small houses, possibly including some attached housing (townhouses or terrace houses), and possibly two storey construction, would be expected to achieve this type of density. Private amenity may be lower than in the other activity area; however, this is compensated for by other benefits associated with the close proximity to community parks and facilities. Certain non-residential activities

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34 It should be noted that we have drawn a short orange line on this plan which is explained in Part 10 of this decision.

35 J B Edmonds evidence-in-chief para 2.3.1 [Environment Court document 14].

36 Lot 69 DP 371470.

37 Queenstown Lakes District Council reference RM051067.

38 J B Edmonds evidence-in-chief para 2.3.1 (3rd bullet) [Environment Court document 14].

(such as small scale retail) are enabled within this activity area, subject to compatibility with residential amenities.

- Activity Areas C1 to C5 which would enable larger residential lots that would result in around 4.5 dwellings per ha, with an average lot size of 1,500m^2. There are "Building Restriction Areas" within Activity Areas C1, C2 and C3 to reflect the higher landscape qualities of prominent hilltops, ridges and gullies in these parts of the site. Northlake proposes through rules relating to development (Activity status and linked development standards) to conserve the regenerating clusters of kanuka[39] and matagouri.

- Activity Area E is the land protected from development either because it abuts the Clutha River outstanding natural feature or because it encompasses areas of high natural value and/or is visually sensitive — for example the high points on the land, or land adjacent to Sticky Forest. This land is to be retained in a pastoral state.

[24] Other features of the proposed PC45 zone put forward by Northlake are that 20 sections are to be offered in the first development phase, at a cost of no more than $160,000 each, to the Queenstown Community Trust as "affordable housing". The applicant also proposes to provide a community indoor swimming pool, gymnasium, children's play area and tennis court, recreational areas, and pedestrian and cycleway trails. However, there does not appear to be any obligation that these are actually developed, even though space is provided for them. Rather there is a trigger point — a certain number of lots have to be sold before the owners feel obliged to supply these facilities.

1.5 The likely effects of PC45

[25] Many of the positive effects of PC45 have been identified in the description of PC45 above. We will discuss them in more detail later in respect of the objectives and policies of the QLDP about providing for the needs of the Wanaka community, but essentially there was very little challenge to the positive benefits asserted by Northlake.

39 P de Lange *A Revision of the New Zealand Kunzea* Phytokeys 40:1-185 (25 August 2014): At least some of the kanuka in the Wanaka area may be a separate species.

Effects on the supply of zoned land and/or sections

[26] Mr Munro, the urban designer for AWI, gave evidence of the effects of PC45. In his opinion PC45 would increase the zoned supply of land — using sections (allotments) as units — by 28% to (5,686 + 1,600 =) 7,286 sections. The Council's current (2013) predictions are that there may be a 20 year demand for 2,302 households in Wanaka. According to Mr Munro PC45 would result in a "surplus" zoned capacity of (7,286 – 2,302 =) 4,984 households over a relatively long 20 year planning period. In cross-examination Mr Munro said there were five times more sections than Wanaka would need in the near future, and development under PC45 would increase that to six times.

[27] Mr Munro was of the opinion[40] that such an "oversupply" of sections might cause wastelands in approved subdivisions both in Northlake and elsewhere in Wanaka: "... substantial gaps [between houses], sporadic stop start developments ..."[41] and "... an overall failure to establish anywhere ... a coherent sense of community or character as the district plan invariably describes as desirable in its residential zones"[42]. He also considered that would lead to sprawl[43].

Effects on other residents of Wanaka

[28] Mr Serjeant was more concerned with the amenity effects for neighbours of the site and remoter residents of Wanaka. He wrote[44]:

> For persons living on the current urban edge there is an expectation that the Northlake land would remain rural for at least the next 10-15 years. This expectation is supported by the District Plan policies that envisage a compact town and the avoidance of sprawl, and the recognition of ample infill and greenfields capacity closer to town. While specific views are not necessarily protected, I consider that the premature loss of the overall rural ambience is an adverse effect on these people.
>
> Urban amenity is provided as much by journeys through an urban area as by where we live. This is particularly the case in Wanaka which is placed within a much wider outstanding landscape. The town is developing a network of walking and cycling trails with on and off-road sections,

40 Transcript p 168.
41 Transcript p 168 lines 5-6.
42 Transcript p 168 lines 23-24.
43 Transcript p 168 line 28.
44 D F Serjeant evidence-in-chief para 51 [Environment Court document 18].

> complementing the private vehicle journey option. In my view, irrespective of the travel mode chosen, a higher quality journey is provided through a well-developed urban fabric than through a discontinuous series of suburban and rural neighbourhoods.

The first paragraph raises the probability of the direct effects on the amenities of near neighbours of the site on the south side of Aubrey Road. We consider that there are some real (if relatively minor) concerns which could be mitigated by some re-design of the Activity Areas. We consider the second paragraph is being precious: any such effects will be very minor, fleeting, and their number will dwindle over time.

Monetary costs

[29] A class of adverse effects of PC45 identified by Mr Serjeant were not physical effects on people or the environment, but extra costs[45] imposed on other people. We will consider these in our section 32 evaluation.

Effects of the "commercial area"

[30] If the sections on the site sell and are built on, then Mr J A Long, the retail consultant called for Northlake, considered that any of a café/restaurant, a convenience store, takeaway food outlets and a hairdresser/beautician might establish in Activity Area D[46]. Almost all residences would be within 900 metres[47] of any such retail outlets, making them within walking distance for most residents.

[31] Rentals[48] for the shops would be low, and so returns would be challenging for the developer or landlord. In Mr Long's opinion the businesses could be successful at a small scale (and we discuss the urban design consequences later)[49]. We accept Mr Long's evidence that any retail at Northlake will have "... no discernible impact on Albert Town or Three Parks"[50].

[32] Mr Serjeant alleged[51] there would be adverse effects in relation to:

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45 D F Serjeant evidence-in-chief paras 35-36 [Environment Court document 18].
46 J A Long evidence-in-chief para 2.10 [Environment Court document 12].
47 J A Long evidence-in-chief para 2.13 [Environment Court document 12].
48 J A Long evidence-in-chief para 2.19 [Environment Court document 12].
49 J A Long evidence-in-chief para 2.20 [Environment Court document 12].
50 J A Long evidence-in-chief para 9.7 [Environment Court document 12].
51 D F Serjeant evidence-in-chief para 41 [Environment Court document 18].

> … the overall convenience of access to the wide range of goods and services provided in existing centres and potentially in the proposed Northlake centre. This effect is not about trade competition, but the achievement and maintenance of the highest level of urban amenity that can derive from these centres.

[33] Later he added that[52]:

> Although the effect may not be significant, it has a high probability and it undermines the policy framework, which has an aspirational approach of creating positive effects, as opposed to the bottom-line assessment of avoiding adverse effects that Mr Long has undertaken.

We find that evidence rather disingenuous. If, as he appears to be suggesting, Mr Serjeant wishes to protect the shops in both Wanaka's "main street" near the waterfront of Lake Wanaka and in the proposed Northlake centre, he is clearly attempting to stop any trade competition from operators on the Northlake land. We would need considerably more evidence of adverse effects — as against the beneficial effects of (trade) competition[53] — before we could put something solid into the scales against PC45. In any event the adverse effects do not meet the threshold which takes them out of the trade competition category (as we discuss in Part 2).

2. Plan change considerations after *EDS v NZ King Salmon*

2.1 Identifying the matters to be considered

[34] The RMA provides a number of matters which a territorial authority must consider. The principal matters to be considered when preparing a plan or plan change are set out in sections 74 and 75 of the RMA. These state (relevantly):

> **74 Matters to be considered by territorial authority**
>
> (1) A territorial authority must prepare and change its district plan in accordance with—
>
> (a) its functions under section 31; and
>
> (b) the provisions of Part 2; and
>
> (c) a direction given under section 25A(2); and
>
> (d) its obligation (if any) to prepare an evaluation report in accordance with section 32; and
>
> (e) its obligation to have particular regard to an evaluation report prepared in accordance with section 32; and

52 D F Serjeant evidence-in-chief para 48 [Environment Court document 18].

53 To the extent we might be allowed to consider these: see section 104(3)(a) RMA.

(f) any regulations.

(2) In addition to the requirements of section 75(3) and (4), when preparing or changing a district plan, a territorial authority shall have regard to—

(a) any—

(i) proposed regional policy statement; or

(ii) proposed regional plan of its region in regard to any matter of regional significance or for which the regional council has primary responsibility under Part 4; and

(b) any—

(i) management plans and strategies prepared under other Acts; and

(ii) *[Repealed]*

(iia) relevant entry on the New Zealand Heritage List/Rārangi Kōrero required by the Heritage New Zealand Pouhere Taonga Act 2014; and

(iii) regulations relating to ensuring sustainability, or the conservation, management, or sustainability of fisheries resources (including regulations or bylaws relating to taiapure, mahinga mataitai, or other non-commercial Maori customary fishing),—

to the extent that their content has a bearing on resource management issues of the district; and

(c) the extent to which the district plan needs to be consistent with the plans or proposed plans of adjacent territorial authorities.

(2A) A territorial authority, when preparing or changing a district plan, must take into account any relevant planning document recognised by an iwi authority and lodged with the territorial authority, to the extent that its content has a bearing on the resource management issues of the district.

(3) In preparing or changing any district plan, a territorial authority must not have regard to trade competition or the effects of trade competition.

75 Contents of district plans

(1) A district plan must state—

(a) the objectives for the district; and

(b) the policies to implement the objectives; and

(c) the rules (if any) to implement the policies.

(2) A district plan may state—

(a) the significant resource management issues for the district; and

(b) the methods, other than rules, for implementing the policies for the district; and

(c) the principal reasons for adopting the policies and methods; and

...

(3) A district plan must give effect to—

(a) any national policy statement; and

(b) any New Zealand coastal policy statement; and

(c) any regional policy statement.

(4) A district plan must not be inconsistent with—

(a) a water conservation order; or

(b) a regional plan for any matter specified in section 30(1).

(5) ...

[35] Apart from their formal requirements[54] as to what a district plan must (and may) contain, those sections impose three sets of positive substantive obligations on a territorial authority when preparing or changing a plan. These are first to ensure the district plan or change accords with the authority's functions under section 31, including management of the effects of development, use and protection of natural and physical resources in an integrated way; second to give the proper consideration[55] to Part 2 of the RMA and the list of statutory documents in section 74 and section 75; and third to evaluate the proposed plan or change under section 32 of the RMA.

[36] On an appeal to this court we must also have regard to the local authority's decision[56].

[37] Of course where the subject of consideration is a plan change rather than a proposed new plan, that list of considerations also needs to consider the provisions of the plan being changed, that is the operative district plan. In fact, assessing how a plan change fits into an operative district plan may not be straight forward. Broadly, plan changes fall on a line between two extremes. At one end a plan change may be totally subservient to the objectives, policies and even rules of the operative district plan it proposes to amend, in which case the question of whether the plan change integrates the management of adverse effects is unlikely to arise. At the other end, rather than to fit within the district plan (other than in the necessary geographical sense that it must be within the district's boundaries) a plan change may be designed to be added to the operative plan. In the latter case, the first set of considerations under section 74(1)(a) RMA — integrated management — may be very important, as may Part 2 and the

54 Section 75(1) and (2) RMA.

55 This ranges from "according" with Part 2, through "giving effect to" or making provisions "not inconsistent with", to "having (particular) regard to".

56 Section 290A RMA.

statutory documents. It is therefore important to work out at the start where and how the plan change is proposed to fit into the operative district plan.

[38] Further complications arise where, as here, a proposed plan change contains its own objectives (including its "purpose"). At first sight section 74 and section 32 require each new objective to be tested against the principles of the Act but not against the other objectives and policies of the operative district plan. However, at least in cases where a plan change is designed to fit within an operative district plan, we consider the proper approach is to view the plan change (proposed purpose, subordinate objectives and all) as a policy change to implement the higher order objectives and policies in the operative district plan. A rezoning of land is a policy issue in the sense that, if confirmed by this court, the Council will be adopting "a course of action" designed to implement higher level objectives and policies: *Auckland Regional Council v North Shore City Council*[57].

[39] Before we turn to the positive obligations we should also refer to the one set of negative obligations — not to have regard to "trade competition or the effects of trade competition" — since the effects of PC45 on potential trade competitors was raised by the evidence. That provision is in section 74(3) and is oddly comprehensive. The mischief at which subsection (3) is directed would appear to be "the effects of trade competition on the profits of trade competitors, their lessors and (possibly) creditors". Instead subsection (3) appears to state that territorial authorities must not have regard even to the beneficial effects of trade competition, for example lower prices for consumers. Despite that the Supreme Court has confirmed that consequential economic and social effects are not the effects of trade competition — *Westfield (NZ) Ltd v North Shore City Council*[58]. We find this whole area of the law about the RMA very confusing: perhaps there is a distinction between the effects of competition (good) and those of trade competition (bad)?

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57 *Auckland Regional Council v North Shore City Council* [1995] 3 NZLR 18 (CA) at 23; [1995] NZRMA 424 at 430; (1995) 1B ELRNZ 426 at 433.

58 *Westfield (NZ) Ltd v North Shore City Council* [2005] NZSC 17; [2005] 2NZLR 597 [2005] NZRMA 337 (SC) at [119] and [120]. The phrase "... and the effects of trade competition" was not in section 74(3) when *Westfield (NZ) Ltd v North Shore City Council* was decided, but we doubt if that would make any difference to the Supreme Court's approach.

2.2 According with the council's functions

[40] The first set of positive obligations — and counsel for AWI reminded us that this is the purpose[59] of a plan (or plan change) — is to ensure that the district plan or change accords with the council's functions under section 31. That is usually a relatively simple factual matter: if the plan proposes to manage the effects of the use, development or subdivision (or protection) of the land, then it accords with the council's functions. Any complications normally arise in respect of the council's first and most general function in section 31. That is:

> (a) the establishment, implementation, and review of objectives, policies, and methods to achieve integrated management of the effects of the use, development, or protection of land and associated natural and physical resources of the district:

The notion of integrated management is very complex when faced with all the uncertainties of the future.

[41] In this case AWI argues that PC45 does not achieve integrated management of the effects of the development and use of the land and resources of the Wanaka area at all. Rather, it contends, the plan change is "entirely inward focused in terms of its design and analysis"[60]. This is of course a matter of fact, prediction, opinion, and degree on the evidence and will be considered in due course.

2.3 Implementing Part 2 and the list of statutory documents

[42] The second set of obligations in (and the major parts of) sections 74 and 75 appears to direct that, even on a minor plan change, the territorial authority has the onerous and wide-ranging task of traversing all the higher order objectives and policies in the hierarchy of superior documents that sits above the district plan, including the principles in Part 2 of the Act. That is the way sections 74 and 75 have been applied in a string of cases deriving from *Eldamos Investments Ltd v Gisborne District Council*[61],

59 Section 72 RMA.
60 Submissions of counsel for AWI dated 24 April 2015 at para 10.
61 *Eldamos Investments Ltd v Gisborne District Council* W 047/2005.

and more comprehensively since *Long Bay-Great Park Society Incorporated v North Shore City Council*[62].

[43] The recent decision of the Supreme Court in *EDS v NZ King Salmon*[63] sets out an amended — and simpler — approach to assessing plan changes under the second set of obligations in sections 74 and 75. The principle in *EDS v NZ King Salmon* is that if higher order documents in the statutory hierarchy existed when the plan was prepared then each of those statutory documents is particularised in the lower document. It appears that there is, in effect, a rebuttable presumption that each higher document has been given effect to or had regard to (or whatever the relevant requirement is). Thus there is no necessity to refer back to any higher document when determining a plan change provided that the plan is sufficiently certain, and neither incomplete nor invalid. This seems to have been accepted by the High Court in a recent decision — *Thumb Point Station Ltd v Auckland City Council*[64]. There Andrews J very succinctly put the approach as being that:

> In most cases, the Environment Court is entitled to rely on a settled plan as giving effect to the purposes and principles of the Act. There is an exception, however, where there is a deficiency in the plan[65]. In that event, the Environment Court must have regard to the purposes and principles of the Act and may only give effect to the plan to the degree that it is consistent with the Act.

We respectfully agree provided that the reference to giving effect to the "purposes and principles" [66] of the Act includes giving effect to the higher order statutory instruments, and indeed to the consideration of the other statutory documents referred to in sections 74 and 75 of the RMA.

[44] The reference to any "deficiency" in *Thumb Point* was a summary of *EDS v NZ King Salmon*. The latter case was concerned with the relationship between a plan change and a higher order statutory instrument that post-dated and therefore was not given

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62 *Long Bay-Great Park Society Incorporated v North Shore City Council* A 078/08 at [34].

63 *EDS v NZ King Salmon* (supra footnote 1) (SC).

64 *Thumb Point Station Ltd v Auckland City Council* [2015] NZHC 1035 (HC) at [31].

65 Citing *Eldamos Investments Ltd v Gisborne District Council,* W047/2005;*Environmental Defence Society Inc v The New Zealand King Salmon Company Ltd,* above footnote 1.

66 Strictly, there is only one purpose (not more as Andrews J's plural "purposes" might suggest): section 5 RMA.

effect to in the operative district plan. The national policy statement in question was the New Zealand Coastal Policy Statement 2010 ("the NZCPS"). Arnold J stated[67]:

> ... the NZCPS gives substance to pt 2's provisions in relation to the coastal environment. In principle, by giving effect to the NZCPS, a regional council is necessarily acting "in accordance with" pt 2 and there is no need to refer back to the part when determining a plan change. There are several caveats to this, however, which we will mention shortly. ...

[45] The "caveats" were identified in a later passage where Arnold J stated[68]:

> ... it is difficult to see that resort to pt 2 is either necessary or helpful in order to interpret the policies, or the NZCPS more generally, absent any allegation of invalidity, incomplete coverage or uncertainty of meaning. The notion that decision-makers are entitled to decline to implement aspects of the NZCPS if they consider that appropriate in the circumstances does not fit readily into the hierarchical scheme of the RMA.

The Supreme Court makes it clear that, absent invalidity, incomplete coverage or uncertainty of meaning in the intervening statutory documents, there is usually no need to look at Part 2 of the RMA, at least on a plan change.

[46] Mr Goldsmith submitted for Northlake that "[a] district plan is not as pure an expression of the purpose of the Act for the district as the NZCPS is for the coastal marine area ... And a plan change is not strictly bound to 'give effect to' wider relevant plan provisions, compared to the strong directions in say the NZCPS". We hold that misses an important aspect of *EDS v NZ King Salmon*. That is, whatever the obligation in section 74 or section 75 is in respect of the relevant existing statutory document, that obligation has been given effect[69] or had regard[70] to, or been kept consistent with as the case may be, in the operative district plan (absent uncertainty of meaning, incompleteness or invalidity) if it has been carried out by or "particularised" in an objective or policy. It would be illogical if a higher order instrument which had to be given effect to does not need to be looked at (e.g. the NZCPS as in *EDS v NZ King Salmon*) but a lower order document which only needed to be had regard to in the

67 *EDS v NZ King Salmon* (supra footnote 1) (SC) at [85].
68 *EDS v NZ King Salmon* (supra footnote 1) (SC) at [90].
69 Section 75(3) RMA.
70 Much of section 74(2) and (2A).

preparation of the district plan must still be looked at (absent a deficiency in the plan). For example, a strategy prepared under the LGA 2002 might have been had regard to[71] and then particularised in a district plan in a very directive policy. That could then have a nearly determinative effect on the outcome of an application for a resource consent or plan change. Indeed that is, if we understand counsels' arguments correctly, part of the submissions for AWI.

[47] We conclude that, since *EDS v NZ King Salmon,* the method of applying the list of documents referred to in sections 75 and 76 of the RMA is this: first, if there are **1, 2, 3 ... n** documents in the hierarchy of statutory documents[72] — with **1** being Part 2 of the RMA and **n** being the operative district plan which is proposed to be changed — then the effect of *EDS v NZ King Salmon* is that the only principles, objectives and policies which normally (subject to the second and third points) have to be considered on a plan change are the relevant higher order objectives and policies in document **n**[73] (in this case the QLDP itself). Second, only if there is some uncertainty, incompleteness or illegality in the objectives and policies of the applicable document does the next higher relevant document[74] have to be considered (and so on up the chain if necessary). Third, if, since a district plan became operative, a new statutory document in any of the lists identified in section 74(2) and (2A) and section 75(3) and (4) has come into force, that must also be considered under the applicable test[75]. While the simplicity of that process may sometimes be more theoretical than real, since in practice plans may be uncertain, incomplete or even partly invalid, it is easier than the exhaustive and repetitive process followed before the Supreme Court decided *EDS v NZ King Salmon.*

Are there any later statutory documents to be considered in this proceeding?

[48] In this case two documents were suggested as being documents of the classes identified in section 74 (2)(b) RMA:

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71 Under section 74 (2)(b)(i).

72 Including National policy statements, operative and proposed regional policy statements and plans, and any direction from the Ministry for the Environment (under section 25A(2)): section 74(1) and (2) and 75(3) RMA.

73 Or, if there are none, those in document **n-1** (usually a regional plan or regional policy statement).

74 Or, where relevant, a section 74(2)(b) document. While strictly such documents are not part of the hierarchy, they still need to be had regard to; similarly an iwi document identified in section 74(2A) RMA has to be taken into account.

75 'Given effect to', 'not inconsistent with', 'had regard to' etc.

- the Queenstown Lakes District Growth Management Strategy dated April 2007 ("the GMS")[76]; and
- the Wanaka Structure Plan 2007 ("the WSP") — a strategy prepared under the LGA 2002.

As Mr Goldsmith pointed out to us, the GMS expressly records[77] that it is "... an expression of the legislative intent of the Council and the Council's intention is to translate the actions identified in the strategy into appropriate statutory documents". So it is not[78] a statutory document and we have no further regard to it. Other documents prepared for the Council were also referred to in evidence, but none of these qualifies as a document we must have regard to under the RMA, and in any event they culminate in the WSP.

[49] So the only document we must have regard to under section 74(2) RMA is the WSP. The WSP[79] includes provisional placement of some "urban growth boundaries" and a map of "Zoning Proposed", a copy of which is annexed marked "D". It will be noted that approximately one third of the site is white (to the east of the "Plantation/Sticky Forest") and the remaining two thirds is shaded in blue and white diagonal stripes, denoting a proposed "Urban/Landscape Protection" Zone.

[50] There is a legal issue about the WSP we can deal with briefly here. Counsel for AWI pointed out that the WSP stated (in its final words[80]) "This means the Council will undertake Plan Changes", whereas of course PC45 was requested by Northlake. That is at best a legal quibble and no weight should be given to it. As it happens, the relevant policies[81] in the district plan — introduced by the subsequent PC30 — are simply "To enable the use of Urban Growth Boundaries to establish distinct and defendable urban edges ..." and to "... defin[e] an UGB through a plan change [after taking certain listed

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76 Exhibit 14.3 produced by J B Edmonds.

77 GMS p 2 (Exhibit 14.3).

78 In *Monk v Queenstown Lakes District Council* [2013] NZEnvC 12 at [34] the court accepted the GMS as a statutory document under section 74(2)(b) RMA "... in the absence of argument".

79 The only document produced to us was called "The Wanaka Structure Plan Review" but we were told that the QLDC adopted it in December 2007.

80 Wanaka Structure Plan 2007 p 14.

81 Policy (4.9.3) 7.3 and 7.6 [Queenstown Lakes District Council Plan p 4-57].

matters into account]". The policies do not say that the plan change must be introduced by the Council.

[51] We were advised that an earlier plan change ("PC20") was proposed by the Council to establish an UGB for Wanaka but did not proceed beyond initial consultation, apparently due to budgeting constraints. The WSP was presumably taken into account when PC30 was prepared[82]. However, since the WSP goes into much more detail than PC30 (which prescribes how to locate UGBs in general rather than giving specific directions for any particular location) we will have regard to the WSP's key recommendations in part 7 of this decision.

2.4 Evaluation of a plan change under section 32

[52] The third set of obligations on a territorial authority when preparing a plan (change) is the section 32 evaluation. Section 32(3) of the RMA in its relevant form requires us to examine[83]:

> (a) the extent to which each objective is the most appropriate way to achieve the purpose of this Act; and
>
> (b) whether, having regard to their efficiency and effectiveness, the policies, rules, or other methods are the most appropriate way for achieving the objectives.
>
> ...

The section 32 assessment for policies and methods, including rules, requires examination of whether policies implement the objectives, and the rules (if any) implement the policies[84]. Each proposed policy or method (including each rule) is to be examined, having regard to its efficiency and effectiveness, as to whether it is the most appropriate method for achieving the objectives[85] of the district plan (or of the plan change if that introduces any), taking into account[86] (relevantly):

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82 PC30 became operative on 5 June 2012.

83 Section 32(3) (emphasis added), as it was until 2 December 2013. Section 32 as quoted was replaced with a new section by section 70 of the Resource Management Act Amendment Act 2013.

84 Section 75(1)(b) and (c) of the Act (also section 76(1)).

85 Section 32(3)(b) of the Act.

86 Section 32(4) of the RMA.

> (a) the benefits and costs of the proposed policies rules or other methods; and
> (b) the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the policies, rules, or other methods; …

On an appeal[87] about a plan change, the Environment Court has the same duty[88] that the territorial authority has to evaluate the plan change under section 32.

[53] In *EDS v NZ King Salmon*[89] the only statement by the Supreme Court about section 32 of the RMA is rather gnomic. Arnold J simply quoted part of section 32(3) and then turned to the NZCPS (2010) stating[90]:

> Given the central role played by the NZCPS in the statutory framework, and because no party has challenged it, we will proceed on the basis that the NZCPS conforms with the RMA's requirements, and with pt 2 in particular. Consistently with s 32(3), we will treat its objectives as being the most appropriate way to achieve the purpose of the RMA and its policies as the most appropriate way to achieve its objectives.

[54] In this case we are not concerned with the application of a higher order instrument but with testing PC45's lower order objectives and policies for their efficiency and effectiveness at implementing the district-wide objectives and policies of the district plan. Of more assistance on our role under section 32 is the decision of the High Court in *Rational Transport Soc Inc v New Zealand Transport Agency*[91]. The High Court stated[92]:

> Section 32 requires a value judgment as to what on balance, is the most appropriate, when measured against the relevant objectives. "Appropriate" means suitable, and there is no need to place any gloss upon that word by incorporating that it be superior. Further, the Freshwater Plan does not only have stream protection as a sole object; …
>
> As to Mr Bennion's argument that s 32(3)(b) mandated that "each objective" had to be the "most appropriate way" to achieve the Act's purpose; i.e. it was an error to look at the combined

87 Under clause 14 of the First Schedule to the RMA.
88 Section 290(1) RMA.
89 *EDS v NZ King Salmon* (supra footnote 1) (SC).
90 *EDS v NZ King Salmon* (supra footnote 1) (SC) at [33].
91 *Rational Transport Soc Inc v New Zealand Transport Agency* [2012] NZRMA 298.
92 *Rational Transport Soc Inc v New Zealand Transport Agency* [2012] NZRMA 298 (HC) at paras 45 and 46.

> objectives; I do not agree that the Board is to be constrained in that way. It is required to *examine* each, and every, objective in its process of evaluation - that may, depending on the circumstances result in more than one objective having different, and overlapping, ways of achieving sustainable management of natural and physical resources (the purpose of the Act). But objectives cannot be looked at in isolation, because "the extent" of each may depend upon inter relationships …

[55] On that basis the evaluation under section 32(3) and (4) will be of the change as a whole, even if — as PC45 does — the plan change contains its own proposed "purpose" and, especially, objectives. Those must initially be taken as subordinate "policies" unless it is quite clear that either the operative district plan does not contemplate any plan changes and/or the plan change shows that it is designed to add to the operative district plan. The complications just identified in the previous sentence do not arise strongly in these proceedings because, as we shall see, the operative district plan contemplates residential rezonings, and PC45 is designed to fit within the QLDP notwithstanding that it purports to introduce new objectives. We should examine PC45 as if it is a policy change to the operative district plan.

3. What are the relevant objectives and policies to be considered?

3.1 The scheme of the plan

[56] The scheme of the QLDP is complex, especially on the subject of urban growth. Oversimplifying slightly, the plan has two broad tiers of objectives and policies — district-wide, and specific to subjects or areas. Those objectives and their policies and rules are contained in Volume 1A[93]. The 20 Chapters, with those most relevant to this proceeding in bold, are:

1. **Introduction**
2. Information …
3. **Sustainable Management**
4. **District Wide Issues**
5. Rural Areas
6. Queenstown Airport Mixed-Use Zone
7. **Residential Areas**

[93] Volume 1B contains the planning maps.

8. Rural Living Areas
9. Townships
10. Town Centres
11. Business and Industrial Areas
12. **Special Zones**
13. Heritage
14. Transport
15. **Subdivision Development ...**
16. Hazardous Substances
17. Utilities
18. Signs
19. Relocated Buildings ... and Temporary Activities
20. Open Space Zone-Landscape Protection.

We note that the different parts of the plan are called "sections" in the QLDP but to avoid confusion with parts and sections in the RMA we will call them "Chapters".

Sustainable management

[57] Chapter 3 contemplates[94] an enabling approach to development[95] and contains four basic aspirations of which two are anthropocentric and therefore particularly relevant here: enabling people's social, economic and health concerns to be met and allowing individuals and communities to provide for their well being[96].

District wide issues

[58] The principal, but not the only, higher order district-wide objectives and policies in the district plan are in Chapter 4. Chapter 4.2 of the district plan contains district-wide objectives and policies about the landscapes and visual amenities of the district. Objective (4.2.5) 1 seeks that subdivision, use and development in the district is undertaken in a manner which avoids, remedies or mitigates adverse effects on landscape and visual amenity values[97]. These include policies to discourage urban development in the outstanding natural landscapes and visual amenity landscapes of the

94 Chapters 1 and 2 are introductory.
95 Para 3.4 [Queenstown Lakes District Council Plan p 3-2].
96 Para 3.6 [Queenstown Lakes District Council Plan p 3-4].
97 Objective (4.2.5) 1 [Queenstown Lakes District Council Plan p 4-9].

district[98], and to avoid sprawling development and subdivision along roads[99]. There is a related policy[100] which seeks clear identification of extensions to urban areas by "design solutions to avoid sprawling development along the roads of the district". The open space and recreation policies require provision of open space and recreation reserves[101].

[59] The energy efficiency objective[102] in Chapter 4.5 has policies promoting "compact urban forms which reduce the length of and need for vehicle trips"[103] and the "compact location" of community, commercial, service and industrial activities, reduction of "the length of and need for vehicle trips"[104], and encouraging sufficiently large residential sites to enable solar energy to be generated for heating[105]. Other relevant objectives and policies relate to natural hazards[106].

[60] Chapter 4.9 on urban growth was the subject of a good deal of evidence and lengthy submissions so we outline its provisions and the arguments raised, in the next subpart of this decision.

[61] More recently the Council has identified a need for "affordable housing" and introduced a plan change ("PC24") to assist in its provision. The definition of that term is not provided, but from the context it appears to refer to relatively inexpensive housing for "low and moderate income households". Chapter 4.10 of the district plan — Affordable and Community Housing[107] — provides this objective[108]:

> Objective 1 Access to Community Housing or the provision of a range of Residential Activity that contributes to housing affordability in the District.

[62] The implementing policies are[109]:

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98 Policy (4.2.5) 6(a) [Queenstown Lakes District Council Plan p 4-11].
99 Policy (4.2.5) 6(c) [Queenstown Lakes District Council Plan p 4-11].
100 Policy (4.2.5) 7 [Queenstown Lakes District Council Plan p 4-11].
101 Objective (4.4) 1.1 [Queenstown Lakes District Council Plan p 4-24].
102 Objective (4.5.3) 1 [Queenstown Lakes District Council Plan p 4-29].
103 Policy (4.5.3) 1.2 [Queenstown Lakes District Council Plan p 4-29].
104 Policy (4.5.3) 1.3 [Queenstown Lakes District Council Plan p 4-29].
105 Policy (4.5.3) 1.3 [Queenstown Lakes District Council Plan p 4-29].
106 Objective (4.8.3) 1 [Queenstown Lakes District Council Plan p 4-49].
107 Added by Environment Court consent order dated 17 July 2013 in *Infinity Investment GH Ltd v Queenstown Lakes District Council* (ENV-2009-CHC-46).
108 Objective (4.10.1) 1 [Queenstown Lakes District Council Plan p 4-59].
109 Policies (4.10.1) 1.1 to 1.3 [Queenstown Lakes District Council Plan p 4-59].

1.1 To provide opportunities for low and moderate income Households to live in the District in a range of accommodation appropriate for their needs.

1.2 To have regard to the extent to which density, height, or building coverage contributes to Residential Activity affordability.

1.3 To enable the delivery of Community Housing through voluntary Retention Mechanisms.

Residential areas (Chapter 7)

[63] Chapter 7 is concerned with residential and proposed residential areas (not merely zones) and so, if applicable – and AWI belatedly challenged this in its closing submissions – it is relevant. We outline its relevant provisions in part 3.3 below.

Special zones (Chapter 12)

[64] The final particularly relevant chapter is Chapter 12 of the QLDP, since that is the proposed home for the Northlake Zone's provisions. Chapter 12 — Special Zones — is introduced with the statement that[110]: "There are areas within the district, which require Special Zones." Residential zones are expressly included. PC45 is designed to be such a special "residential" zone in Chapter 12. It proposes its own suite of objectives, policies and rules.

[65] PC45 also suggests some consequential changes to rules in Chapters 14 (Transport) and 15 (Subdivision) of the operative district plan.

3.2 Subchapter 4.9: urban growth

[66] Subchapter 4.9 manages urban growth within the district. Of the eight urban growth objectives in Chapter 4.9, five are relevant (another relates to visitor accommodation[111] and the remaining two are site specific[112]). It is useful to see the relevant objectives together. They are:

> Objective 1 - Natural Environment and Landscape Values
>
> Growth and development consistent with the maintenance of the quality of the natural environment and landscape values.

110 Para 12 Introduction [Queenstown Lakes District Council Plan p 12-1].

111 Objective (7.9.3) 5 [Queenstown Lakes District Council Plan p 4-56].

112 Relating to Frankton Flats [Objective (4.9.3) 6] and the Wanaka Airport [Objective (4.9.3) 8] respectively.

Objective 2 - Existing Urban Areas and Communities

Urban growth which has regard for the built character and amenity values of the existing urban areas and enables people and communities to provide for their social, cultural and economic well being.

Objective 3 - Residential Growth

Provision for residential growth sufficient to meet the District's needs.

Objective 4 - Business Activity and Growth

A pattern of land use which promotes a close relationship and good access between living, working and leisure environments.

Objective 7 - Sustainable Management of Development

The scale and distribution of urban development is effectively managed.

[67] Two of the objectives — 3 and 7 — on urban growth in Chapter 4.9.3 are formulaic: they give decision makers directions about which dimensions of growth should be managed but not how. Objective 3 is to provide for "residential growth sufficient to meet the District's needs" and Objective 7 is to manage effectively the "scale and distribution" of that growth. (We agree with Mr Goldsmith and Mr Serjeant[113] that "scale" seems to refer to the volume of growth and "distribution" to its location). The words "sufficient" and "needs" in Objective 3 are not so straightforward.

Objective 3 Residential Growth

[68] There was considerable uncertainty at the hearing and submissions afterwards as to the meaning of "sufficient". Mr Goldsmith submitted for Northlake that it is a minimum. "Sufficient" is defined in The Shorter Oxford English Dictionary[114] as meaning "of a quantity, extent or scope adequate to a certain purpose or object". We consider that when "sufficient" is used without "necessary" — as in "necessary and sufficient" — then it is close to but something less than a maximum. Counsel for AWI submitted that the goal is to accommodate urban growth through "policies of consolidation"[115]. We pause to note that consolidation in the QLDP is directed at the

113 Transcript p 278-279.

114 The Shorter Oxford English Dictionary (Third Edition, 1985 OUP) page 2180.

115 AWI's closing submissions para 64 [Environment Court document 35].

distinction between urban and rural growth, and is rather different from the related concept of compactness (which is also important under the plan especially under the Energy objective discussed above). Counsel continued that "the use of the word sufficient" anticipated control over the scale and timing of urban growth. We accept that loose control is anticipated — but not more than that because of the enabling aspirations in the plan (Chapter 3) and in the implementing policies. So we accept the submission of counsel for AWI that the objective requires provision "for adequate residential growth".

[69] As for the "needs" referred to in Objective (4.9.3) 3, AWI took, with respect, a rather reductive position arguing in effect that the relevant needs are for zoned housing sections. For Northlake, Mr Goldsmith submitted that the needs are identified at length in other district-wide objectives. We consider that neither is fully correct, although Mr Goldsmith is closer: the needs are identified in objectives but also in policies and explanations. We will collate and summarise these later since the question of the community's "needs" arises repeatedly.

Objective 7 Sustainable Management of Development

[70] Objective (4.9.3) 7 and its policies were amended[116] by plan change 30, which became operative on 13 June 2012[117]. Because this objective and its policies were central to the appellant's case, we set them out in full[118]:

> Objective 7 Sustainable Management of Development
>
> The scale and distribution of urban development is effectively managed
>
> Policies:
>
> 7.1 To enable urban development to be maintained in a way and at a rate that meets the identified needs of the community at the same time as maintaining the life supporting capacity of air, water, soil and ecosystems and avoiding, remedying or mitigating any adverse effects on the environment.
>
> 7.2 To provide for the majority of urban development to be concentrated at the two urban centres of Queenstown and Wanaka.

116 Objectives (4.9.3) 5 and 6, respectively relating to Visitor Accommodation and the Frankton Flats (in the Wakatipu Basin), are irrelevant to this proceeding.

117 We note that PC29 supplied further policies to Objective (4.9.3) 7 which became operative on 21 May 2015. However, they are irrelevant because they relate to Arrowtown.

118 Objective (4.9.3) 7 [Queenstown Lakes District Council Plan p 4-57].

7.3 To enable the use of Urban Growth Boundaries to establish distinct and defendable urban edges in order to maintain a long term distinct division between urban and rural areas.

7.4 To include land within an Urban Growth Boundary where appropriate to provide for and contain existing and future urban development, recognising that an Urban Growth Boundary has a different function from a zone boundary.

7.5 To avoid sporadic and/or ad hoc urban development in the rural area generally. To strongly discourage urban extensions in the rural areas beyond the Urban Growth Boundaries.

7.6 To take account of the following matters when defining an Urban Growth Boundary through a plan change:

7.6.1 Part 4 district-wide objectives and policies

7.6.2 The avoidance or mitigation where appropriate of any natural hazard, contaminated land or the disruption of existing infrastructure.

7.6.3 The avoidance of significant adverse effects on the landscape, the lakes and the rivers of the district.

7.6.4 The efficient use of infrastructure, including transport infrastructure, and its capacity to accommodate growth.

7.6.5 Any potential reverse sensitivity issues, particularly those relating to established activities in the rural area.

7.7 To ensure that any rural land within an urban growth boundary is used efficiently and that any interim, partial or piecemeal development of that land does not compromise its eventual integration into that settlement.

7.8 To recognise existing land use patterns, natural features, the landscape and heritage values of the District and the receiving environment to inform the location of Urban Growth Boundaries.

[71] The Implementation Methods are[119]:

Objective 7 and associated policies will be implemented through a number of methods:

i District Plan Methods

Through plan changes that identify Urban Growth Boundaries within which effective urban design is encouraged.

119 Queenstown Lakes District Council Plan p 4-57.

ii Other Methods Outside the District Plan

(a) Confining the provision of new public urban infrastructural services exclusively to urban areas.

(b) Monitoring of land availability, development trends and projecting future growth needs.

(c) The use of Structure Plans to implement or stage development growth areas.

(d) Community Plans to identify local characteristics and aspirations.

(e) Studies and management strategies.

[72] AWI put a great deal of weight on Objective (4.9.3) 7 and its implementing policies. Its case included two legal arguments which we should consider here. The first was a jurisdictional argument that in the absence of an UGB the court could not even consider PC45; the second was an argument that PC30 imposed a gate which proposed PC45 could not pass: unless there is evidence identifying needs for sections or zoned land in Wanaka, PC45 cannot pass "Go". Mr D F Sergeant accepted[120] that was his position when cross-examined by Mr Goldsmith.

[73] There were two main threads to the jurisdictional argument raised by counsel for AWI. First they referred to the direction of Policy (4.9.3) 7.5 which "strongly discourages" urban growth in the absence of or outside an UGB. Counsel for AWI submitted this raised a jurisdictional bar: because there is no UGB for Wanaka PC45 could not succeed. We hold that is incorrect, since it effectively reads the relevant part of Policy 7.5 as "To avoid (or prohibit) urban extension in the rural areas …". A policy 'to strongly discourage' is close to but is not a directory policy as was the 'avoidance' policy in the NZCPS — the subject of the Supreme Court's decision in *EDS v NZ King Salmon*[121]. A discouragement policy — even when a strong one — still permits an applicant to request a plan change. While it is unfortunate that Northlake did not put forward a proposed UGB as part of PC45, the absence of an UGB is not fatal. The district plan expressly recognises that an UGB has "… a different function from a zone boundary"[122].

120 Transcript p 237 line 14.

121 *EDS v NZ King Salmon* (supra footnote 1) (SC).

122 Policy (4.9.3) 7.4 [Queenstown Lakes District Council Plan p 4-57].

[74] Second, counsel submitted that "absent … an [UGB], … provision for new urban zoned land within Wanaka does not find support in Part 4.9 of the Plan"[123]. They asked "how the court could know which policies apply until it knows where the UGB is"? Counsel compared this case with *Monk v Queenstown Lakes District Council Ltd*[124] ("*Monk*") where the court would not resolve a rezoning until it established where the UGB should be for Arrowtown. We find that there are quite large differences between this case and the Arrowtown situation before the court in *Monk*. Here PC45 is designed to fit within the district plan as part of Chapter 12. In the Arrowtown situation there were two plan changes before the court:

- PC29 which (rather confusingly) was a Council change adding some further (Arrowtown specific) policies to Objective (4.9.3) 7 as already amended by PC30; and
- PC39 which was a private plan change in respect of rural land immediately south of Arrowtown.

[75] In the Arrowtown situation the court decided that PC29 should be resolved first and did so — see *Monk v Queenstown Lakes District Council*[125] — and only then resolved the appeals on PC39 in *Cook Adams Trustees Ltd v Queenstown Lakes District Council*[126]. Among other important distinguishing factors between the Arrowtown and Northlake situations, is that PC30 sought to introduce both specific "district-wide" policies to implement Objective (4.9.3) 7 in relation to Arrowtown and an UGB for Arrowtown. Clearly, the wording of the policies had to be resolved and the UGB established before any rezoning under the later PC39 could be decided upon.

[76] If the Council had notified its PC20 (proposing an UGB for Wanaka) then the situation might have been different. However it did not. Nor is it correct that we cannot know what policies apply to PC45: very few substantive policies in the district plan (none in Chapter 7 and few in Chapter 4) contain references to urban growth boundaries, so there is a plethora of guidance in the District Plan. Further, as we shall see, there is

123 AWI's submissions dated 24 April 2015 para 6 [Environment Court document 35].
124 *Monk v Queenstown Lakes District Council Ltd* [2013] NZEnvC 12.
125 *Monk v Queenstown Lakes District Council* [2013] NZRMA 12.
126 *Cook Adams Trustees Ltd v Queenstown Lakes District Council* [2014] NZRMA 117.

some guidance about a proposed UGB in the vicinity of the site in the Wanaka Structure Plan.

[77] Turning to the application of Objective (4.9.3) 7, it is, as we have already observed, substantively empty. It is a formula requiring "effective" management of the scale and location of urban development, but what is to be achieved by that is left open by the objective itself. We hold that this objective is mechanistic — it is aimed at managing the scale and location of development so as to achieve the other district-wide objectives for urban growth in Chapter 4.9. Its implementing policies should be read in that light. Policy (4.9.3) 7.1 largely repeats earlier objectives[127]. Policies (4.9.3) 7.3[128] and 7.4 together with 7.6 and 7.8 provide a mini-scheme for the identification of Urban Growth Boundaries (now a defined term in the QLDP). Lastly, Policy (4.9.3) 7.7 is a transitional provision which we will refer to later when assessing the risks of the options open to us.

What housing related needs are identified in Chapter 4?

[78] The three relevant substantive objectives in Chapter 4.9 identify some of the needs to be satisfied:

(1) the first need identified in Chapter 4.9 of the district plan is to enable people and communities to provide for their social, cultural and economic wellbeing (Objective (4.9.3) 2). That is obviously a primary set of needs because it reflects section 5(2) of the RMA. We note too that the objective suggests any management of that need is obliged to be relatively light-handed and flexible because the district plan is not "... to provide for people's wellbeing" but to enable people and communities to provide for their own.

(2) the second need is [Objective (4.9.3) 1] to provide for urban growth and development consistent with the quality of the natural environment and landscape values. New Zealand citizens generally, and Queenstown Lakes residents in particular, are fortunate that their basic needs are (with a few

127 Specifically Objective (4.9.3) 3 (residential growth sufficient to meet the District's needs) and Objective (4.2.1) (adverse effects on landscape and visual amenity values).

128 This policy is not easy to understand: it has an enabling aspect (*Monk* [2013] NZEnvC 12 at [90]) and a restrictive component (*Monk* at [26]).

exceptions) well provided for and they have the fortunate need to protect their landscape values.

(3) the third need in Chapter 4.9 is to promote (again a non-prescriptive word) a close relationship and good access between living, working and recreation.

(4) we also note that other needs are set out in the objectives in Chapter 4.1 to 4.8 and 4.10 of the district plan and we summarised those very briefly earlier.

[79] The introduction to the "Issues" for urban growth states that "it is not possible to be precise about the level of growth to be planned for"[129] and then the statements of issues, policies and explanations elaborates on these needs:

- to have "the lifestyle preferences of the District's present and future population"[130] provided for;
- to manage the identity, cohesion and wellbeing of existing communities[131];
- "... enabl[ing] people and communities to provide for their .... wellbeing"[132] including "... commonality of aspirations, outlook, purpose and interests"[133].

Mr Goldsmith cross-examined Mr Sergeant at some length on these and other provisions in the district plan relating to needs, obtaining a concession in respect of each "need" and the provision relating to it that there was "no sense of limitation[134]" in any of them.

[80] We conclude that Chapter 4 and in particular subchapter 4.9 in the district plan are not strongly "interventionist"[135] about urban extensions or, at least, not as strongly as AWI suggests they are. That is because:

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129 4.9.2 Issues [Queenstown Lakes District Council Plan p 4-52].
130 Issue 4.9.2 (b) [Queenstown Lakes District Council Plan p 4-52].
131 Issue 4.9.2 (c) [Queenstown Lakes District Council Plan p 4-52].
132 Objective (4.9.3) 2 [Queenstown Lakes District Council Plan p 4-53].
133 Explanation to Objective (4.9.3) 2 [Queenstown Lakes District Council Plan p 4-54].
134 Specifically at Transcript p 268 lines 25 to 28 but more generally pp 264 to 273.
135 Submissions for AWI dated 24 April 2015 para 56 [Environment Court document 35].

(1) the objectives in Chapter 4 and their implementing policies have consistent themes of enabling opportunities for a complete range of urban and residential needs and aspirations;

(2) the quantity (scale) of urban development to be enabled (not "set") can only be quantified in very loose terms and in areas rather than in notional allotments, at least when considering a plan change;

(3) in essence the point of Policy (4.9.3) 7.1 is to enable urban development by using one of the implementation methods appropriately — either as residential or as special zones — so that landowners and developers are able to subdivide and develop their land at rates and in locations which meet the multifarious needs of the community (while meeting the bottom lines).

[81] We see only a general requirement for a requestor for a plan change to demonstrate that there is a shortfall in the current rate and quantity supplied of these needs precisely because of their broad and varied nature. In any event the question whether Policy (4.9.3) 7.1 is implemented is a matter of facts, predictions and opinion in specific contexts not simply a question of law. So in relation to the second legal argument[136] raised for AWI about Objective (4.9.3) 1, we hold that it is incorrect that the policy imposes with any precision a threshold as to the rate or scale of development which must be passed by a plan change.

3.3 The objectives and policies for residential areas (Chapter 7 of the district plan)

District-wide provisions

[82] Chapter 7 (Residential areas) of the district plan expressly includes further "district-wide" residential objectives and policies[137]. The first three of the four district-wide residential objectives — relating to availability of land, residential form and residential amenity respectively — are relevant. The first (Chapter 7) objective[138] — availability of land — is to provide sufficient i.e. adequate land to provide a diverse range of residential opportunities. It is important to understand what the plan requires a

136 See para [72] above.

137 Heading 7.1.2: District Wide Residential Objectives and Policies [Queenstown Lakes District Council Plan p 7-3].

138 Objective (7.1.2) 1 [Queenstown Lakes District Council Plan p 7 -3].

sufficiency of. In this more detailed objective it is an adequate supply of land to provide for a diverse range of residential opportunities.

[83] The first implementing policy is[139] "to zone sufficient land to satisfy demand for anticipated residential (and visitor) accommodation". The district plan appears to be intending to use the language of economics here. It does not do so very clearly. The only straightforward meaning to be taken from the policy in its context is that the Council seeks to zone sufficient land to satisfy the quantities of different types of sections/houses demanded by the various submarkets in housing. Most sections or houses are not ready substitute goods for others — that is why specific performance is a remedy for breach of contract in relation to land. So to satisfy demand requires identification of the demand relationships (curves) between the quantity demanded and the price per section for the residential allotment market of the District as a whole and for submarkets within and around Wanaka in particular. That would involve consideration of the type, characteristics and quantity of allotments demanded and of the factors that cause shifts in demand (and in supply). To zone an adequate (or sufficient) area of land requires far more than summation of the number of potential allotments.

[84] New residential areas are to be enabled[140] but in areas which "... have primary regard to the protection and enhancement of the landscape amenity"[141] and to assist that, a distinction is to be maintained between urban and rural areas.

[85] Compact growth is to be "promoted"[142], which leads to the second (Chapter 7) district-wide residential objective[143] (residential form). That focuses on compact "residential form" as distinguished from the rural environment. "Compact" here is a relative term: it is used to distinguish the consolidated urban environments from rural areas. Its first two policies are complementary. Policy (7.1.2) 2.1 seeks to limit peripheral, residential expansion[144]. Policy (7.1.2) 2.2 is to limit the spread of rural living and township areas, and to manage that expansion having regard to "the important district-wide objectives" (presumably those in Chapter 4). A further policy requires

139 Policy (7.1.2) 1.1 [Queenstown Lakes District Council Plan p 7-3].
140 Policy (7.1.2) 1.2 [Queenstown Lakes District Council Plan p 7-3].
141 Policy (7.1.2) 1.2 [Queenstown Lakes District Council p 7-3].
142 Policy (7.1.2) 1.3 [Queenstown Lakes District Council Plan p 7-3].
143 Objective (7.1.2) 2 [Queenstown Lakes District Council Plan p 7-4].
144 Policy (7.1.2) 2.1 [Queenstown Lakes District Council Plan p 7-4].

development forms to provide for increased residential density[145], at least in new residential areas, and "careful use of topography"[146]. We consider that the relevant policies for this proceeding are Policies (7.1.2) 2.1 and 2.4 since this proceeding is about the outward spread of existing residential areas, rather than about townships or rural living areas.

[86] The third objective — residential amenity — is to provide "pleasant living environments within which adverse effects are minimised while still providing the opportunity for community needs [to be satisfied]"[147]. Again the implementing policies appear to be relevant, so we will discuss them later.

Residential objectives and policies for Wanaka

[87] Moving down a tier in the internal hierarchy of objectives and policies, Chapter 7.3 of the district plan recognises the town of Wanaka as the second largest residential area in the district[148]. There is one relevant specific objective for Wanaka[149]:

> 1. Residential and visitor accommodation development of a scale, density and character within sub zones that are separately identifiable by such characteristics as location, topology, geology, access, sunlight or views.

In that objective, the phrase "... scale, density and character" is left hanging. In our view it generally refers back to the first three district-wide objectives in Chapter 7 which, it will be recalled, relate to availability of land, residential form and residential amenity respectively.

[88] The most relevant implementing policies are to provide[150] for some peripheral expansion of existing residential areas in Wanaka (and Albert Town), while retaining their consolidated form, and to organise[151] residential development around

145 Policy (7.1.2) 2.4 [Queenstown Lakes District Council Plan p 7-4].
146 Policy (7.1.2) 2.4 [Queenstown Lakes District Council Plan p 7-4].
147 Objective (7.1.2) 3 [Queenstown Lakes District Council Plan p 7-4 and 7-5]. The words in square brackets must be implied.
148 Para 7.3.1 [Queenstown Lakes District Council Plan p 7-13].
149 Objective (7.3.3) 1 - 4 [Queenstown Lakes District Council Plan p 7-13].
150 Policy (7.3.3) 1 [Queenstown Lakes District Council Plan p 7-14].
151 Policy (7.3.3) 4 [Queenstown Lakes District Council Plan p 7-14].

neighbourhoods separate from areas of predominantly visitor accommodation development.

3.4 Summary

What are the most relevant objectives and policies for PC45?

[89] The urban growth objectives of the district plan are, as observed by Mr Serjeant, rather confusingly found in several places within the district plan. We hold that there are three levels of substantive policy about such development. From the general to the specific they are:

1. district-wide objectives and policies in Parts 4.2, 4.4, 4.5 and 4.9 of the district plan;
2. the "district-wide" residential areas objectives and policies in Chapter 7.1;
3. the Wanaka provisions in Part 7.3.

In resolving which are the most relevant policies we must approach the operative district plan as a coherent whole: *J Rattray and Sons Ltd v Christchurch City Council*[152] per Woodhouse J. We must also avoid the trap of "... conclud[ing] too readily that there is a conflict between particular policies and prefer one over another, rather than making a thorough ... attempt to find a way to reconcile them" as Arnold J stated in *EDS v NZ King Salmon*[153]. On the other hand, later more specific objectives and policies should be applied rather than earlier more general ones (that is the "particularisation" approach working within a district plan) if that is what the scheme of the plan suggests.

[90] We hold that the most particular and therefore the most relevant objectives and policies and therefore those under which PC45 must be considered are:

(1) the Wanaka provisions in Chapter 7.3 and (to the extent they are limited or uncertain);
(2) the district wide objectives and policies in Chapter 7.1.

152 *J Rattray and Sons Ltd v Christchurch City Council* (1984) 10 NZTPA 59 (CA) at 61.
153 *EDS v NZ King Salmon* (supra footnote 1) (SC) at [131].

[91] In the situation before us it is arguable that the QLDP does not require us to look at any of the more general district wide objectives and policies in Chapter 4 generally (except where Chapter 7 contains a direction to go to Chapter 4 or is deficient). However, we should recognise that in fact many of the relevant (amended) provisions in Chapter 4.9 came into force over 10 years later than Chapter 7, so there is some uncertainty over whether Chapter 7 truly carries out the intentions of Chapter 4.9. Further, Chapter 4.10 certainly post-dates Chapter 7. We will therefore consider Chapter 4.9 and 4.10 as part of our analysis. In effect that brings in much of the relevant parts of Chapter 4.

[92] We discuss the extent to which PC45 is effective in implementing the objectives and policies of the QLDP from the bottom up i.e. under Chapter 7 first (part 4 of this decision) and then under Chapter 4 QLDP (part 6 of this decision). In between we consider the urban design evidence (in part 5) separately because much of the urban design evidence lacked grounding references to the district plan.

4. How effective is PC45 in implementing Chapter 7 of the QLDP?

4.1 Where should urban development occur at Wanaka (and on the site)?

[93] The most specific relevant provisions in the QLDP are in Chapter 7 and they expressly encourage[154] some peripheral urban growth at Wanaka (town). The district-wide policies in Chapter 7 also look at where urban development should be in two ways, first by considering the potential adverse effects of urban development on landscape and rural values; and second by examining potential adverse effects of sprawl on urban amenities. The first looks out into the superb country sides of the district, the second back into nearby residential development.

[94] As to the first, residential growth is to be enabled in areas which have "primary regard to the protection and enhancement of the landscape amenity"[155] and is to maintain a distinction between urban areas and rural areas to assist protection of the quality of the surrounding environment[156]. There was little suggestion in AWI's

154 Policy (7.3.1) 1 [Queenstown Lakes District Council Plan p 7-14].
155 Policy (7.1.2) 1.4 [Queenstown Lakes District Council Plan p 7-3].
156 Policy (7.1.2) 1.5 [Queenstown Lakes District Council Plan p 7-3].

evidence that these policies would not be implemented, and we are satisfied by Northlake's that they would be.

[95] As to the second — the effect of urban development — there is a range of implementing policies as to where development should occur. They are:

- to promote compact residential development[157];
- to contain the outward spread of residential areas and to limit peripheral expansion[158];
- to provide for increased residential density and "careful use of the topography"[159].

In Mr Edmond's opinion[160], Northlake's zone maintains the compact form of Wanaka. At first sight that is plausible. The outward spread of residential areas is clearly limited by (ultimately) the Clutha River and, to the south of that, the ONL line agreed by the landscape experts. For AWI Mr Munro gave a detailed analysis of why, in his opinion, PC45 does not achieve compact development. We examine that evidence under *Urban design* below because he tends to use "compactness" in a more general way than the district plan often does. We record that otherwise there was little or no specific criticism by the witnesses of Northlake's use of the topography of the site when setting out the Activity Areas.

4.2 How much development (if any) on the Northlake land?

[96] The relevant specific Wanaka objective[161] is poorly worded, and leaves open the "scale" of residential development, so that the district-wide objectives in Chapter 7 need to be referred to. The relevant district-wide objective[162] is to provide "sufficient land … for a diverse range of residential opportunities for the District's present and future urban populations"; and the implementing policy is "to zone sufficient land to satisfy … anticipated residential demand"[163].

157 Policy (7.1.2) 1.3 [Queenstown Lakes District Council Plan p 7-3].
158 Policy (7.1.2) 2.1 [Queenstown Lakes District Council Plan p 7-4].
159 Policy (7.1.2) 2.4 [Queenstown Lakes District Council Plan p 7-4].
160 J B Edmonds evidence-in-chief para 6.8.16 [Environment Court document 14].
161 Objective (7.3.3) 1 [Queenstown Lakes District Council Plan p 7-13].
162 Objective (7.1.2) 1 [Queenstown Lakes District Council Plan p 7-3].
163 Policy (7.1.2) 1.1 [Queenstown Lakes District Council Plan p 7-3].

[97] The direct evidence-in-chief for Northlake on this was very brief and not very helpful. Mr Edmonds wrote[164]:

> I note that both the objective and Policy 2.1 use the term 'sufficient land', which I interpret to mean that the Council should always maintain an over-supply of appropriately zoned land. This objective looks at providing for both current as well as future generations, consistent with Section 5. I do not consider that there is a good resource management reason to limit or stage the supply of residential zoned land in this particular case.

That may be, as we shall see, nearly correct — except we would not use the term "over-supply"[165] — but in view of the Council's section 42A report (produced by Ms Jones) and Mr Munro's 2013 report Mr Edmonds should have expanded on his reasons for this.

[98] Much of AWI's evidence is relevant to the question of whether PC45 implements what we hold to be the applicable policies in Chapter 7.1. First Mr Munro gave evidence that there is already sufficient land zoned residential to satisfy future demand. Second, in his opinion, if more houses are needed, there are better areas around Wanaka to zone for them. On the first point Mr Munro wrote[166]:

> If PC45 proceeded and accommodated 1,520 units ... over the next 20 years this may lead to remaining zoned areas in Wanaka achieving as little as 14% uptake in that period. That is not effective or efficient for those zoned areas, and would not achieve what I could describe as a "compact" outcome for Wanaka. I could not support it in urban design terms.

Identifying the demand for sections (of different types)

[99] One difficulty with Policy (7.1.2) 1.1 is that it tends to suggest that there is a single residential demand for "accommodation". Mr Meehan gave evidence of demand for different housing types in both the Wakatipu Basin and in the Northlake area[167]. In the absence of evidence to the contrary, we accept that evidence. There may very likely be demands for different quantities of apartments, small households, holiday homes, houses for low income households, middle income households, and wealthy households

164 J B Edmonds evidence-in-chief para 6.8.15 [Environment Court document 14].
165 An "over-supply" simply tends to cause prices to drop (causing a movement in the quantity demanded) which most consumers in NZ would think is desirable.
166 I C Munro evidence-in-chief para 2.5 [Environment Court document 17].
167 C S Meehan evidence-in-chief and rebuttal [Environment Court documents 7 and 7A].

etc. Further, each of the markets for those different (and other) types of households may be segmented further depending on the desires of the aspiring owners in relation to location, views, topography and other factors. The list of "needs" we have identified in the QLDP shows that it is alive to these complexities.

[100] Despite the criticism of Mr Meehan's subjectivity we find his evidence, read with that of Northlake's other witnesses, shows that Northlake would supply a range of different section types and houses which are not currently (on the evidence before us) for sale in any quantity at Wanaka. The areas in Meadowstone Drive and West Meadows Drive in the south-west of Wanaka may provide similar sections but we had no evidence as to the specific quantities actually on the market.

[101] In contrast we have doubts about the Council's 2013 model relied on by AWI's witnesses. That starts by purporting to "... identify a 2011-2031 twenty year demand for houses and holiday homes of 2,302"[168]. Then in his 2013 report Mr Munro stated[169]:

> The Council's model identifies that there is current capacity for 5,686 units in the Wanaka CAU, more than sufficient to meet this .... demand.

We note that, unlike the QLDP, the 2013 model is using economic language loosely. It uses "demand" when the context shows it is attempting to predict the quantity of (general, undifferentiated) units demanded.

[102] Mr Munro showed that he was aware of the submarket's identification problem — not treating all allotments (ice creams)[170] as if they are the same (vanilla), when there are in his view at least two different section types (vanilla and chocolate) — when he continued[171]:

> Even if a reduced supply of land for units broadly "comparable" to those proposed in PC45 of 50% total capacity is used (2,843 units), there is still sufficient capacity to fully accommodate predicted growth without the need for any up zoning of the PC45 land at all.

168 I C Munro evidence-in-chief Appendix 2 para 4.30 [Environment Court document 17].
169 I C Munro evidence-in-chief Appendix 2 para 4.31 [Environment Court document 17].
170 The reason for the metaphor will become apparent shortly.
171 I C Munro evidence-in-chief Appendix 2 para 4.31 [Environment Court document 17].

However, no basis was given by Mr Munro for his proposition that 50% of the available zoned "units" are similar to those in PC45. Indeed even within the PC45 site, not all areas are proposed to have the same housing typology — to the contrary, as we described in part 1 of this decision.

[103] Ms Jones referred to the Council's Special Housing Accord (October 2014), which states that[172]:

> In this Accord, the targets are focuses on the Wakatipu Basin, given its strong projected population and employment growth over the life of the Accord, together with the fact that land supply constraints are significantly greater than in the Upper Clutha.

She relied on that as supporting her opinion that there is "no hard evidence presented that … Wanaka is suffering from a constrained residential land supply …"[173]. With respect to Ms Jones, the Council's document does imply that there are land constraints in the Upper Clutha. Its point is only that those constraints are "significantly" lesser around Wanaka than they are in the Wakatipu Basin.

[104] Further, there is an air of unreality about AWI's evidence. Almost[174] all zones which restrict housing cause constraints in the quantity supplied — usually for a good resource management reason. In this district it is to protect outstanding natural landscapes and features and visual amenities. Elsewhere and more controversially they are used as de facto congestion controls since local authorities do not have the powers to impose congestion charges. Planners and urban designers are generally incorrect to suggest there is no evidence of constraints when zoning structures tend automatically to impose constraints on the quantity of houses that can be supplied (and that of course affects prices and hence affordability). However, we put no weight on the matters raised in this paragraph because they were not put to the witnesses.

[105] There is also evidence — discussed shortly — from several witnesses (Mr Edmonds, Mr Meehan and Mr Barratt-Boyes) for Northlake as to the ways in which the

172 http://www.qldc.govt.nz/assets/Uploads/Council-Documents/Strategies-and-Publications/Queenstown-Lakes-District-Housing-Accord.PDF
173 V S Jones statement-of-evidence para 4.20 [Environment Court document 16].
174 We are being cautious: in fact we can think of no exceptions.

site will provide "products" (sections) which are different from elsewhere in Wanaka. That suggests there is further segmentation into submarkets than Mr Munro allowed for. Having asserted the Northlake sections are different, we hold that Northlake did not have to prove more unless AWI produced evidence to the contrary. An assertion of broadly 'comparable' units is insufficient.

The planning horizon

[106] Time (and timing) is an important element in the assessment of the adequacy of the quantity of sections supplied to the market. Mr Serjeant wrote that "the longest time period for which the[e] supply must be adequate is 10 years"[175], referring to the RMA's requirement[176] that district plans are to be reviewed every 10 years. In fact, as we have recorded, Mr Munro considered that there is enough zoned land to supply new household demand for 20 years.

[107] In reply Mr Edmonds considered it was appropriate to plan for a longer period for several reasons of which we consider two are relevant: first, because Wanaka is growing "exceptionally fast"[177] (28.3% between 2001 and 2013), and second, because elsewhere in the district the Council has adopted long planning horizons. Mr Edmonds cited Alpha Ridge at Wanaka, and Kelvin Heights, Jacks Point, Frankton and "areas of 'commonage' land around the edge of Queenstown's CBD"[178]. He did not identify any adverse effects or blight associated with those areas and he was not cross-examined on that.

Differentiating points and submarkets

[108] A further (minor) aspect of Mr Munro's analyses which concerned us was his reference to[179]:

> The general premise that land supply is one factor that influences the cost (distinct from price) of housing, and that to ensure the lowest possible costs it is desirable to have a surplus of developable land available controlled by commercial competitors motivated to release product in

175 D F Serjeant evidence-in-chief para 31 [Environment Court document 18].
176 Section 79 RMA.
177 J B Edmonds rebuttal evidence-in-chief para 4.4(a) [Environment Court document 14A].
178 J B Edmonds rebuttal evidence-in-chief para 4.4(c) [Environment Court document 14A].
179 I C Munro evidence-in-chief p 28 [Environment Court document 17].

> the short term and inclined to lower prices against each other as the primary means of product differentiation.

[109] Our concern was substantiated by the urban designer for Northlake, Mr G N Barratt-Boyes, in his rebuttal evidence when he wrote[180]:

> ... there are a myriad of factors that make any new residential area more desirable than others. Often the proximity to schools, shops, amenity, open space, cultural and civic amenities, community facilities and character of the neighbourhood itself have a direct bearing on this decision. Affordability is also a key driver.

In the last sentence he agrees with Mr Munro, but unlike Mr Munro he has identified some of the other relevant factors that go into buyers' choices. We add that there was an exchange between the court and a second planner called by Northlake, Mr J A Brown, where he confirmed[181] that normal quantity supplied and price relationships apply in the markets for sections. He too quite properly tried to quantify his answer by saying[182] that differences in location and attributes also affect the relationship.

[110] In Mr Barratt-Boyes opinion[183]:

> PC45 provides choice, affordability and diversity as a new neighbourhood within the wider Wanaka area. It also offers a lifestyle choice and point of difference to other potential residential areas, proposed or existing.

We accept that evidence because it addresses the issue of the needs of people and community as identified in the district plan. Our difficulty with Mr Munro's position is again the air of unreality: he seems to have given little thought to the implications of *location, location, location*[184]. Location is a primary differentiator of one section from another.

[111] We also consider Mr Munro is wrong on a matter of terminology: a product differentiator means that there are two non-substitute products and they may have two

180 G N Barratt-Boyes rebuttal evidence para 6.3 [Environment Court document 9A].
181 Transcript p 18 line 4.
182 Transcript p 18 lines 6 and 7.
183 G N Barratt-Boyes rebuttal evidence para 6.4 [Environment Court document 9A].
184 Apparently first used by a Chicago realtor in 1926.

quantity demanded versus price relationships (curves). In contrast a change in price will simply move the quantity of similar sections (products) sold by whoever has sections on the market. Indeed Mr Munro seemed to acknowledge this. In an answer to a question from the court[185] as to whether:

> … at least in the short-term, just supplying more lots so that you're adding to the quantity of lots supplied does, other things being equal (and they may not be), tend to drive the price down doesn't it?

— Mr Munro answered (eventually)[186]:

> What would really make a difference is the nature of the product being offered and so for instance if Northlake lots with their nice north facing slope with water views were compared with Three Parks lots which are a bit more working-class, flatter, more enclosed in, less of that amenity.

Conclusions

[112] We find (without difficulty) that market differentiators for land include — in addition to location — topography, size, views, aspect and vegetation (all complicated by time). Demand and supply relationships (curves) to price are for a notionally identical[187] good (in this case, sections) and simply show the theoretical relationship between the quantity demanded (or supplied and the price). Sections which differ will usually have different demand/supply relationships. For example, markets in top end sections (with outstanding views, lake frontage and sunny locations) will usually have inelastic demand relationships (the quantity demanded is relatively insensitive to price increases), whereas middle and lower income housing sections tend to be more elastic (so a small decrease in price may cause a significant increase in the quantity demanded and vice versa). In the light of those complexities as illustrated in the evidence of Northlake's witnesses, Mr Munro's analysis seems very simplistic. It is easy to envisage that the Three Parks and Orchard Road areas where he considered development is preferable might be supplying completely different products from Northlake. Indeed, that was the evidence for Northlake.

185 Transcript p 176 lines 1-4.
186 Transcript p 176 lines 19-23.
187 Or at least are for readily substitutable goods.

[113] There is also a wider resource management issue here which is that it is important not to confuse zoning with the quantity of sections actually supplied. Land may be zoned residential but that does not mean it is actually assisting to meet the quantity of sections demanded. Only sections for sale can do that. There is no direct relationship between the number of sections theoretically able to be cut out of land zoned residential and the number of sections actually on the market at any one time especially when — as in Wanaka — there are very few landowners with land zoned for residential activities.

[114] The policy about satisfying "residential demand"[188] is relevant and that must be read in the context of the objective it implements. That refers to supply of adequate land to provide for "a diverse range of residential opportunities". As all the witnesses appeared to agree, sections of different qualities are likely to be priced differently, which suggests any assessment of demand has to be assessed continuously. Since the factors that go into assessing quality are multifarious, any evidence of demand should at least assess the quantity demanded at different prices. Thus the objective means that residential demand must be assessed as the sum of the demands for a diverse range of section types. In order to supply the quantity of residential sections demanded at any given price, the quantity of zoned land might have to be very large in proportion to the quantities demanded and in a variety of different locations. We think that is probably what Mr Edmonds meant by an "oversupply". We note that Ms Jones seemed to agree with Mr Edmonds[189].

[115] We find that an excessive quantity of sections or houses is not being supplied to the market. The site, while not necessary to meet strict numerical growth predictions when price and all the other factors are disregarded (which in practice they never are), offers points of difference to other available or potentially available land. We conclude that Mr Munro considerably oversimplified the situation when he wrote[190]:

> I cannot imagine how in light of such a magnitude of supply over demand there is any foreseeable scenario where an "undersupply" of zoned residential land could eventuate in

188 Policy (7.1.2) 1.1 [Queenstown Lakes District Plan p 7-3].
189 V S Jones statement-of-evidence para 4.13 [Environment Court document 16].
190 Evidence of I C Munro para 5.16 and 2.17.

> Wanaka. Without PC45 or any other private plan change request that scenario would require approximately 5,500 households to locate in Wanaka within the next District Plan review period of approximately 10 years (when further land could be released as necessary). This would amount to over four times the growth rate currently predicted and is in my view fanciful.

[116] We prefer the evidence of Northlake's witnesses. We hold that PC45 effectively achieves the relevant objectives and policies of Chapter 7 of the district plan in respect to the provision of sufficient land for a diverse range of residential opportunities.

5. Does PC45 implement the urban design objectives and policies in the district plan?

5.1 Urban design in the district plan

[117] The QLDP contains the following relevant provisions expressly relating to urban design[191]:

(Chapter 4)

- "to identify clearly the edges of … extensions to [existing urban areas] by design solutions …"[192]

- …

  3.2 To encourage new urban development, particularly residential and commercial development, in a form, character and scale which provides for higher density living environments and is imaginative in terms of urban design and provides for an integration of different activities, e.g. residential, schools, shopping[193].

  (and the explanation in the district plan is that a sustainable pattern of urban design ".... achieves cohesive urban areas through urban design that provides for efficient and effective network connectivity and coordination with existing systems …"[194]).

(Chapter 7)

- "to provide for and encourage new and imaginative residential development forms within the major new residential areas"[195].

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191 Several witnesses referred to the QLDC's *Urban Design Strategy* from 2009. However, that is not a document to which we must have regard so we have not considered it.

192 Policy (4.2.5) 7 [Queenstown Lakes District Council Plan p 4-11].

193 Policies (4.9.3) 3.1 to 3.4 [Queenstown Lakes District Council Plan p 4-54].

194 Explanation etc to Objective (4.9.3) 3 [Queenstown Lakes District Council Plan p 4-58].

195 Policy (7.1.2) 3.10 [Queenstown Lakes District Council Plan p 7-5].

- "to require an urban design review to ensure the new developments satisfy the principles of good design"[196].

  (the explanation[197] states:

  > Within the major new areas of residential zoning the Council strongly encourages a more imaginative approach to subdivision and development. The Council believes the quality of the District's residential environments would be significantly enhanced by design solutions that moved away from traditional subdivision solutions. In this respect the Council will be looking to encourage a range of residential densities, variations in roading patterns, imaginative use of reserves, open space and pedestrian and roading linkages, attention to visual outlook and solar aspect, and extensive use of planting).

We note that urban design as contemplated by the QLDP is largely internal to areas being developed. The outward looking factors are confined to design of edges of new urban areas, and to connectivity to and coordination with existing systems. However, for AWI's urban design witness Mr Munro, the subject seems to cover anything in the RMA that pertains to urban environments, and more.

5.2 Mr Munro's principles of urban design

[118] For AWI, Mr Munro referred to the NZ Urban Design Protocol 2005[198] as the basis for his work. He then described[199] how he has developed a standard urban design framework derived from a number of domestic and international authorities recognised as promoting best practice but varied to account for local circumstances. In summary, the key urban design principles relevant to PC45 in his opinion are as follows (we have footnoted what we consider are the principal relevant objectives and policies in the QLDP as we go through the list)[200]:

(a) to minimise resource, energy[201] and "environmental service inputs"[202] needed to enable wellbeing (this includes promoting public health);

(b) to be based on the most compact[203], mixed pattern of uses and networks possible;

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196 Policy (7.1.2) 3.13 [Queenstown Lakes District Council Plan p 7-5].
197 Explanation [Queenstown Lakes District Council Plan p 7-6 and 7-7].
198 A non-statutory document prepared by the Ministry for the Environment.
199 I C Munro evidence-in-chief para 4.1 [Environment Court document 17].
200 I C Munro evidence-in-chief para 4.2 [Environment Court document 17].
201 See Objective (4.5.3) 1 Efficiency [Queenstown Lakes District Plan p 4-29].
202 See Objective (4.9.3) 1 [Queenstown Lakes District Plan p 4-52].
203 See Policies (4.5.3) 1.2 [Queenstown Lakes District Plan p 4-29], Implementation method (4.9.3) 3(i)(a) [Queenstown Lakes District Plan p 4-54] and (Residential district-wide) Objective (7.1.2) 2 [Queenstown Lakes District Plan p 7-4].

(c) to minimise[204] the need for transport (by any mode) between activities;

(d) to maximise accessibility, diversity, and choice[205] for individuals and communities;

(e) to promote resilient, adaptable and long-term outcomes[206];

(f) to enhance local identity and character[207]; and

(g) to configure community investments to maximise "use" returns relative to capital and maintenance costs.

[119] We have several observations about Mr Munro's principles. The first is that they, like many collections of "principles" about urban design, contain pairs of principles that are at least in tension and may be in conflict in particular situations e.g. (b) and (d), (b) and (f), (c) and (g). Second and importantly, most of the principles are already largely contained in the district plan (as our footnotes show) but not under the heading "urban design" — see part 5.1 above. The exception is principle (g), for which we can find no Chapter 4 policy support.

[120] More generally, a difficulty with producing further "urban design" lists is that it is easy to substitute them for the matters with which we must be concerned — the relevant objectives and policies of the QLDP. We think that Mr Munro's list has caused him to skew the emphases in the plan. For example the only reference in his principles to ecosystems and the natural world which defines the edges of, urban places (this is important in the Queenstown Lakes District and in Wanaka in particular) is in the phrase "environmental service inputs". Another example is Mr Munro's "principle" that development "is to be based on the most compact, mixed pattern of uses and networks possible". That is incorrect. Compact growth is certainly promoted[208], but urban development is not based on the most compact pattern possible without regard to other considerations.

[121] Mr Munro's principles either omit or fail to emphasize a number of policies in the QLDP which are clearly relevant. Examples are:

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204 See Policy (4.5.3) 1.1 and 1.2 [Queenstown Lakes District Plan p 4-29].

205 See Objective (4.9.3) 1 [Queenstown Lakes District Plan p 4-53]; and Objective (7.1.2) 1 [Queenstown Lakes District Plan p 7-3].

206 See Policy (4.9.3) 3.2 [Queenstown Lakes District Plan p 4-54].

207 See Objective (7.3.3) 1 [Queenstown Lakes District Plan p 7-13].

208 "Promote compact urban towns" is the wording in Energy Policy (4.5.3) 1.1 [Queenstown Lakes District Plan p 4-29].

- the residential growth policy[209] to provide for lower density residential development in "appropriate areas";
- the policy to promote " a network of compact commercial centres which are easily accessible to, and meet the regular needs of residents of the surrounding residential environments"[210];
- the policy[211] "distinguish[ing] areas with … low density character from … [those] … located close to urban centres or transport routes where high density development should be encouraged"; and
- the subzone policy[212] specifically for Wanaka.

5.3 Urban design considerations for the site of PC45

[122] Returning to the express urban design considerations in the QLDP, the first related to establishing the boundaries of the site. Particularising the district-wide policy requiring identification of the urban edge of (in this case) Wanaka by a design solution[213], the relevant Wanaka objective provides that residential development[214] should be "… of a scale, density and character within [a] subzone … that [is] separately identifiable by such characteristics as location, topology, geology, access, sunlight, or views". The short answer to that complex prescription is that the Northlake site is so identifiable and has been carefully designed with respect to these matters.

[123] As for the (internal) implementing policies, the most specific seeks residential development organised around a separate neighbourhood[215] which is what PC45 proposes. The appellant barely disputed that the topography of the site provides a variety of landform suitable for a range of housing densities; that surrounding landforms afford a considerable degree of shelter from prevailing winds, the site's recreational attributes will be excellent[216], with the adjoining Lake Wanaka and Clutha River recreational corridor, extensive proposed walkway/cycleway linkages, and proposed internal

209 Policy (4.9.3) 3.4 [Queenstown Lakes District Plan p 4-54].
210 Policy (4.9.3) 4.2 [Queenstown Lakes District Plan p 4-55].
211 Policy (7.1.2) 3.14 [Queenstown Lakes District Plan p 7-5].
212 Policy (7.3.3) 1 [Queenstown Lakes District Plan p 7-13].
213 Policy (4.2.5) 7 [Queenstown Lakes District Plan p 4-11].
214 Objective (7.3.3)1 [Queenstown Lakes District Plan p 7-13].
215 Policy (7.3.1) 4 [Queenstown Lakes District Plan p 7-14].
216 C S Meehan evidence-in-chief para 12 [Environment Court document 7].

community facilities. Importantly the site is close to local schools[217], and is well located in relation to future potential public transport services. The Wanaka CBD and proposed Three Parks retail centre are only a little further away — although too far in the opinion of Messrs Munro and Serjeant. In any event the neighbourhood 'corner dairy' type development proposed would minimise travel requirements for day to day retail needs.

[124] Connected and compact development is an urban design imperative to ensure efficient use of infrastructure such as roading and services as well as community facilities such as schools, employment and commercial centres. The subject land is connected to Wanaka CBD by an identified future bus route and according to Mr Munro, is within a walking distance — of 800m at the Peak View Ridge access and of approximately 1600m at the midpoint of the land — to local primary and secondary schools. It would not be necessary for pedestrians or cyclists to cross an arterial road[218].

[125] Mr A A Metherell, a traffic expert called by Northlake, provided the court with analysis[219] of the existing roading network capacity and the integration of the PC45 development with that. The plan change provides for intersection upgrades. Traffic impacts were not challenged on the basis of provision made in the plan change for the necessary improvements.

[126] Servicing for water, sewerage, stormwater etc has been described to us as a cost the developer will bear. Although that was a matter under debate at the Council hearing it was not pursued with any vigour[220] at the hearing before us. Mr J McCartney, an experienced civil engineer called for Northlake, described the potential for the proponents to combine with the Council to provide an additional water supply that would benefit both this development and the wider community of Wanaka, where the current water supply has limitations. We were advised that Northlake could provide its own independent water supply and would not be reliant on any form of community infrastructure upgrade. Wastewater and stormwater drainage are also "enabled by the

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217 G N Barratt-Boyes evidence-in-chief para 5 (p 11) [Environment Court document 9].
218 G N Barratt-Boyes rebuttal evidence para 7.3 [Environment Court document 9A].
219 A A Metherell rebuttal evidence [Environment Court document 10].
220 There was some comment in the evidence-in-chief of several AWI witnesses but their criticisms were abandoned when cross-examined.

plan change"[221]. There was no suggestion that the management of the services could not be undertaken in a sustainable manner. We predict that servicing is not likely to be a significant cost or constraint to the community of Wanaka if this development proceeded.

The shops

[127] In Mr Munro's view a commercial node is "not supportable in urban design terms" if a maximum yield of 705 units over 20 years was imposed (as he suggested). He added[222]:

> Even if 1,600 units were to proceed in the zone and no additional connectivity was required I would still not be comfortable with a commercial node as it would either be inferior in urban design placement terms, or undermine other nodes if placed more desirably.

That overlooks Policy (4.9.3) 4.3 which promotes and seeks to enhance a "network of compact commercial centres … easily accessible to and meet[s] the regular needs of the surrounding residential environment …"[223].

[128] In Mr Long's opinion[224]:

> … a small, accessible on-foot, cluster of shops, pitched at independent retailers with a mix that supports each other, that doesn't compete with the large centres, is very desirable for a small residential community. It will help create a sense of place and be a focus for community identity. It could also help cut down on some trips, but my view is that planned regular/normal shopping trips will occur anyway.
>
> In summary, it will deliver positive outcomes from an urban design perspective, while not competing with the main centres. It will also help economic activity and employment, by creating accessible retail/commercial space for start-up and subsistence retailers and the like.

We prefer that evidence as showing PC45 implements the QLDP.

221 J McCartney evidence-in-chief para 5 [Environment Court document 13].
222 I C Munro evidence-in-chief para 6.15(b) [Environment Court document 17].
223 Policy (4.9.3) 4.2 [Queenstown Lakes District Plan p 4-55].
224 J A Long evidence-in-chief pras 6.10 and 6.11 [Environment Court document 12].

5.4 External urban design issues

[129] Mr Munro considered that, if more urban land was necessary (and he also considered it was not — a crucial point we will return to in part 6 of this decision), then there were other areas on which development would be preferable to the site. He showed these on a plan[225] which was the subject of some discussion by the witnesses and in cross-examination. In his opinion there were at least two, realistically developable, areas which should be preferred to the Northlake site. In preferring those he appeared heavily influenced by the fact that they are closer to the lakefront centre of Wanaka (although further from the Wanaka primary school).

[130] Northlake's urban designer Mr Barratt-Boyes first observed of Mr Munro's alternative areas that[226]:

> All the precincts generally gravitate outwards to the outer urban limit, with the existing town centre approximately in the middle. They all differ in character and offer varying forms of amenity and lifestyle choices.

While critical[227] of the accuracy of Mr Munro's isochrones, he pointed out that in relation to schools they "... place ... PC45 in a positive, unique location, relative to a significant proportion of other Wanaka residential areas to the south and east of the town centre"[228]. More broadly, and we consider with justification, he[229]:

> ... question[ed] the significant weight placed by Mr Munro on the ... walking distance isochrones without reference to other urban design considerations. Walking distance is a relevant factor, but in my opinion it is not the only relevant factor when asserting urban design outcomes.

We accept that evidence because, as we have held, the QLDP makes choice, opportunities and amenities important factors for us to consider.

225 I C Munro evidence-in-chief Figure 7 [Environment Court document 17].
226 N Barratt-Boyes rebuttal evidence-in-chief para 6.2 [Environment Court document 9A].
227 N Barratt-Boyes rebuttal evidence-in-chief para 7.2 [Environment Court document 9A].
228 N Barratt-Boyes rebuttal evidence-in-chief para 7.2 [Environment Court document 9A].
229 N Barratt-Boyes rebuttal evidence-in-chief para 7.4 [Environment Court document 9A].

[131] We referred to Mr Munro's oral evidence that the Northlake proposal PC45 would lead residential development to the edge of the urban boundary, leaving a "hole" in the town form when outlining the effects of PC45 in the first part of this decision. Mr Munro suggested[230] that development of the land in PC45 would lead to the remaining zonings in Wanaka being 85% empty and that would be "sprawl" with pockets of "stop/start" development.

[132] Mr Barratt-Boyes agreed that, from a strategic urban design perspective, sprawl is an important issue[231]:

> Urban sprawl is typically defined as the unplanned, uncontrolled spreading of urban development into areas adjoining the edge of a city or neighbouring regions. In my opinion PC45 is not urban sprawl. For that to be the case it would need to be uncontrolled and unplanned which it is not.
>
> The urban boundaries that limit future growth for Wanaka [indicated in the Wanaka Structure Plan] are clearly defined by geographical constraints e.g. the Cardrona River, Lake Wanaka, the Clutha River and the Crown Range. I believe these are very logical and legible physical boundaries within which Wanaka and its future urban form should sit.

The difference is that Mr Barratt-Boyes is talking about the sort of sprawl — housing randomly spread across the countryside or along rural roads — with which the QLDP is principally concerned (under the important Part 4.2 of the QLDP).

[133] Mr Munro compared PC45 with Jacks Point on the shores of Lake Wakatipu as an example of an undesirable stand-alone development. The short answer is that Jacks Point is provided for in the district plan. In any event, Northlake says PC45 is different. Mr Barratt-Boyes' response was that[232]:

> Jacks Point is divorced from both the Queenstown CBD and from Frankton. It is a standalone 'lifestyle' residential community conceived as a destination, set alongside and around a golf course, and with provision for two commercial villages.

230 Transcript p 168.
231 G N Barratt-Boyes rebuttal evidence para 4.2 [[Environment Court document 9A and 4.3].
232 G N Barratt-Boyes rebuttal evidence paras 5.3 and 5.4 [Environment Court document 9A].

> On the other hand, PC45 is close to schools and open space, connected to walking and cycling trails, and is stitched into its adjacent and neighbouring residential areas. The small local hub … creates a neighbourhood amenity… but not a new urban centre.

We prefer the evidence of Mr Barratt-Boyes and conclude that PC45 is not urban sprawl. Its development would implement the Chapter 7 objectives and policies.

[134] Finally, taking a view of the overall urban design merits of the proposal we note that Mr Munro largely agreed with the merits of PC45 in his 2013 report[233]:

> There is a fair case that the requestor's land will, in part, offer urban zoned land that is at least as meritorious as areas of land that have been zoned already, and in the case of land within a 2km isochrone of the schools, Wanaka centre or Three Parks; or within 400m of Aubrey Road, PC45 could offer superior urban design benefits to some of that zoned land. I support the enablement of land in PC45 that, while not necessary to meet Wanaka's growth needs, is superior to alternatives. This will promote competition in the land market as well as helping best serve the "compact" approach sought in Wanaka. If a competitive product can be released to market and it proves preferred by purchasers, this could lead to an improvement of urban form outcomes for Wanaka.

In fairness we should record that even in 2013 he was concerned about the rate of development. We consider this issue shortly (in 6.3 below).

6. Does PC45 effectively implement Chapter 4 of the QLDP?

6.1 Objectives (4.9.3) 1 and 4

[135] Objective (4.9.3) 1[234] is to have growth and development consistent with the maintenance of the quality of the natural environment and landscape values. This is a core linking objective in the district which relies on those values for much of its commerce and to maintain the qualities which residents come there for. We are satisfied that PC45 avoids[235] urbanisation of the outstanding natural landscape of the Clutha River Valley and protects[236] the visual amenity of the site and surrounding area. Objective (4.9.3) 4 then seeks a "pattern of land use which promotes a close relationship

233 I C Munro evidence-in-chief Appendix 2: Page 20 (2013 Report) [Environment Court document 17].
234 Objective (4.9.3) 1 [Queenstown Lakes District Plan p 4-52].
235 Policy (4.9.3) 1.1 [Queenstown Lakes District Plan p 4-52].
236 One small rearrangement of Activity Area E might be required as we discuss later.

and access between living, working and leisure environments[237]. PC45 is notable for its links between the living and leisure environments because of its proximity to the Clutha River and Sticky Forest and for the provision of walking and cycling tracks.

6.2 Objective (4.9.3): Sustainable management of development

Residential growth sufficient to meet the District's needs

[136] We have described how Objective [4.9.3] 3 is to provide[238] for residential growth "... sufficient to meet the District's needs" and how that needs to be read with Policy (4.9.3) 7.1. That policy, on which AWI's witnesses relied heavily, seeks to implement Objective (4.9.3) 7 (of effectively managing the extent and location of urban development) by "... enabl[ing] urban development to be maintained in a way and at a rate that meets the identified needs of the community ..."[239] (underlining added to demonstrate AWI's emphases). Much of the evidence discussed already in relation to Chapter 7 is relevant here, as is the list of needs identified earlier.

[137] Counsel for AWI submitted[240] that Objective (4.9.3) 7 and its implementing policies "... requires the integration of a range of issues and choices that are not addressed in the evidence". To illustrate the submission they suggested the policies raised the following questions:

(a) What is the identified need (in a residential capacity sense) of the Wanaka community in relation to urban growth?
(b) Where is that need best accommodated to avoid, remedy, or mitigate adverse effects on the environment?
(c) Where is the long term distinct division between rural and urban to be located?
(d) What land within the UGB should be rezoned for residential use now, and what should be preserved for "future urban development"?

Then they submitted that "none of those questions can sensibly be answered before the UGB has been set, and [PC45] is not the vehicle to set it".

237 Objective (4.9.3) 4 [Queenstown Lakes District Council Plan p 4-55].
238 Objective (4.9.3) 3 [Queenstown Lakes District Council Plan p 4-54].
239 Policy (4.9.3) 7.1 [Queenstown Lakes District Council Plan p 4-57].
240 Closing submissions for AWI (para 82) [Environment Court document 35].

[138] We have considered the evidence on these questions generally and in the earlier parts of this decision at length. Our specific consideration is set out below:

- Question (a) is not the correct question to derive from Policy (4.9.3) 7.1, since it both omits any reference of the introductory phrase 'To enable urban development to be maintained' and narrowly circumscribes the "identified needs" of the community in respect of urban development to a small artificial set of "residential capacity". The singular "need" rather than "needs" in counsels' question shows that AWI is being focused far too tightly to cover the extensive list of needs identified in part 3 of this decision. Further, the question put by counsel implicitly suggests tight control of "residential capacity", rather than management, which enables urban development by owners and developers to continue ("be maintained") in an improved (guided by other policies in Chapter 4) way and at a rate that provides the extensive list of opportunities and other needs identified in the QLDP;
- Question (b): for the reasons discussed in part 3 we consider that these policies do not require the local authority to second guess the market. The policies do not require a search for the "best" method of accommodating that "need" (which again should be "needs"). Rather they require an examination first of the enabling exercise under Policies (4.9.3) 7.1 and 7.3 (since an UGB is not being established in PC45) and second, measuring against the degree of achievement of all the other more specific policies in Chapter 4 of the QLDP, few if any of which require any sort of comparison to find the 'best' solution;
- Question (c) is, on the undisputed evidence, quite straight forward to answer. The division between rural and urban areas should probably in the long term be located either on the northern PC45 boundary, being the line drawn by the landscape architects described earlier or inside Activity Area E; and
- A variant of Question (d) — without the reference to an UGB — is considered in some detail below. We have already stated our conclusions on the legal issues raised by the lack of an UGB over the site.

Sustainable management of development

[139] Turning to the evidence on Objective (4.9.3) 7 and its policies, counsel for AWI submitted first that Northlake[241]:

> ... did not call any credible evidence that there is an insufficient supply of land in Wanaka such that the identified needs of the community cannot be met. It did not present any economic analysis of the prices available in Wanaka now at various levels of the property market.

The first sentence shows the deformation of Policy (4.9.3) 7.1 which we identified above. The words of the policy which require urban development (not land) to be maintained in a way and at a rate that meets "the identified needs of the community" — for much more than merely land — have been oversimplified with the effect that complexities of the policy are misrepresented. In fact AWI's question would have been more suitable as a test of whether PC45 achieves Chapter 7's objectives and policies, and we have considered similar issues raised by the evidence there.

[140] While we think counsel for AWI went too far when they described Mr Edmonds' one paragraph[242] about part 4.9 of the QLDP as extraordinary, it certainly was rather brief. Further, they referred[243] to Mr Page's cross-examination of Mr Edmonds[244] about the rate referred to in Policy (4.9.3) 7.1. We find the questions (and therefore the answers) unhelpful because they are predicated on a restricted interpretation of the policy which is, as we have already held, incorrect. Counsel suggested Mr Edmonds' answer to a point about the absence of an UGB was enlightening[245]. What we find enlightening in this otherwise rather unhelpful passage was Mr Edmonds' reference[246] to Mr Meehan's evidence. He described Mr Meehan as having "... identified — and [PC45] provides for — a range of other needs that are not currently being met by the District Plan in Wanaka. In particular areas such as Activity Area D, D1 so I believe that [PC] 45 does meet the identified needs of the community ...". That answer correctly

241 AWI closing submissions para 109(b) [Environment Court document 35].
242 J B Edmonds evidence-in-chief para 6.8.10 [Environment Court document 14].
243 AWI's closing submissions para 84 [Environment Court document 35].
244 Transcript p 107-108.
245 AWI's closing submissions footnote 38 [Environment Court document 35].
246 Transcript p 107 line 25 et ff.

applies Policy (4.9.3) 7.1. Counsel criticised[247] the reliance on Mr Meehan's evidence on the grounds he was not an expert, and had an interest in the outcome of the case. But the important points are that Mr Edmonds, who is an expert, accepted the evidence of Mr Meehan who gave evidence of facts as well as opinions. We give some weight to Mr Edmonds' expert opinion on this issue.

[141] In contrast was Mr Serjeant's evidence for AWI. Mr Serjeant did not strictly consider the policy. Instead he phrased his own question[248] — "Whether Wanaka needs additional land rezoned for residential development at the present time?"He described this as the "real" issue in the case[249]: and his answer was "no" relying on Mr Munro's evidence that Wanaka is likely only to have 2,302 new houses built in the 20 years from 2011 to 2031 and there is zoned provision for five times that many sections. Consequently in his opinion there is no need for any more.

[142] An aspect of Policy (4.9.3) 7.1 ignored by Mr Serjeant in his framing of the question is that it is an "enabling" policy, consistent with the enabling theme of the district plan as a whole. It is to enable urban development to be maintained not "to manage" it. Cross-examined on this Mr Serjeant said[250] " ... because there is no demand [for sections] the plan change should be refused". That is an empty and confusing[251] assertion. One can only make such a statement at a price or in a price range. There would likely be a higher quantity of sections demanded in Wanaka if they were only $50,000 each.

[143] Mr Serjeant was cross-examined extensively[252] by Mr Goldsmith on the application of the Objective (4.9.3) 7 and its policy 7.1. In an exchange between the court and Mr Serjeant he confirmed that[253] he agrees that sections are sold at different prices because they offer different qualities to buyers. Yet there was a revealing passage in cross-examination which shows that he retains a fundamental rationing approach to

247 AWI's closing submissions para 85 [Environment Court document 35].
248 D F Serjeant evidence-in-chief para 14 [Environment Court document 18].
249 D F Serjeant evidence-in-chief para 14 [Environment Court document 18].
250 Transcript pp 237-8.
251 As so often happens when witnesses use this language, it is unclear whether Mr Serjeant is talking about demand or the quantity demanded?
252 Transcript pp 261-267.
253 Transcript pp 231-232.

housing supply in the district. Mr Goldsmith was examining[254] about Objective (4.9.3) 3. After making it clear he was speaking hypothetically the exchange went:

> Q. … If you provide more than is sufficient without creating adverse effects in your view is the objective met?
>
> A. (Mr Sergeant) It's just so hypothetical I can't imagine that. I mean you could put any proposition hypothetical like that and I could potentially agree with it but I don't because it doesn't meet the district needs and one ice cream's enough for a child. There might be two and then three and four and five and they're going to get sick aren't they?

That suggests that Mr Sergeant thinks the plan is ultimately about rationing the supply of zoned land (ice creams) to what it considers is acceptable. There is an uncomfortable paternalism about this. In any event, we hold that rationing is not what the objectives and policies, read as a whole, aim for at all. The issue under the plan is not how many ice creams or sections are good for people but increasing the opportunities by increasing the quantity and range of products supplied and thus potentially reducing the price of some.

[144] Mr Serjeant was also concerned that Northlake and its advisors were "… interpreting the objective so that it's limitless"[255]. We agree there is sometimes a suggestion of that, but at other places Mr Edmonds (and Mr Brown) properly applied the relevant objectives and policies. Further, some of the policies are very open-ended so there is room for considerable disagreement over when an activity might reasonably be said to come within them — especially since the policies pull in different directions. On balance, we prefer the evidence of Mr Edmonds and Mr Brown.

6.3 <u>When should any urban development occur?</u>

[145] Counsel for AWI submitted that PC45 does not implement the direction in Policy (4.9.3) 7.1 that the <u>rate</u> of development is managed. We have already given our reasons for holding that the rate of development is to be enabled not managed but we briefly consider the evidence that the Council should manage staging of development of the site (although it apparently does not want to).

254 Transcript p 266.
255 Transcript p 266 line 28.

[146] Mr Munro put forward an alternative to PC45 which involved a staged release of the land. He considered his "demand" figures under a number of "lenses" e.g.: accessibility (walkable isochrones[256]), "pure land merit", and proportioning development pro-rata yield across Wanaka, and derived his opinion of an acceptable development yield for PC45 land of up to 512 dwellings over the next 20 years. He then considered whether development of the PC45 land was strategically appropriate in the contribution it would make to the objectives for Wanaka as a whole. He again referred us to his earlier report[257] where he came to the opinion that in order for the PC45 development to successfully integrate with Wanaka as part of a coherent and well-planned expansion, it should be contained in terms of yield to 442 dwelling units until at least 2025. In addition, the permitted development should be subject to a location constraint to along the southern edge of the PC45 land running along Aubrey Road and the rear of existing rural residential development fronting that road. He recommended that the highest possible densities be employed, subject to landscape constraints, to consume as little land as possible so as to avoid a large scale and relatively isolated stand alone node that would undermine the vision for Wanaka as a compact, well connected settlement.[258]

[147] In his rebuttal evidence Mr Edmonds described[259] how the rules of PC45 ensure that the initial stages of development "... will be focused within the Activity Area D1". In his opinion other staging requirements would not be necessary. We accept that evidence and consequently we accept Mr Goldsmith's submission that delaying the release of PC45 land would contribute little to sustainable management because:

- much of the land in question has been signalled for development for some time in the WSP (as we shall see in the next part of this decision);
- there is general agreement over the design and components of the development proposed;

256 An isochrone connects the points at which persons leaving for an identified destination would normally take the same time (making certain assumptions) to reach it.

257 I C Munro evidence-in-chief Appendix 2 [Environment Court document 17].

258 I C Munro evidence-in-chief Appendix 2: Paras [5.2-5.5] Page 20 (2013 Report) [Environment Court document 17].

259 J B Edmonds rebuttal evidence paras 13.1 to 13.7 [Environment Court document 14].

- the proposal will not place a strain on existing infrastructure and is in a planned location in terms of connectedness with Wanaka as a whole as it will continue to develop;
- while the release of the site to development over the next year or so may affect the release of other residential land into the market, it is unlikely to provide any undermining of the objectives and policies for Wanaka in the QLDP.

6.4 Compact development

[148] On the compactness or consolidation themes in the QLDP, Mr Serjeant referred to the policy[260] on providing for high density residential development in residential areas and continued[261]:

> Density is a relative term and in the Wanaka context higher densities are really only medium to high density with lot sizes down to 300m^2 per dwelling unit. In paragraphs 6.8.11 and 6.8.12 Mr Edmonds refers to the PC45 response to the affordable housing objective. While I recognise the importance of affordable housing to the district, the provision of up to 250 dwelling units, including affordable housing units, within Activity Area D1 is in direct conflict with Policy 3.2 and 3.3 above which directs the provision of high(er) density housing in appropriate areas and the combination of residential and commercial development so as to achieve the integration of different activities. It is clear to me that the provisions intend higher density development to locate around existing centres. The urban structure of Wanaka is relatively simple (ie not multi-nodal) and the expectation is that density will concentrically reduce rather than have suburban 'islands' of increased density, with consequent demand for competing open space and other community services in those locations.

We have several concerns with that. First, Mr Serjeant places too much weight on Policy (4.9.3) 3.3. As we have said, that is only a formula. He could just as easily (and equally wrongly) have justified PC45 under the following Policy (4.9.3) 3.4 which provides for low density residential development in "appropriate areas" also. In fact Policies (4.9.3) 3.3 and 3.4 require reference to other policies to determine what is appropriate. Cross-examined on that he conceded[262] that policy 3.3 needs to be applied in the light of the district's needs objectives (and of course they seek other targets than simply

260 Policy (4.9.3) 3.3 [Queenstown Lakes District Council Plan p 4-54].
261 D F Serjeant evidence-in-chief para 78 [Environment Court document 18].
262 Transcript p 268 line 7 et ff.

compactness). Second, reading the district plan as a whole, these policies need to be read with the specific Wanaka policy[263] of organising residential development around neighbourhoods. We predict that PC45 is likely to achieve that because it is designed to do so. Third, we have already pointed out that the district plan tends to use 'consolidation' for what Mr Serjeant (and Mr Munro) call compactness.

[149] In fact Mr Serjeant's point would have been better made in respect of the more specific Chapter 7 policy[264] which is "To provide limited opportunity for higher density residential development close to the Wanaka town centre". We have given that careful thought because at first sight PC45's Activity Area D1 goes against this policy. However, this policy needs to be read in the light of both the 'higher density close to transport routes' and to the affordable housing policies and we consider they justify the slightly contentious Activity Area D1 in combination with the Wanaka neighbourhood policy just referred to and other wider integration policies in Chapter 4.9. We find that PC45 will contribute to a relatively compact Wanaka. While it is not as compact as Mr Serjeant, Mr Munro and Ms Jones would like it to be, we hold that their conception is not necessarily what the district plan contemplates as most appropriate.

6.5 Affordable and Community Housing (Chapter 4.10)

[150] An "advice note" says[265] that the objectives and policies[266] of Chapter 4.10 of the district plan — Affordable and Community Housing[267] — are to be applied in the assessment of plan changes. Despite that, it was not well or thoroughly considered by the experts. Mr Edmonds, the planner for Northlake, quoted[268] the notified version of Chapter 4.10 which is not the operative provision. He described[269] how within PC45's Activity Area D1 the density range of up to 15 dwellings per hectare would result in smaller lots which would tend to be more affordable[270]. He also referred[271] to the provision of the 20 expressly "affordable lots" at a maximum price of $160,000. Mr

263 Policy (7.3.3) 4 [Queenstown Lakes District Plan p 7-14].
264 Policy (7.3.3) 3 [Queenstown Lakes District Plan p 7-14].
265 Queenstown Lakes District Plan p 4-59.
266 Quoted above in part 3.1 of this decision.
267 Added by Environment Court consent order dated 17 July 2013 in *Infinity Investment GH Ltd v Queenstown Lakes District Council* (ENV-2009-CHC-46).
268 J B Edmonds evidence-in-chief para 6.8.10 [Environment Court document 14].
269 J B Edmonds evidence-in-chief para 6.8.12 [Environment Court document 14].
270 J B Edmonds evidence-in-chief para 6.8.12 [Environment Court document 14].
271 J B Edmonds evidence-in-chief para 6.8.12 [Environment Court document 14].

Barratt-Boyes only referred to it indirectly when he talked about the types of housing likely to be built under PC45 — stand alone houses with clusters of "zero-lot" or terrace houses. Ms Jones referred to the evidence of Mr Barratt-Boyes and Mr Meehan and concluded that there will not be a "significant" amount of "true medium to high density" housing at Northlake. In our view almost any amount of such housing would be a success given what appears to be the strong desire of purchasers in this district for space around them. That is consistent with Mr Munro's position: he seemed to consider PC45's proposal did not meet his concept of affordable housing but approved this aspect of the plan change anyway. Finally Mr Serjeant, who had obviously relied on Mr Edmond's wrong quotation in preparation of his evidence, deleted his comments on the issue[272].

7. Having regard to the Wanaka Structure Plan

[151] As stated earlier, we must have regard to the WSP. Published in 2007, the WSP's purpose is "... to provide a tool for the Council to manage growth in Wanaka over the next 20 years"[273]. Each of the parties placed considerable weight on (different) aspects of the WSP.

[152] The first 13 recommendations are general. The remaining come under headings as follows[274] (relevantly)[275]:

- *Retaining Wanaka's Landscape Character*
- *Retaining the character of the settlement*
- *Protecting and enhancing entrances to the town*
- *Movement Networks*
- *Providing for High Quality Green (open space) and Blue (urban) Networks*
- *Providing for a vital town centre*
- *Promoting sustainability initiatives*

272 See J B Serjeant evidence-in-chief para 78 [Environment Court document 18].
273 Wanaka Structure Plan 2007 p 1.
274 Wanaka Structure Plan 2007 p 11 et ff.
275 Wanaka Structure Plan 2007. Key Recommendations 57 and 58 on visitor accommodation are omitted.

We will discuss these largely in order, clustering a few related key recommendations where appropriate. We also add some further subheadings (in brackets) within the 'General' recommendations.

General recommendations

[153] The first Key Recommendation ("KR") is not really a recommendation at all, but simply states that the growth figures had been updated to reflect the most recent studies (as at 2007). The growth boundaries in the "Zonings Proposed" Map — annexure "D" — reflect these figures which are, of course, out of date. Further they suffer from the same sort of problems we have identified in the 2013 predictions as to "capacity".

[154] The next KR is that [276]:

> 2. The Structure Plan will not incorporate a detailed 'staging plan', but will consider preferred staging principles when the structure plan is implemented into the District Plan. Initial investigations indicate that urban development is preferred south of the existing golf course (bound by SH84 and Ballantyne Rd), while development in the proposed Urban Landscape Protection Zone north of Aubrey Road is preferred over other land contained in this zone in the structure plan area.

It is not immediately clear what are the "staging principles" referred to in KR 2. The witnesses for AWI assumed they contemplated staging within an area to be rezoned. However, for several reasons we consider that is wrong. First the WSP applies to an area greater than the existing urban area of Wanaka, second, two areas are identified — one south of the golf course and one being part of the site (within the proposed Urban Landscape Protection Zone) — as preferred. We consider the more likely intention of this recommendation is that the staging is as between residential zones (in a general sense) as shown on attachment "D" to this decision. We hold that KR 2 does not promote detailed within-zone staging. The result is that at least part of the site — the area within the Urban Landscape Protection Zone — is favoured for development earlier rather than later.

[155] That is reinforced by KR 11 which states:

[276] Wanaka Structure Plan 2007 p 11.

> 11. The revised Structure Plan identifies a proposed 'Urban/Landscape Protection' area in the north east of the proposed structure plan area. The 2004 Structure Plan identified this area as an open space. This area is considered suitable for development due to its proximity to community and education facilities and to future public transportation linkages. It also reflects the fact that this area is already zoned for rural residential purposes, which is not considered to be an efficient use of the land (and also precludes its use for recreation/open space). The Urban/Landscape Protection area has been shown immediately fronting Aubrey Road, however the exact location of future development should be determined further during the Plan Change process. The outer growth boundary adjacent to the Clutha River has been amended (located further south to the 2004 structure plan) in recognition of the need to protect this land from inappropriate development.

This is a crucial recommendation for the site because the WSP expressly recognises at least a large part of the site is suitable for residential development.

(Open space)[277]

[156] KR 3 deals with open space issues. The WSP leaves the specific area and location of open spaces to be resolved at the plan change and/or resource consent stage. PC45 contains some proposals in respect of these matters, with a particular concentration on connectivity (see KR 14) across different ownerships within the site and across boundaries to existing roads and tracks (for pedestrians and cyclists).

[157] We note that KR 10 adds:

> 10. The Structure Plan identifies 'Plantation Forest' (i.e. "Sticky Forest") as a potential landscape protection area. This highlights the landscape sensitivity of this area as well as its potential to contribute to open space and recreation networks. …

Mr Edmonds pointed out that future trail connections are planned between the site and Sticky Forest[278].

(Neighbourhood centres)

[158] KR 4 also identifies locations for potential "neighbourhood centres" as "commercial/retail" on the map. It adds[279]:

277 We use brackets around subheadings where we supply them: they are not used by the WSP itself.
278 J B Edmonds evidence-in-chief Attachment 3 p 119 [Environment Court document 14].
279 Key Recommendation 4 [Wanaka Structure Plan 2007 p 11].

> 4. An appropriate location for a further neighbourhood centre … in the vicinity of Plantation Road/Aubrey Road will be considered prior to implementing the structure plan into the District Plan.

PC45 proposes a neighbourhood centre on the site to the north of Aubrey Road (a little more than one kilometre from Plantation Road). Given the explanation for the choice of location in the evidence of Mr Long[280], we consider that is appropriate. The evidence of Mr Serjeant and Mr Munro was not convincing on this issue (see Part 1.5). Mr Long gave evidence[281] of what he said was a successful small operation — the Grazë café at "Lake Hayes"[282] — and suggested the same could occur on the site. The success of a shop like this will depend on how well it is set up and marketed. We have already discussed the desirability of a small neighbourhood commercial centre from an urban design perspective, and we consider that PC45's proposal is consistent with this recommendation.

(Growth boundaries)

[159] Growth boundaries in the area are described by KR 5 in this way[283]:

> 5. The land that is located outside the inner (20 year) growth boundary but within the outer growth boundary will be identified as remaining Rural General as it is currently not needed to meet the 20 year growth needs. This aims to clearly signal to the community and landowners that this land is not considered suitable for additional development within the short to medium term future. Future guidance on the appropriate use of this land will be considered at the implementation stage.

[160] In the vicinity of the site, the WSP proposed both an "Inner Growth Boundary" ("pIGB") and an "Outer Growth Boundary" ("pOGB"). The location of both on the site is shown on annexed plan "D". The WSP clearly envisages part of the site — that within the pIGB — being urbanised, but subject to the constraints of the topography in this area as indicated by the WSP's proposed "Urban/Landscape Protection" zoning for the southern two-thirds of the site, as shown on annexure "D". That suggests that PC45 is at least heading in the right direction to achieve the WSP.

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280 J A Long rebuttal evidence para 7.2 [Environment Court document 12A].

281 J A Long evidence-in-chief Exhibit 12.1 [Environment Court document 12].

282 The inverted commas are because the "Lake Hayes Estate" is not at Lake Hayes but south of the State Highway on a terrace above the Kawarau River.

283 Key Recommendation 5 [Wanaka Structure Plan 2007 p 5].

[161] KR 5 is that the land between the pIGB and the pOGB will be identified as remaining Rural General because it was (at 2007)[284] "... currently not needed to meet the 20 year growth needs". Since that recommendation expressly signalled to the land owners that the northern one third of the site was not considered suitable for urban development in the medium term future, it is obviously against development of that part of the site as Mr Edmonds quite properly acknowledged in his evidence-in-chief[285].

[162] Against that we were advised that[286] the landscape experts for Northlake and the Council agreed before the hearing that there is "no landscape logic" to the pOGB as drawn across the site. Further, Mr Goldsmith pointed out that 83% of Northlake's proposed development would occur inside the pIGB. The 250 residential lots outside the pIGB but inside the pOGB represent only one or two years supply of allotments.

[163] No other reason for supporting the pIGB as a limit on development of the site was put forward. We accept that the concept of an outer growth boundary running along the edge of the higher landform points overlooking Lake Wanaka and the Clutha River, and intended to constrain urban growth within a clearly delineated UGB, is valid in an RMA context and achieved the important district-wide policies in part 4.2 of the QLDP. We agree with Mr Goldsmith[287] that: "The detail of this part of the pOGB in the WSP was not properly analysed and is not valid". We also accept that a boundary in the location agreed between Mr Baxter and Dr Read may well be an appropriate UGB. While we have no jurisdiction to incorporate a UGB into the district plan through PC45, we accept that the outer boundary of Activity Area E might be a valid and enforceable boundary. Preferable might be a line on the inside of Activity Area E (or at least E2).

Retaining Wanaka's Landscape Character

[164] The KRs on landscape include[288]:

> 14. A high amenity network of open space and recreation spaces should be provided to ensure that the settlement retains a strong connection to the adjacent landscape.

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284 KR 5 [WSP p 10].
285 J B Edmonds evidence-in-chief Attachment 3 p 117 [Environment Court document 14].
286 W J Goldsmith opening submissions para 15.10 [Environment Court document 4].
287 W J Goldsmith opening submissions para 15.9 [Environment Court document 4].
288 Key Recommendations 14 et ff [Wanaka Structure Plan 2007 p 11-12].

15. Maintain existing view corridors that offer high amenity landscape interpretation opportunities.
16. Limit development in areas identified as having landscape sensitivity and encourage development in the most logical, convenient and less sensitive areas of the town.

[165] KR 16 makes two points[289] — development in areas of landscape sensitivity should be limited, and development should be encouraged in "... the most logical, convenient and less sensitive areas of town". We have already recorded that Mr Munro put forward his own extensive analysis[290] of what in his view were more logical and convenient areas to develop. However, this KR must of course be considered in the context of the others, including those which expressly recognise the site as suitable for development. KR 16 cannot be used to subvert the more specific recommendations.

[166] The ONL boundary has been identified and drawn to exclude the slopes falling to the Clutha River. The Activity Area A and the Building Restriction Areas also limit development to protect other areas of landscape sensitivity.

[167] We find that PC45 achieves these recommendations in (nearly) exemplary fashion.

Retaining the Character of the Settlement

[168] The "character" recommendations are:

18. Provide for street layouts that are legible and interconnected.
19. Ensure that the layout of new development areas responds to the site context, site characteristics, setting, landmarks and views.
20. Ensure that the layout of new development areas creates a strong sense of place that reflects the character of the existing settlement. In particular local streets should reflect a sense of 'informality' with a less regimented arrangement of planting, a lack of kerbing and channelling and casually connecting pedestrian ways where practicable. The use of drainage swales should also be considered where possible. Design covenants could be used in new subdivisions to assist in achieving a specific character.

289 KR 16 [WSP p 11].
290 I C Munro evidence-in-chief 2013 Report [Environment Court document 17].

[169] KR 19 and KR 20 were agreed to be relevant. They relate to internal urban design factors, and on those issues we prefer the evidence of Mr Barratt-Boyes for Northlake (discussed in part 5 of this decision).

(Density of development)

[170] KR 23 is to:

> 23. Ensure that any higher density development is appropriately designed and located to enable for diversity of housing choice while retaining the overall low density character and feel of the settlement.

We consider the Northlake Structure Plan — annexure "C" — shows that will be achieved for the reasons given by Mr Barratt-Boyes in his evidence.

8. Evaluating PC45 under section 32 RMA

8.1 Introduction

[171] We have considered how effectively PC45 implements the relevant objectives and policies of the district plan in parts 4 to 6 of this decision. Because the relevant objectives and policies are, with one exception, not strongly directory and aim to enable a variety of outcomes, we hold that considerations of the efficient use of the land and other resources of the Wanaka area arise. We now examine the (limited) evidence on benefits and costs and the risks of acting or not acting. Those are both factors which help answer the question whether PC45 is more efficient than the status quo and other options put forward in the evidence in achieving the objectives and policies of the district plan.

8.2 The benefits and costs

What costs?

[172] We received little quantified evidence of the benefits and costs of the proposal. In relation to infrastructure, we had the uncontested evidence[291] of Mr J McCartney, a civil engineer for Northlake, that there would be no external costs imposed on the district in respect of any such alleged, but unidentified, costs.

[291] J McCartney evidence-in-chief Attachment 4 [Environment Court document 13].

[173] Mr Serjeant wrote that a result of PC45 being implemented would be that some "... additional costs ... will arise if already serviced land [of other developers] remains undeveloped"[292]. He explained by pointing out[293] that development contributions are usually taken by the Council at the time of issuing the section 224(c) RMA certificate to a subdivider which allows titles for new allotments to issue. That cost[294] is not recouped by the subdivider until the land is sold. Mr Serjeant then said that the risk of delays in offsite developers being repaid "... should not be increased through an oversupply of land created by Council zoning supply"[295]. While we do not accept there is likely to be an "oversupply" that is harmful to the public interest, we do accept that developers' holding costs may increase. It appears to us that these are costs imposed on trade competitors which they must accept (as would Northlake's developers) as a cost of trading and which we should not take into account: section 74(4) RMA. Since we did not hear argument about this we have regard to these costs but regard them as minor for the reasons we now give.

[174] First, any "oversupply" (of goods which do not spoil) from the point of view of developers is an opportunity or benefit for purchasers. As a general rule an increase in supply of sections in a market will lead to a lower price and movement in the quantity demanded, so that a greater quantity of sections is sold. That assumes of course that there are enough sellers in the relevant market to provide a competitive supply curve and we have considerable doubts that is so given the restricted ownership of residentially zoned land in the Upper Clutha Basin. The risks this creates we discuss (briefly) in part 8.3 of this decision. The net effect is that the extra holding costs caused to competitors by developers of the PC45 land are very likely to be outweighed by the benefits to purchasers because they will pay lower prices, as Mr Serjeant agreed[296] in an exchange with the court.

[175] In any event developers can, and routinely do, keep an eye on the market and develop their subdivisions in stages[297]. A result is that they only pay financial contributions for allotments they are seeking a section 224 certificate for. In other words

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292 D F Serjeant evidence-in-chief para 35 [Environment Court document 18].
293 D F Serjeant evidence-in-chief para 36 [Environment Court document 18].
294 Initially a private cost, but ultimately a social cost too.
295 D F Serjeant evidence-in-chief para 36 [Environment Court document 18].
296 Transcript p 231 lines 10 to 32 and p 232 lines 19 to 28.
297 Transcript p 254 line 26 et ff.

any trade competitor of Northlake can manage the costs of its financial contribution to a considerable extent.

[176] Of more relevance as offsite social costs are other potential effects identified by Mr Serjeant. He referred to the potential problems of earlybirds (our word) buying sections in the Three Parks subdivision and then living in an unattractive environment because other people who might have moved there have brought elsewhere, so the Three Parks subdivision languishes. However, he accepted[298] in cross-examination that it would only apply to people in a relatively small area (one stage of a subdivision). While we accept that there is a cost — and we accept Ms Jones' evidence[299] of the benefits of a 'built-out' neighbourhood — we consider that is a minor and temporary cost.

[177] Secondly he referred to delays in introducing public transport to Wanaka as a result of relatively more far-flung PC45 development. But he accepted[300] that this is a complex exercise in which PC45 has countervailing advantages in proximity to schools[301].

The net social benefit

[178] Ultimately of course it is desirable to know the net social benefit of any new proposal such as PC45 and compare it with the net social benefit of the status quo (or any other realistic potential use of the resources put forward in the evidence). The proposal with the greater[302] net social benefit is the most efficient use of the resources.

[179] The best way of quantifying and comparing the social benefit of different options for the management of a resource is to compare the relative net benefits of each, calculated in dollars per unit of resource per year if that is possible. Often it is not. In particular the quantification becomes difficult when:

298 Transcript p 257 lines 16 and 17.
299 V S Jones statement para 4.18 [Environment Court document 16].
300 Transcript p 261 lines 1 to 7.
301 Transcript p 260 lines 25 to 29.
302 Or "greatest" benefit if there are more than two choices before the local authority.

(a) there are large uncosted externalities (e.g. pollution, traffic congestion[303] or effects on significant ecosystems[304], outstanding natural landscapes or amenity values); and

(b) there are competing uses of land in one of which (residential use) much of the value may not be easily monetarised in cash flow terms (obviously it is much easier to capitalise as a purchase price).

Perhaps for one of those reasons we were not given any evidence going towards a cost benefit analysis. However, we asked for and were given valuations by a registered valuer called by Northlake.

[180] Land values provide good empirical evidence of the highest and best use as assessed by markets, provided of course there are only minor uncosted and relevant externalities to take into account. In situations involving land resources where lifestyle considerations mean that non-monetary benefits contribute greatly to the value of the land, valuations may be a good proxy because they more accurately reflect the "highest and best use" of the land in the eyes of consumers.

[181] Comparing the predicted approximate value of the land for three types of use shows:

Option 1 — (Rural General Option Value) $30,000 per hectare[305].

Option 2 — Rural Residential Option Value
Valued on the basis the land has been subdivided to a rural residential density as in Activity Area A, namely lot sizes of minimum 4,000^{m2} ready to sell: the gross market value is $530,000 (excluding GST)[306] per hectare.

303 Loosening urban boundaries (in areas much larger than Wanaka) while not dealing with the costs of traffic congestion may be futile.
304 For example, under section 7(c) RMA.
305 See para [12] S G N Rutland affidavit dated 10 April 2015 [Environment Court document 34].
306 S G N Rutland affidavit dated 10 April 2015 para 13 [Environment Court document 34].

Option 3 — PC45 Option Value

Valued on the basis that the land has been subdivided in accordance with PC45; the estimated gross market value is $1,220,000 (excluding GST)[307] per hectare.

[182] Options 2 and 3 are predictions rather than opinions about the current state of affairs, but the evidence was asked for and given as an approximation so that the court could identify the relative value of the Northlake land for the three possible uses discussed. On that basis AWI did not seek to challenge it (although it was given the opportunity to do so). What the valuation evidence reveals is that the market values of residential land at Wanaka are over 40 times Rural General land values. Even allowing for a large margin of error, and for the complete lack of quantification of all costs (the development costs and financial contributions are likely to be formidable for option 3), that is an extraordinary difference and suggests that PC45 is the most efficient outcome. That is consistent with the evidence of Ms Jones who considered efficiency issues briefly. She described the Rural Residential zoning (which includes the site) that surrounds urban Wanaka as "inherently inefficient"[308] and piecemeal subdivision of that land as inefficient also[309].

[183] We conclude that rezoning the site as a type of residential zone is more likely than not to give considerably more benefits to society than retaining it as Rural General and more net benefit than rezoning it for rural-residential uses because it is difficult to conceive of the costs of the remote and apparently minor adverse effects identified by AWI as outweighing even the net benefits of the PC45 development compared with those other options. This conclusion is speculative so we will give it little weight in our overall evaluation, but it is worth recording because the net benefits and costs appear to be on the PC45 side of the ledger.

307 S G N Rutland affidavit dated 10 April 2015 para 15 [Environment Court document 34].
308 V S Jones statement of evidence para 3.1(d) [Environment Court document 16].
309 V S Jones statement of evidence para 3.1(e) [Environment Court document 16].

8.3 The risk of acting or not acting

[184] Another matter we must take into account is the risk of approving[310] PC45 or of refusing it ("not acting").

[185] We identified above three options that were put forward for the site. We discuss the risks of options 1 and 3 below, together with variants on option 2. In the wording of section 32(4), options 1 and 3 are:

> *Option 1: the risk of not acting (i.e. refusing PC45 so that the site remains Rural General).*
>
> *Option 2A: low density residential as recommended by Mr Munro.*
>
> *Option 3: the risk of acting (i.e. approving PC45).*

We have called the middle option 2A because it is different from option 2 assessed by the valuer[311]. It is assessed because it was Mr Munro's preferred option if the site is not to remain Rural General.

Option 1 — Retention of Rural General zoning and rejection of PC45

[186] Rejection of PC45, as recommended by Mr Serjeant, obviously means the zoning of the majority of the PC45 land would remain Rural General. The obvious risk is that part or all of the site would be subject to an application for a discretionary subdivision at some time in the near future. Indeed that has occurred already in this area — Activity Area A[312] adjacent to Aubrey Road has already been subdivided in that way with, in our view, inferior results in terms of the objectives and policies of the QLDP. An application for resource consent to develop a significant part of the site in that way was withdrawn at the Council's request in favour of a holistic approach by way of PC45, which addresses all the land.

310 "Acting" in terms of section 32(A) RMA.
311 That is the presiding Judge's fault: he worded the question to counsel incorrectly.
312 No longer part of the site.

[187] Mr Meehan, on behalf of himself and Allenby Farms Limited, stated that, if PC45 is cancelled and the existing Rural General zone is retained, the community can expect the landowners to pursue other development options. Those would probably involve either discretionary subdivision and land use application or a plan change seeking some form of low density "rural living"[313] development. These would forgo most of the corresponding PC45 benefits and efficiencies in achieving the objectives and policies of the QLDP. That potential outcome must be carefully considered.

[188] Mr Brown expanded on this in his evidence called in rebuttal. He wrote[314]:

> ... [of] the risk that land is suitable for residential growth could be fragmented prior to the opportunity for a comprehensive, integrated planning outcome. The more that land is fragmented the more difficult it is to develop comprehensively and efficiently, and this is a significant risk.

He preferred a comprehensive approach now to "any sort of holding pattern"[315]. That is reinforced by the evidence[316] of Mr Barratt-Boyes that another considerable advantage of PC45 is that it is very likely to avoid the risk of sporadic subdivision of the site which may not give effect to the desirable urban design goals.

[189] Mr Serjeant refused to answer questions about those issues because he regarded discretionary development as speculative. Given the extensive history of precisely such development to the south of the site that seemed slightly evasive. We accept that it would be difficult for the Council to resist ad hoc development enabled by way of discretionary activity resource consent under the Rural General Zones provisions.

[190] Finally we consider the risks of refusing PC45 on the supply of sections to the housing market(s) in the Upper Clutha. This is where the restricted ownership of residentially zoned land becomes relevant. We say immediately that we accept the submission of counsel for AWI that there is insufficient evidence of collusion to find that the housing market(s) is (are) suffering from deliberate monopolistic behaviour. However, that was not why the evidence of Mr Meehan and others covered the restricted

313 See Chapter 8 of the Queenstown Lakes District Council Plan.
314 J A Brown rebuttal evidence para 4.9 [Environment Court document 6].
315 J A Brown rebuttal evidence para 4.9 [Environment Court document 6].
316 G N Barratt-Boyes evidence-in-chief 9 [Environment Court document 9A].

ownership of land in the area. As counsel for Northlake submitted, that ownership creates a risk of suppressing the quantity of sections supplied and we should take that into account. This is a factor that favours PC45.

Option 2A — The low density residential outcome (recommended by Mr Munro)

[191] A second possible outcome appears a standard, suburban, low density residential zoning for an area inside the WSP pIGB. That would develop part of the site for about 700 houses (instead of about 1,500 houses). It would, in Mr Goldsmith's words, give "a much more limited range of residential product" and there would not be any community facilities, nor neighbourhood retail provision nor any affordable houses. The sections that would result would provide a desirable place to live for a reduced number of people (those who can afford property at the higher end of the already expensive Wanaka price range).

[192] A further creative slant on a similar theme was a staged approach suggested by Ms Jones whereby a larger lot (low density) subdivision would be undertaken and then at a point in the future these lots would be able to be further developed on an infill basis[317]. Mr Goldsmith examined the practicality of this suggestion with Ms Jones[318]. We are satisfied that this approach would not lead to best planning practice as integrated planning of such features as access, services and dwellings would not be optimised and could lead to unnecessary cost. In our experience large lot lifestyle or small-holding subdivision and subsequent re-subdivision rarely results in good urban form. We regard Ms Jones' idea as an off-the-cuff response in cross examination, which on reflection has few merits. Her other option in her statement of evidence — some development now in exchange for deferred zoning of the remainder — has more merit but is still likely to be less efficient than PC45.

Option 3 — the risks of approving PC45

[193] Counsel for AWI submitted[319] that there were four risks of approving PC45. None of them are risks in the proper sense of being the product of a probability of an

317 Transcript p 133 [4/3/15 1211].
318 Transcript p 136 [4/315 1211].
319 AWI's closing submissions para 128 [Environment Court document 35].

adverse effect and the cost of its consequences. However, in deference to counsel we will consider them briefly:

- If "sufficient" means any amount more than is necessary, then the more land developed the better. All land (not just the PC45 land) within the Wanaka Structure Plan 2007 UGB could therefore be developed without control.

This is a non-sequitur and we consider it no further. We have discussed the application of "sufficient" in its context earlier.

[194] Next:

- The UGB process to be determined by the district plan review is undermined because part of it will have been set absent of any comparative analysis of absorbing the "identified need" for urban growth elsewhere. This is not what integrated management means.

We have already observed that the UGB process is not compulsory, nor is development in the absence of an UGB prohibited. We consider integrated management in part 9.

[195] Next counsel submitted:

- The "staging plan" referred to in the [WSP] and inferred from Part 4.9 of the Plan will have already been set. For the next twenty years, Northlake will be "the stage". Again, this outcome would be absent of any comparative analysis of achieving the goal of compact urban form.

We have held this is a mistaken understanding of the WSP and what it means by "staging". We consider lack of compact form next.

[196] Finally:

- The Rural Residential Zone on Aubrey Rd will have no continuing function or integrity against a goal of "compact urban form". The effect of up-zoning the Rural Residential zone has not been considered. The UGB, the PC45 site and the Aubrey Rd Rural Residential zone all have to be managed in an integrated way. That has not been attempted, or even considered, by the Requestor.

The main policies[320] on this issue "promote" compactness. We have already found that PC45 is likely to do this to a satisfactory extent.

[197] Turning to risks properly so-called: the risks of approving PC45 are on-site and off-site. The on-site risks are relatively minor and would be largely borne by the developers and/or subsequent purchasers of lots, for example, there is a possibility that insufficient houses will be built to trigger construction of the communal facilities (swimming pool etc). There is also a risk that shops in the neighbourhood centre in Activity Area D will not be able to trade successfully. However, as Mr Barratt-Boyes observed that is largely a risk for the developer or at least the owner of the building as to the level at which they pitch rents. We have accepted Mr Long's unchallenged evidence[321] that a small commercial node will not affect other existing (or possible future) retail centres in Wanaka.

[198] Off-site there is a probability that subdivisions in the Three Parks area may be slower to sell (if they are even put on the market). The "tumbleweed" scenario identified in *Westfield Ltd v Upper Hutt City Council*[322] may be literal in the case of some of this land. However, we consider the social costs of slower sales would be relatively low, especially if the landowners at the time lower their prices as a response to new market conditions (a shift in supply) and/or an increase in the number of sections on the market (a supply movement). That would enable the Three Parks area to become an area for aspirational owners — people who wish to work in the area but cannot otherwise afford to live there.

[199] And of course PC45 is likely to reduce the risk of anti-consumer behaviour from current owners of undeveloped but zoned residential land by introducing more competition into the section/housing market(s) in Wanaka.

320 Policies (4.5.3) 1.1 and 1.2 [Queenstown Lakes District Council Plan p 4-29].
321 J A Long evidence-in-chief parts 7 and 8 [Environment Court document 12].
322 *Westfield Ltd v Upper Hutt City Council* W44/2001.

9. Assessing the most appropriate objectives and policies

9.1 The matters to be weighed and the Council's decision

[200] The final part of our decision on a plan change is to weigh up the four[323] relevant sets of considerations:

(1) whether the plan change is more effective than the status quo in achieving the relevant objectives and policies in the operative district plan and in other — usually higher, but here a lower (the WSP) — later statutory instruments not directly particularised in the district plan;

(2) the section 32 evaluation of the plan change against the relevant alternatives;

(3) whether the plan change accords with the local authority's functions, particularly — in the case of a territorial authority — managing the integrated effects of the use, development and protection of land and the other resources of the district; and

(4) having regard to the decision of the Council.

[201] As to (4), we respectfully agree with the outcome of the Commissioners' Hearing and most of the reasons they gave, and give the decision considerable weight. We consider the Council decision no further, but summarise our consideration of the first three matters in the following paragraphs after dealing with one other legal argument raised for AWI.

[202] Counsel for AWI submitted that no consideration had been given to alternative (off-site) areas for the residential development proposed by PC45 for the site. The Supreme Court decision in *EDS v NZ King Salmon* [324] establishes that there is no obligation to look at alternative sites. That is "... permissible, but not mandatory"[325]. In this case there are no matters of national importance (under section 7 RMA) raised to make that desirable; nor is there any proposal in PC45 which involves exclusive use of a

323 The three sets of territorial authority's obligations identified in para [41] above plus our obligation under section 290A RMA.

324 *EDS v NZ King Salmon* (supra footnote 1) (SC).

325 *EDS v NZ King Salmon* (supra footnote 1) (SC) at [166].

public resource to make consideration of alternatives "unavoidable"[326]. Further, "Of the six areas identified by Mr Munro (additional to Northlake), four are essentially undevelopable; which leaves only the Orchard Road block and Three Parks"[327]. We have found those are not likely to supply (many) comparable sections. Even Mr Munro conceded in his 2013 Report that PC45 was likely to provide superior allotments, so in our discretion we consider it is not necessary to look at alternative sites for urban development.

9.2 Does PC45 effectively implement the QLDP?

[203] Evaluated in terms of its effectiveness in achieving the relevant objectives and policies of the district plan, in parts 4 to 6 of this decision we predicted that PC45 is likely to[328]:

(1) encourage new urban development[329] which is imaginative in terms of urban design (the affordable housing outlined by Mr Meehan) and which integrates different activities:
   — the network of roads and tracks linking residences and providing for recreational biking and walking;
   — the small commercial centre[330]; and
   — the nearby schools.

(2) assist (potentially) in the definition[331] of an UGB on the site;

(3) provide sufficient land for 1,500 (approximately) residential units and a diverse range of residential opportunities[332];

(4) enable new residential accommodation[333] on the site including a number of residential allotments at the more affordable[334] end of the price range (in Activity Area D1) for middle or lower income households ;

(5) observe the constraints[335] imposed by the natural and physical environment;

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326 *EDS v NZ King Salmon* (supra footnote 1)(SC) at [168] and [170]-[173].
327 J D Edmonds rebuttal evidence para 12.11 [Environment Court document 14A].
328 This list generally follows the sequential order of objectives and policies in the district plan.
329 Policy (4.9.3) 3.2 [Queenstown Lakes District Council Plan p 4-54].
330 Policy (4.9.3) 4.2 [Queenstown Lakes District Council Plan p 4-55].
331 Policy (4.9.3) 7 [Queenstown Lakes District Council Plan p 4-57].
332 Objective (7.1.2) 1 [Queenstown Lakes District Council Plan p 7-3].
333 Policy (7.1.2) 1.2 and 1.4 [Queenstown Lakes District Council Plan p 7-3].
334 Policy (4.10.1) 1.1 [Queenstown Lakes District Council Plan p 4-59].
335 Policy (7.1.2) 1.1 [Queenstown Lakes District Council Plan p 7-3].

(6) maintain a distinction between urban and rural areas[336] through the use of Activity Areas, conservation and design controls in the proposed rules;

(7) contain the outward spread[337] of Wanaka by detaining development areas which do not spread along, but away from, Aubrey Road, by restricting access arrangements;

(8) provide for development which carefully uses the topography[338] as shown on the attached "Structure Plan" marked "C";

(9) create a sense of neighbourhood[339] community and wellbeing by providing for centrally placed community facilities[340] (a neighbourhood centre and a swimming pool);

(10) by developing adjacent to Aubrey Road to provide for peripheral expansion[341] of Wanaka; and

[204] In addition PC45 generally carries out the Key Recommendations of the WSP.

[205] Against these positive aspects, Mr Munro summarised his principal concerns with PC45[342]:

> I disagree that sustainable management will be promoted by providing residential land in Wanaka when there is already a surplus, and where the new zoned land is inferior in urban design terms than existing zoned land. This is likely to lead to more dispersal, lower take up rates of existing zoned areas, less connected neighbourhoods, and overall a watering down of the "compactness" consistently seen by the community as essential to Wanaka's character and wider sense of identity. This amounts to urban design inefficiencies and ineffectiveness in terms of the operative zones and the overall outcome for Wanaka that PC45 would enable.

We have found that Mr Munro is likely to be incorrect in his conclusions that there is a surplus of residential land in Wanaka and is wrong that the site is inferior in urban design terms as contemplated by the QLDP.

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336 Policy (7.1.2) 1.5 [Queenstown Lakes District Council Plan p 7-3].
337 Policy (4.9.3) 3.2 [Queenstown Lakes District Council Plan p 4-54].
338 Policy (4.9.3) 4.2 [Queenstown Lakes District Council Plan p 4-55].
339 Policy (7.3.3) 2 [Queenstown Lakes District Council Plan p 7-14].
340 Policy (7.1.2) 3.1 [Queenstown Lakes District Council Plan p 7-5].
341 Policy (7.3.3) 1 [Queenstown Lakes District Council Plan p 7-14].
342 I C Munro evidence-in-chief para 31 [Environment Court document 17].

[206] As for the assertion that the community sees compactness as essential, we consider that the correct position is that the QLDP perceives consolidation/compactness as important and not spreading into the landscapes of the District as very important. PC45 implements both sets of policies especially the latter. We find that the main defects of PC45 from an effectiveness perspective are that it enables extensions of urban Wanaka which are not as compact/consolidated as might be achieved, and second that it is development outside an UGB which is to be "strongly discourage[d]".

[207] Giving due weight to those negatives, we conclude that overall PC45 is, in all the circumstances outlined, more appropriate than the status quo or the options put forward by Mr Munro and Ms Jones.

9.3 Section 32 evaluation: efficiency

[208] The sketch of benefits and costs suggests that the net social benefit of PC45 is more likely than not to be positive compared with the status quo or Mr Munro's staging. Similarly, the risk analysis favours PC45 over the alternatives. Having regard to efficiency of PC45 in achieving the relevant objectives and policies of the district plan, we consider PC45 is the most appropriate way of achieving those objectives.

9.4 Integrated management of the effects of use, development and protection

[209] We have considered the integrated management of the scale of effects of PC45 carefully. We appreciate that the addition of (potentially) 1,600 housing units increases the housing stock by approximately 35% (say, one-third). Counsel for AWI suggest that PC45 would introduce "a level of development never previously seen in Wanaka"[343]. That is not correct: it introduces the potential for such development under a carefully planned template — the Northlake site will only be developed as and when the developers consider all the relevant factors that suggest (to them) another stage should proceed. Counsel for the appellant submitted in closing[344] that "It is not the role of the District Council, or this Court, to pick winners in the market or to tackle growth capacity in the district". Counsel for Northlake agree but then submit that the appellant's approach "... being one of complete Council control over release of land through a ... staging process, could not result in any outcome other than the Council ... picking

343 AWI closing submissions para [101] [Environment Court document 35].
344 AWI closing submissions para 15(b) [Environment Court document 35].

winners through the District Plan". We agree with that submission and consider that AWI misconceives the QLDP: the district plan does not deliberately pick winners — it enables, encourages, and in certain cases strongly discourages, certain behaviour but that is as powerful as its intervention in the market place for land goes (recognising that rezonings may well amount to picking winners indirectly).

[210] We accept that it is theoretically open for the positive relevant considerations to be outweighed by other factors such as the policy discouraging urban extensions in the rural areas beyond urban growth boundaries, considerations of compactness and, overarching, by the exercise of the function to integrate the effects of use and development of land. For example, counsel for AWI submitted that PC45 would pre-empt both the plan review and the setting of an UGB, relying on the evidence of Mr Munro. Mr Goldsmith's reply[345] was that only the Council knows the reasons the Council put PC20 (which proposed an UGB for Wanaka) on hold, and the implications and consequences of the Council putting PC20 on hold (such as the potentiality or likelihood of an intiative such as PC45). The Council processed the Three Parks PC16[346] and the North Three Parks PC4[347] without a UGB in place; the Council must know whether or not, and if so when, it intends notifying a Wanaka-wide UGB; and further the Council must have its own view of whether or not the approval of PC45 would undermine the District Plan review in general or any proposed Wanaka-wide UGB in particular. Further, the Council accepted the Commissioners' PC45 recommendation and supports the PC45 decision in these proceedings, despite the District Plan review supposedly being notified later this year. We accept that is a fair statement of the position. In the circumstances we do not accept that the review is being subverted.

[211] The evidence of Mr Munro and Ms Jones seems influenced by their opinions about the past development of Wanaka. Ms Jones wrote with commendable directness[348]:

345 W Goldsmith submissions for Northlake in reply para 4.3 [Environment Court document 38].
346 Notified April 2009, made operative January 2011.
347 Notified March 2012, made operative July 2013.
348 V S Jones statement of evidence para 4.3 [Environment Court document 16].

> I agree with Mr Munro that the development of the northern peninsula is unfortunate and has resulted in areas of new development that are dependent on the private vehicle travel in the same way that Northlake will be at least for the next 20 years, if it is approved. In this respect, I think the phrase 'two wrongs don't make a right' is apt. I also agree that the historic Rural Residential areas that surround the Wanaka town are not desirable and, in a perfect world, would be intensified over time[349].

That sums up many of their concerns. However while those concerns may be justified by (some) urban design principles, they are not justified by reference to the operative district plan. Recurring themes in the district plan are enjoyment and maintenance of amenities and the landscape, enabling people to provide for their needs and lifestyle preferences. We doubt that many of the people who live on the Peninsula west and southwest of the site consider that their neighbourhood(s) are "unfortunate".

[212] We hold that it is fundamentally incorrect to see PC45 as a second wrong which compounds alleged earlier errors by the Council.

[213] While we appreciate that PC45 will make Wanaka less compact than AWI's witnesses and Ms Jones would like, we consider it does have some energy-saving advantages (in addition to the costs of extra travel to the lakefront or to a supermarket) in its proximity to Wanaka's schools and to recreational facilities. It also contains a proposal for small-scale shops to create its own neighbourhood. We consider that the argument PC45 will not manage the adverse effects of development in an integrated way is significantly overstated. Much will depend on the internal staging adopted by the developers and indeed on market conditions at the time of sale. Even if those go badly we consider the effects will be relatively temporary. In the longer term Wanaka will fill out to within a respectful distance of its natural topographical boundary (the Clutha River), in a completely appropriate and well integrated way. We conclude that the integrated management of effects favours PC45 over the options.

349 Section 42A report, Section 6.

10. Result

10.1 Conclusions

[214] Weighing all the matters outlined above, we conclude that PC45 is (provided some minor changes are made as raised in the next section) the most appropriate method of achieving the relevant objectives and policies of the district plan and that it will achieve integrated management of the resources of Wanaka. We are encouraged in these conclusions by the Hearing Commissioners' decision which was to the same effect. We will make (conditional) orders confirming that judgment.

10.2 Amendments to plans

[215] Since the following matters were not put to the parties or their relevant witnesses, they are provisional. Any party may apply to call evidence in respect of any of them.

[216] There is a low ridge in the centre of the site at the eastern end of (we think) the Allenby Farms Ltd property. There are patches of kanuka and native shrubs (and exotic weeds) on both the sunny northern side of this ridge and, more densely, on the southern side. While the flat ridge top is suitable for residential development, the kanuka and native shrubs should be protected. Any roading should go to the south of them. The Structure Plan will need to be re-drawn to show another tree protection area and relocation of the (notional) road.

[217] In the Stokes/Gilbertson block, at the eastern end of the site, two changes seem to be desirable to protect amenities:

(a) the whole of the gully should be a building restriction area (there is an anomalous residential C4 area at the northern end at present which should be cut off at the orange line drawn by us on plan "C");

(b) the land to the east of the gully in B5 should have minimum zoning size lots of 4,000m^2 (being a minimum Rural Residential scale) to protect the visual amenities of the elevated houses to the south of Aubrey Road.

[218] Third, there should be a walking track from the north-western high point on the site which overlooks the public reserve and camping area at the start of the Clutha River and down the ridge parallel to the Clutha River, to connect the two walking/cycling links shown on the Structure Plan. Because of potential erosion problems this may not be suitable for mountain bikes.

10.3 The objectives, policies and rules of PC45

The objectives and policies

[219] We hold that the rather anodyne objectives and policies of PC45 appropriately implement the particular objectives and policies of Chapter 7, and the more general policies in Chapter 4 of the district plan.

The rules

[220] In *Suburban Estates Ltd v Christchurch City Council*[350], a case about a new district plan for Christchurch City, the Environment Court wrote:

> [40] We conclude that when considering methods of implementation (including rules) the purpose of the Act as defined in section 5 is not the starting point at all; it is the finishing point, to be considered in the overall exercise of the territorial authority's judgement under Part II of the Act[351]. We hold that the overarching purpose of the Act — that is sustainable management, and the elements of Part II — are largely presumed to be met by, and subsumed in, the objectives, policies and methods contained in the revised methods of the City Plan. If that is not the case then there is an element of re-inventing the wheel if all the matters to be considered (to use a neutral term) under sections 5 to 8 of the Act have to be separately applied to the zoning.

With the exception of the first sentence, which is more applicable to a new (proposed) plan than a plan change, that passage largely fits with *EDS v NZ King Salmon.* Thus the objectives and policies to be implemented are primarily those in PC45 itself, now that we have confirmed those. Only where they are incomplete or uncertain do we need to refer to Chapters 7 or 4 of the district plan. Subject to some minor points raised below,

350 *Canterbury Regional Council (Suburban Estates Ltd) v Christchurch City Council* C 217/2001 at p 23.

351 As required by section 74(1) RMA.).

we consider the proposed rules effectively and efficiently implement the policies in PC45.

[221] In relation to the proposed rules in PC45 we note that when making a rule the territorial authority must also have regard to the actual or potential effect of activities on the environment[352]. In addition, there are several other considerations about rules (which have the force of regulations[353]) in section 76 of the RMA. Of these one is potentially relevant. Section 76(4B) states that there must be no blanket rules about felling of trees[354] in any urban environment[355]. Do the areas and rules for tree protection comply with section 76 (4B) RMA? We require an agreed position and/or submissions on this issue.

[222] We also have questions about the practicalities of other rules which should be considered to ensure the objectives and policies of the Plan and Plan Change are appropriately implemented:

(a) it appears there is an arrangement in the activity list where buildings are disjointed from the activities which might occupy them. This means that some categories of buildings appear permitted or controlled activities but the actual *residential* activity which will occupy them requires restricted discretionary consent. Thus the criteria which would be invoked to assess a residential activity will not necessarily be applied at development of the building stage. This could for instance allow remnant stands of native planting to be removed as only the Tree Protection Area and Area E are protected. This outcome might not implement Objectives 4 and Policy 4.2 of PC45;

(b) the requirement for no more than one residential unit on a site seems to be counterproductive in terms of efficient site planning, where contiguous areas of open space and shared features could be employed to achieve a

352 Section 76(3) RMA.

353 Section 76(2) RMA.

354 Section 76(4A) RMA as added by the Resource Management (Simplifying and Streamlining) Amendment Act 2009.

355 Section 76(4B) RMA — this rule was added by the Resource Management (Simplifying and Streamlining) Amendment Act 2009.

better urban design solution (consistent with PC45 Objective 2 and Policy 2.4);

(c) the rule permitting an underground structure to be excluded from maximum building coverage may reduce planting opportunity and perhaps these structures should be considered in a different way?

(d) there does not seem to be a rule addressing the external edge of the zone to the east where planting could assist the definition of this urban edge to be consistent with the Objectives and Policies introduced to the Plan through PC30. We note rules for planted edges facing Aubrey Road and Outlet Road might provide a model for addressing this issue;

(e) Activity Area E1 and Activity Area E4 seem to require the maintenance of a *pastoral state*. This directive will not protect trees or encourage additional enhancement planting. We request this wording be adjusted to address this concern which we consider does not accord with the Objectives of the Plan Change (e.g. PC45 Objective 4 and Policy 4.2, Objective 2 and Policy 2.1);

(f) is Activity C appropriately nominated given its natural attributes including proximity and buffer role to the ONL and the predominance of existing vegetation? We suggest this area should be nominated as a further Activity Area E (say E3). This would accord with Objective 4 and Policy 4.2 of the Plan Change.

10.4 Interim Decision

[223] Our decision will be interim for four reasons:

(1) the Amended Structure Plan will need to be redrawn;

(2) the objectives, policies and rules may need to be amended in respect of the matters raised in part 10.3;

(3) we are unsure of our powers to make the changes suggested in (1) and (2) — under the First Schedule or under section 293 RMA? — and will seek submissions on that; and

(4) we are unclear whether AWI wished to pursue its 'vires' arguments and in respect of what, so we will reserve leave for it to lodge more detailed

submissions on those (other than on Objective (4.9.3) 7 which we have resolved).

For the court:

J R Jackson
Environment Judge

Attachments

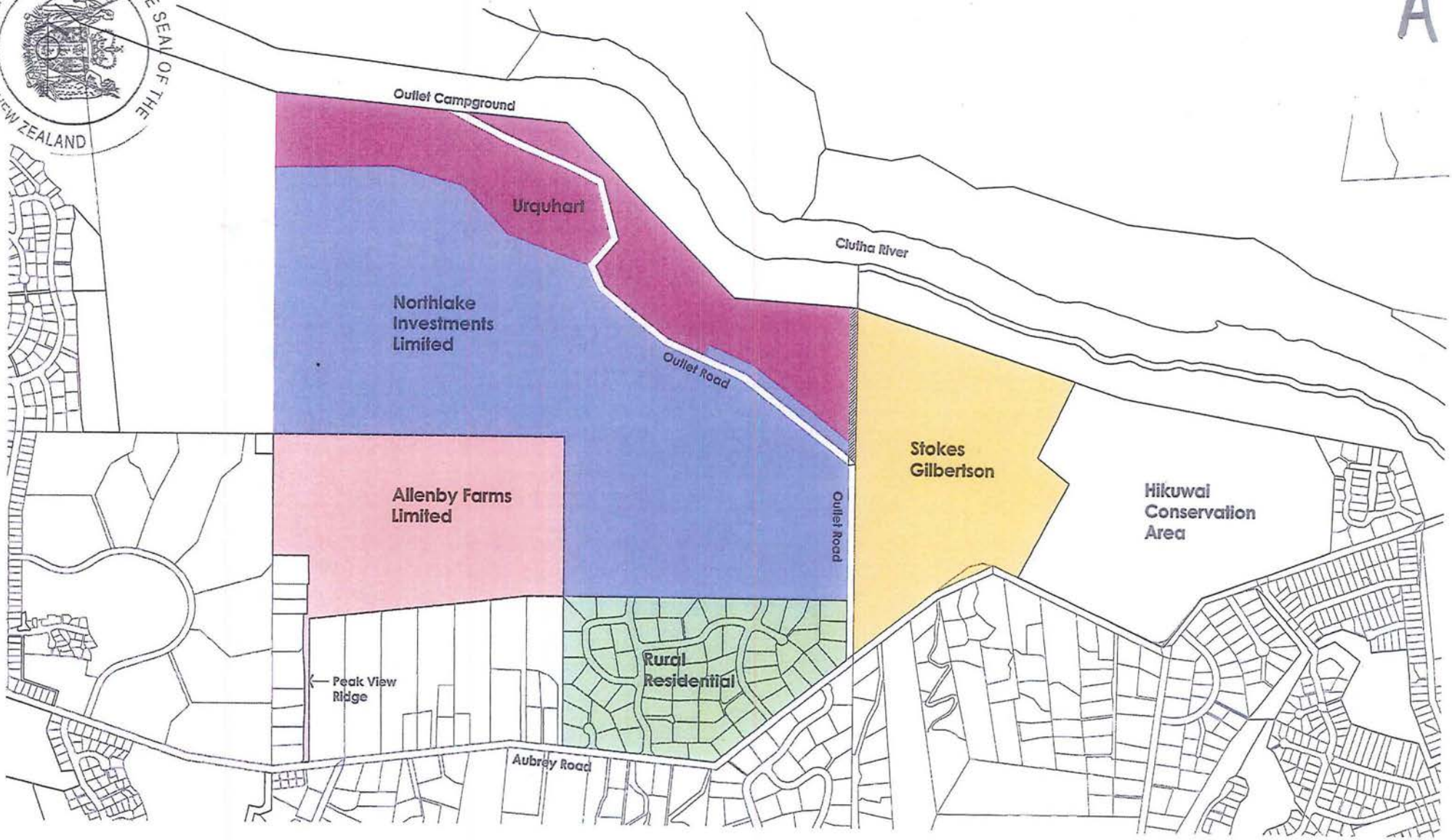
A: Ownership and site plan (Attachment "D" in Mr Goldsmith's opening bundle).

B: Map of Dippie Family interests (Ex 14.1).

C: Northlake's Amended Structure Plan dated 1 May 2015.

D: "Zoning Proposed" map from the Wanaka Structure Plan 2007.

A



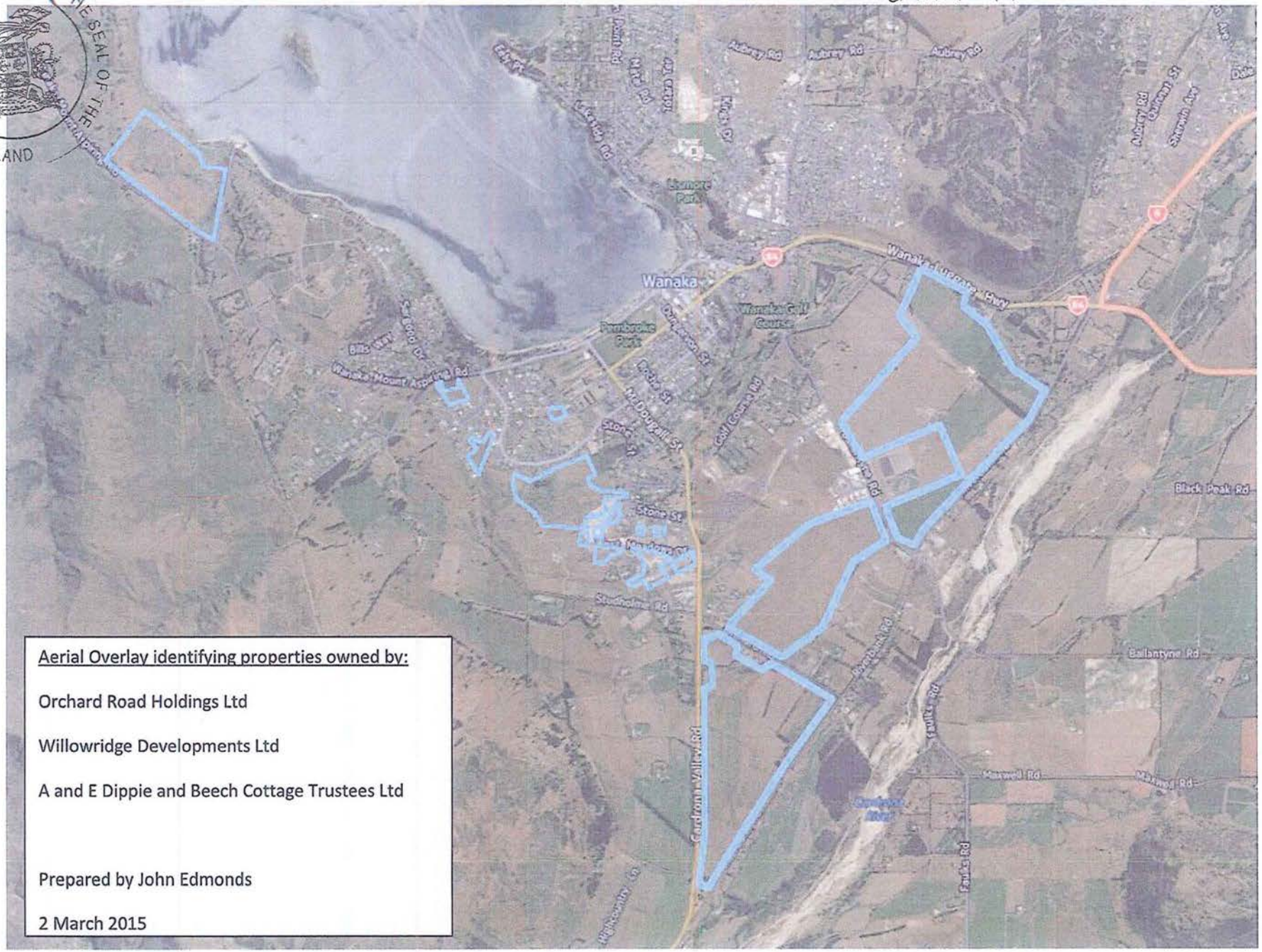
NORTHLAKE WANAKA - LAND OWNERSHIP PLAN (Note: Some coloured land is outside the PC45 Zone)

REFERENCE 1949-SK32 SCALE = 1:5000 AT A3 20 Feb 2015

baxter design group

Exhibit 14.1

B



Aerial Overlay identifying properties owned by:

Orchard Road Holdings Ltd

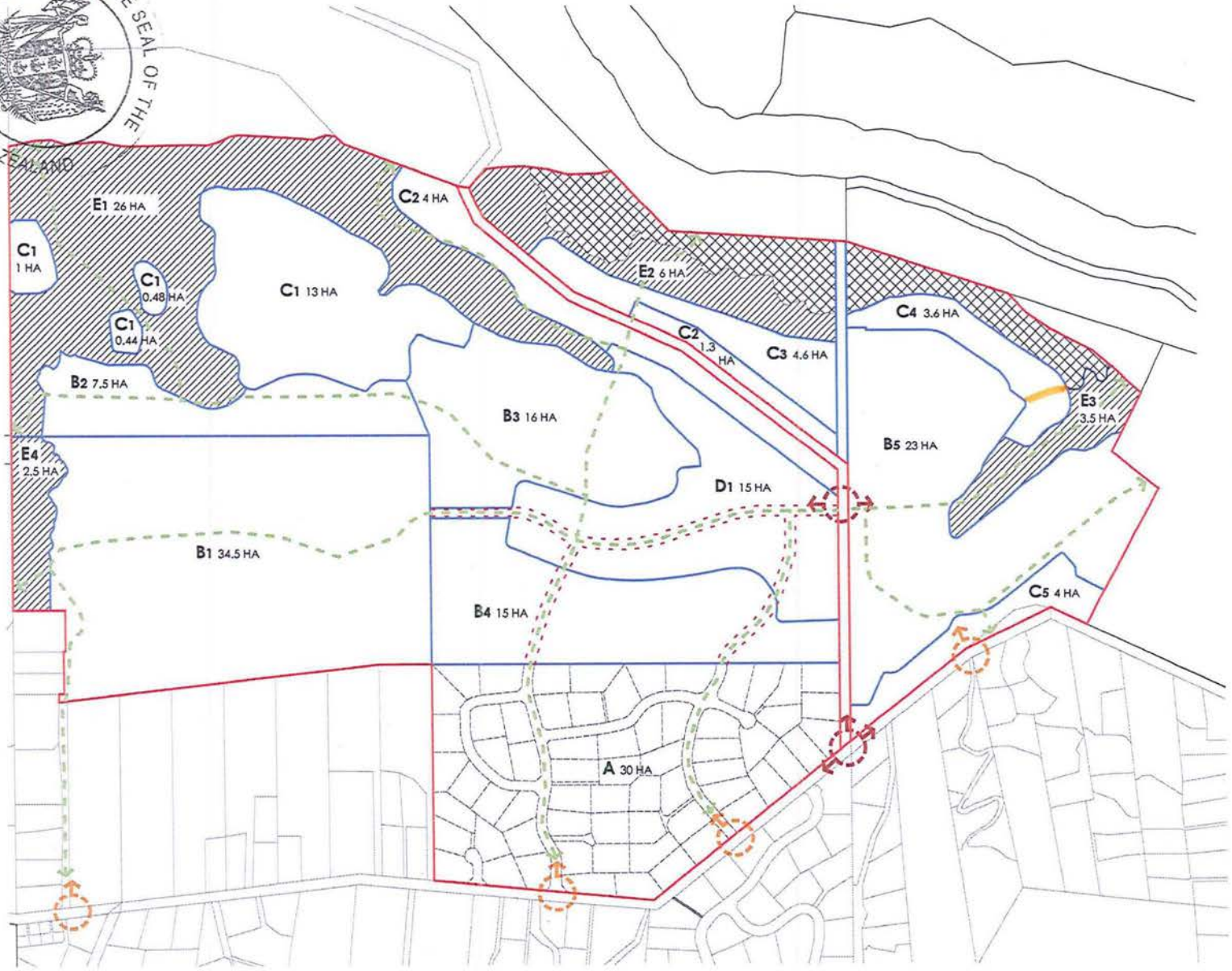
Willowridge Developments Ltd

A and E Dippie and Beech Cottage Trustees Ltd

Prepared by John Edmonds

2 March 2015

C



KEY

- Zone Area = 219.26ha (excludes legal roads)
- A - E Activity Areas
- Activity Area boundary
- Required walkway / cycle links
- Primary entries
- Secondary entries (indicative)
- Building Restriction Area
- Tree Protection Area and Building Restriction Area
- Required road links

North

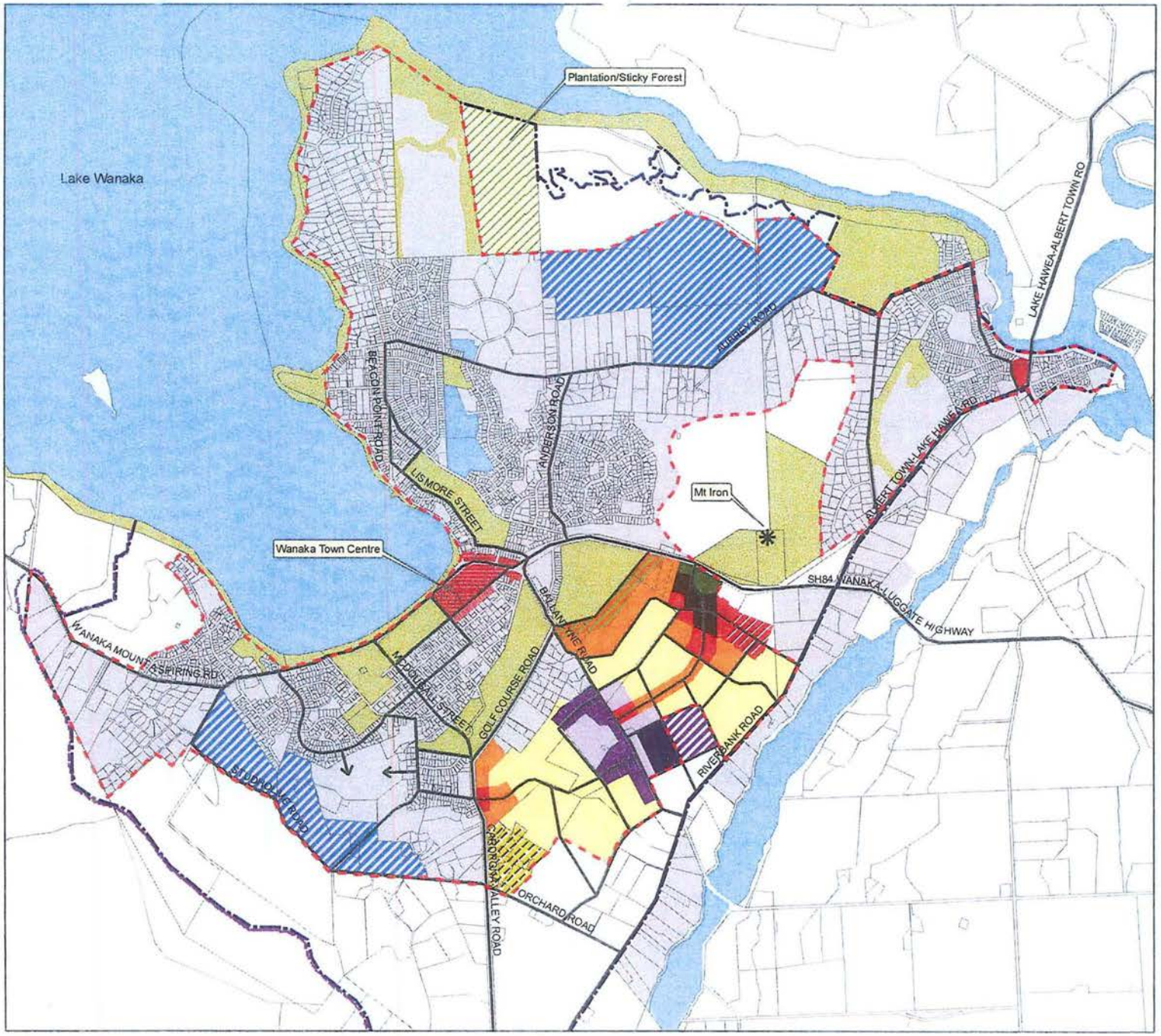
+ NORTHLAKE STRUCTURE PLAN
REFERENCE: 1949-SK58 Scale = 1:8000 @A3 - 01 May 2015

baxter design group

D

Zoning Proposed

- Structure Plan Inner Growth Boundary
- Structure Plan Outer Growth Boundary
- Outstanding Natural Landscape (ONL) Line
- ONL Line Not Confirmed
- Road Network (Indicative)
- Retail Core
- New Open Spaces/Reserves
- Wanaka Town Centre
- Education
- Area Subject to Further Study
- Visitor Accommodation Overlay
- Urban/Landscape Protection
- Existing Open Spaces/Reserves/Golf Club
- Deferred Mixed Business/Office/Technology
- Deferred Future Commercial/Retail
- Commercial/Retail
- Mixed Business
- Existing Business/Industrial
- Industrial Yard based
- Medium/High Density Residential
- Low Density Residential
- Landscape Protection Area
- Mixed Use Zone
- Existing Zoned/Developed Areas
- Water



Indicative zone boundaries only, subject to review at implementation stage

TAB 2

ORIGINAL

Decision No: C4/97

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of a reference under clause 14 of the First Schedule to the Act

BETWEEN **L, A. AND J. BELL**

Appeal No: RMA 265/94

Appellants

AND **CENTRAL OTAGO DISTRICT COUNCIL**

Respondent

BEFORE THE ENVIRONMENT COURT

His Honour Judge Skelton - (presiding)
His Honour Judge Jackson
Mrs R Grigg

HEARING at **ALEXANDRA** on the 12th and 13th days of November 1996

COUNSEL

Mr R D Checketts for the appellants
Mr J A Walker for the respondent

DECISION

This reference/appeal arises out of a decision issued by the respondent on 22 April 1994 refusing the appellants' request for a Plan change to re-zone land at Pearson Road near Cromwell.

The appeal was originally set down for hearing at Alexandra in the week commencing 13 March 1995. When it was called that day it was adjourned by

consent to Queenstown for call on 19 June 1995, the parties then intimating that a consent order was likely. On 19 June 1995 the appeal was stood down but no hearing eventuated, nor was any consent memorandum filed. There the matter rested until the hearing in November last year. Apparently there were some negotiations between the appellants and the respondent but they were unsuccessful.

By letter dated 27 August 1993 the appellants' surveyors requested the respondent to change the Vincent section of the Central Otago District Plan to re-zone the appellants' land at Pearson Road from Rural 1 to Residential Lakeshore B. Annexed to this decision as Appendix "1" is a copy of an amended planning map showing the proposed Change.

The land the subject of this request contains an area of 23.27 hectares and is described as sections 42, 43 and 45 and part section 44, Sarita Subdivision, Block 1, Cromwell Survey District and all the land in Certificate of Title Volume 4B Folio 1078 (Otago Registry). This land, hereinafter referred to as the "appeal site", is located between Pearson Road and the Kawarau Arm of Lake Dunstan, approximately 4.5 kilometres from Cromwell.

The provisions in the transitional district Plan for the Residential Lakeshore B zone were introduced as part of a series of scheme changes that were intended to provide appropriate provisions for land in the vicinity of Lake Dunstan. These changes were promulgated under the Town and Country Planning Act 1977 and the relevant one for present purposes was Change 10M which became operative on 13 December 1991. It provided objectives, policies and rules for the Residential Lakeshore B zone.

The objectives and policies for this zone are to provide for the development of pockets of lower density residential development in suitable locations near Lake Dunstan. In terms of the scheme change, the zone was applied to land in the

vicinity of the Bannockburn-Cromwell Road and Cairnmuir Road close to the Kawarau Arm of Lake Dunstan. Annexed to this decision as Appendix "2" is a copy of a locality plan showing these two zones.

The policies go on to provide that within this zone minimum allotment requirements would enable generous separation of dwellings to be achieved and would facilitate rural oriented activities on site. Effluent disposal is to be achieved within the confines of a site and no re-subdivision into smaller allotments is to be permitted. In some instances developers will be required to provide confirmation that building platforms are not subject to instability.

The rules for this zone provide that dwellings are to be a controlled activity subject to certain requirements particularly regarding design and external appearance of buildings and landscaping. There are setback requirements, parking and loading requirements and rules controlling subdivision. The minimum allotment area intended to accommodate a dwelling is 4,000m^2 provided that the average allotment in any subdivision is to be 1 hectare. Of some significance for present purposes, is the fact that there is nothing in the relevant provisions of the Plan relating to the standard of public road access.

In the request for the Change the appellants' surveyor referred to public road access in three places. First, under a heading "Physical Features" at paragraph 2.2, this statement appears:

> *"Pearson Road is situated on the northern boundary of the property, a total length of 838 metres. The present carriageway is metal and we would expect this to be upgraded to a tar seal surface. The proposed public road to the foreshore will be formed to a sealed standard and berms landscaped."*

Secondly, under a heading "Services" at paragraph 4.1 this statement appears:

> *"Access to allotments will be provided either off legal roads Pearson Road and new proposed public road to foreshore or access lots. These will be formed to Council standards."*

Thirdly, in an assessment of effects on the environment, at paragraph 5.2 this statement appears:

> *"The physical effects initially observed will be the upgrading of Pearson Road and consequent reduction in dust from vehicles travelling along Pearson Road. The long-term effect will be an additional 23 houses surrounded by landscaped grounds and trees. The visual change from barren dry open flat land to landscaped areas will be significant but positive."*

Having accepted the request for the change, the formal Change 21 was prepared in consultation with the appellants and their advisers and publicly notified by the respondent on 20 November 1993. It attracted two submissions, the first by Mr V J Horton-Wilson and the second by the Otago Regional Council. This latter submission is of no relevance to the present appeal, being concerned mainly with matters of effluent disposal which are not in issue now. Mr Horton-Wilson's submission has been largely withdrawn but at the commencement of the hearing a letter from this submitter was produced by consent. In this letter Mr Horton-Wilson has advised the appellants' solicitors that all aspects of his submission in opposition are withdrawn except that part in which he claims that Pearson Road should be fully sealed. In that respect his submission remains.

The respondent declined to adopt Change 21 largely on account of the difficulties it foresaw regarding upgrading Pearson Road. Near the end of its decision it said this:

"The Council wishes to emphasise that this decision has been substantially influenced by the unsealed nature of Pearson Road which is a concern raised in the submission of Mr Horton-Wilson. Other matters raised by submittors including effluent disposal were satisfactorily addressed by Mr Hughes at the hearing or could have been addressed in detail through specific conditions of subdivision consent."

At the hearing before us it became common ground that the sole reason for the respondent now opposing Change 21 has to do with the necessity as it sees it to seal Pearson Road if the change is to be allowed to proceed. Consequently this is the only matter we have to address but as will be seen shortly, it is a matter of some significance.

Pearson Road runs between Bannockburn Road and State Highway 6. In an uncontested statement of evidence by Mr F R Rewa, consulting engineer to the respondent, it is said that this road is identified in the respondent's roading hierarchy with a local road classification, the definition of which is a road servicing groups of dwellings and buildings and which is generally a through road. Mr Rewa's statement goes on to inform us that the road is some 3 kilometres long; is unsealed; and is not identified in the respondent's draft 10 year programme of June 1994 for seal extension. He estimates the total cost of sealing the full length of Pearson Road to be approximately $350,000. To seal the appellants' subdivision frontage is estimated to cost $88,000. The respondent's present total annual budget for seal extensions throughout the district is $175,000.

There can be little doubt that Pearson Road is already causing a dust nuisance so far as the present residents are concerned. In several statements obtained by the appellants consenting to Change 21 reference is made to this nuisance as of course did Mr Horton-Wilson in his submission. Indeed we do not think the appellants seek to deny the problem although Mr J M Potter, another surveyor called to give

evidence in support of this appeal, suggested that the development authorised by Change 21 would not increase the nuisance to any significant degree. He suggested also that if it was thought that it would, then an alternative to sealing Pearson Road would be to apply oil to keep the dust down.

It was Mr Potter's opinion that whether Pearson Road should be sealed or whether some alternative means of remedying or mitigating the dust nuisance should be adopted is largely irrelevant to the question whether Change 21 should proceed. This is because, as we said earlier, the district Plan is silent on the issue and also because on a subdivision consent the respondent could require a contribution to upgrading in terms of section 321A of the Local Government Act 1974. It is common ground that in terms of the transitional provisions of the Act this is the relevant provision for present purposes. There is nothing in the district Plan that would supersede it.

Mr Potter also gave evidence about other Residential Lakeshore B developments that had been permitted without the need to seal public road access. He referred in particular to developments on Cairnmuir Road and he also referred to a development on Hall Road at Bannockburn. This was obviously intended to persuade us that the respondent is acting inconsistently regarding this matter of upgrading rural roads where residential or semi-residential developments are permitted.

Reference was also made to a recent decision in respect of a small rural subdivision in Pearson Road where the respondent upheld an objection from the subdivider against a condition requiring a contribution towards road upgrading. However, if anything, this decision shows a consistency of approach by the respondent because in upholding the objection the respondent accepted that that particular subdivision would contribute only a small proportion of traffic on Pearson Road and it would not be in the public interest to accept a nominal contribution from the subdivider

which would then commit the respondent to proceeding with the sealing of Pearson Road during the next few years.

It is this unwillingness to commit itself to sealing Pearson Road that is at the heart of the respondent's opposition to Change 21. Through its planning consultant, Mr W D Whitney, who gave evidence at the hearing of this appeal, we were reminded that the respondent's functions in terms of section 31 of the Act include the establishment, implementation and review of objectives, policies and methods to achieve integrated management of the effects of the use, development or protection of land and associated natural and physical resources of the district - see subclause (a) - and the control of subdivision - see subclause (c). In Mr Whitney's opinion Change 21 would provide the opportunity to generate a level of traffic movement on Pearson Road through the development of 23 new dwellings, that would significantly increase the present dust nuisance. Unless this could be mitigated the respondent would not be achieving integrated management of the effects of development and indeed the change would not accord with the purpose of the Act set out in section 5.

Again, in the opinion of this witness, Change 21 is neither expedient nor desirable for achieving the purpose of the Act - see section 32 - because there is already adequate provision for Residential Lakeshore B development in this general area and to mitigate the adverse effect likely to arise the community generally would have to bear most of the cost, that is to say the cost of sealing Pearson Road. At best the appellants could only be required to contribute 50% of the cost of sealing that part of the road that serves their subdivision.

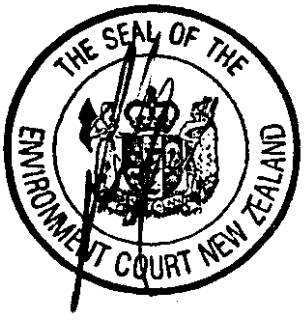
Mr Whitney also confirmed that in the case of the Cairnmuir subdivisions the road was sealed utilising ECNZ amenity funding provided following the development of Lake Dunstan, and in any event the bulk of the subdivision in that area was for rural

purposes. The development in the Residential Lakeshore B zone on Bannockburn Road has a sealed public road access.

It was made plain to us by counsel for the respondent that, at the present time, it will not commit funds to the sealing of Pearson Road. That is its prerogative and it is not for this Court to put the respondent in a position where it might have to do that. The Second Schedule to the Act sets out the matters that may be provided for in preparing policy statements and plans and Part II paragraph 6 refers to the scale, sequence, timing and relative priority of public works, goods and services including public utility networks and any provision for land used or to be used for a public work for which the territorial authority has financial responsibility. This Court has said before that in cases of this kind a relevant factor to be considered is the provision of services such as roading which should be achieved at a rate with which the Council representing the community can physically and economically cope - see **McIntyre** v **Tasman District Council** Decision No: W83/94.

We accept Mr Whitney's assessment of the position. In particular we are persuaded that to allow this Change would in all likelihood add significantly to the existing dust nuisance unless Pearson Road is sealed for its full length. This can only be done at significant cost to the community, a cost to which the respondent is not prepared to commit itself. In these circumstances it would be irresponsible of us to allow the Change to proceed.

While Mr Potter is quite correct in saying that any contribution to road upgrading could be the subject of a condition on a subdivision consent, this is really beside the point. A contribution in terms of section 321A of the Local Government Act 1974 is not going to mitigate the potential adverse effect of allowing Change 21 to proceed. Evidence was given at the hearing about negotiations that had taken place whereby the appellants had agreed to seal some 2 kilometres of Pearson Road with a contribution from the Cromwell Community Board, but it became clear that this was

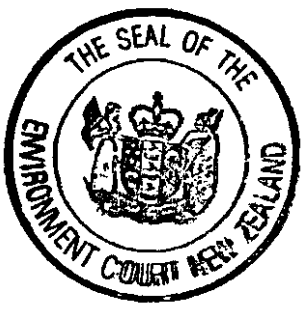


subject to a rather important proviso namely that if the appellants could not dispose of the allotments readily, they would be permitted to revert to Rural 1 zoning, a proviso that, quite properly in our view, was rejected by the respondent. In any event, as we said earlier, those negotiations failed and we were not asked to consider allowing this appeal on any basis such as the one just mentioned. Nor do we think there is any substance in the points sought to be made by the appellants about the basis upon which other developments have taken place. These have been adequately explained by Mr Whitney, and even if they had not been we do not think they provide a sound basis upon which to allow Change 21 to proceed.

In the end, this case comes back to the fundamental proposition that having regard to its functions, duties and responsibilities under the Act for the whole of its district, the respondent is not prepared to commit public funds to the upgrading of Pearson Road which we are satisfied would be a necessity if Change 21 were to be allowed to proceed. Mr Whitney did not favour the oiling alternative and nor do we. It would have to be seen at best as a temporary solution to an ongoing and increasing problem. We agree that to allow the Change to proceed would not accord with the purpose of the Act and the respondent was correct in declining to adopt it.

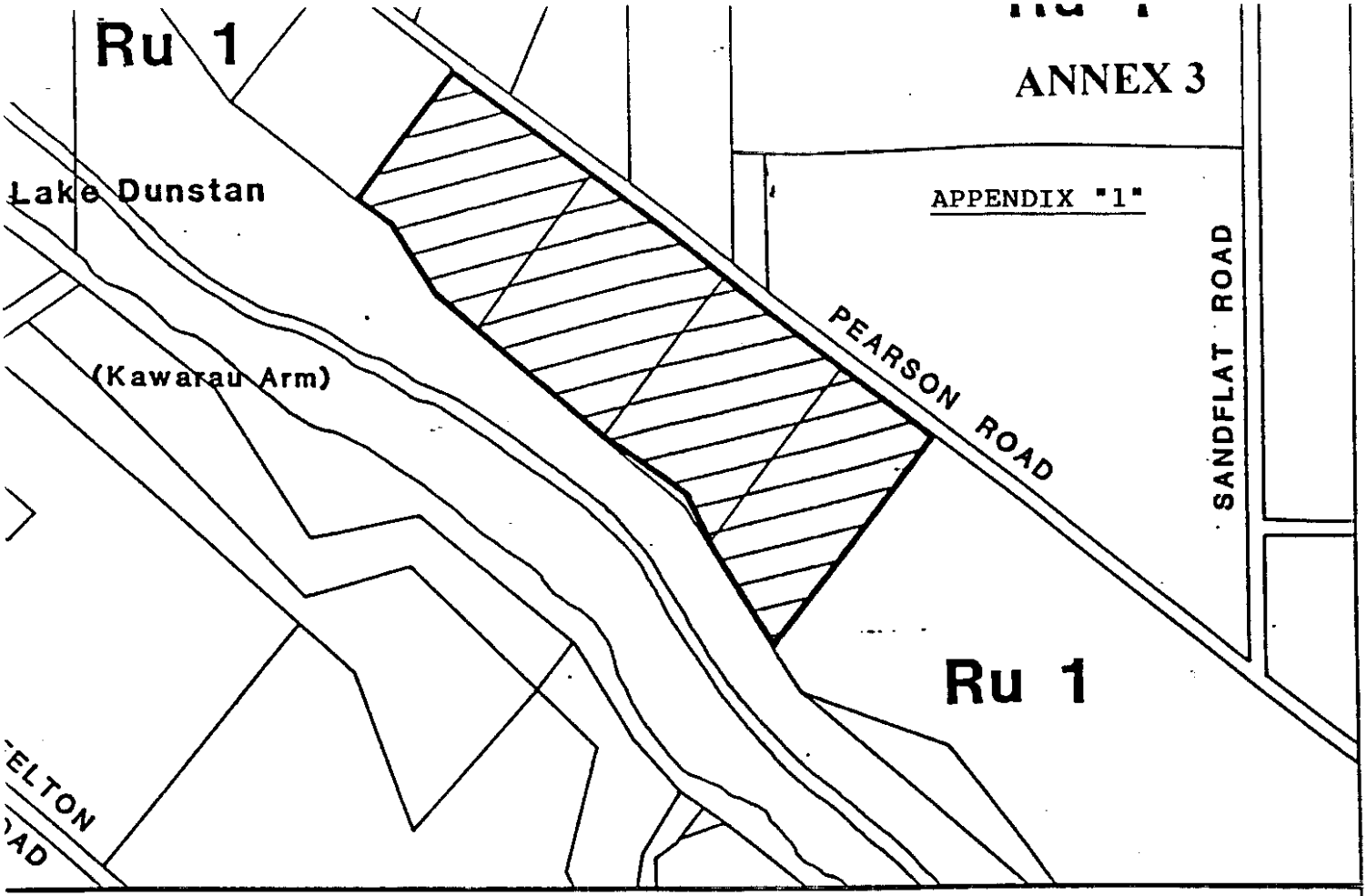
For the foregoing reasons this appeal is disallowed, and the respondent's decision is confirmed.

DATED at CHRISTCHURCH this 24th day of January 1997.



P.R. Skelton

Environment Judge



CENTRAL OTAGO DISTRICT COUNCIL

VINCENT SECTION

PLAN CHANGE NO. 21

PROPOSED PLAN CHANGE : under Section 73 of the Resource Management Act 1991 as prepared by the Central Otago District Council

OPERATIVE DATE:

NATURE OF CHANGE: Change zoning of land on Planning Map 2 and Inset I from Rural 1 to Residential Lakeshore B

LEGAL DESCRIPTION: Sections 42, 43, and 45 and Part Section 44, Sarita Subdivision, Block 1, Cromwell

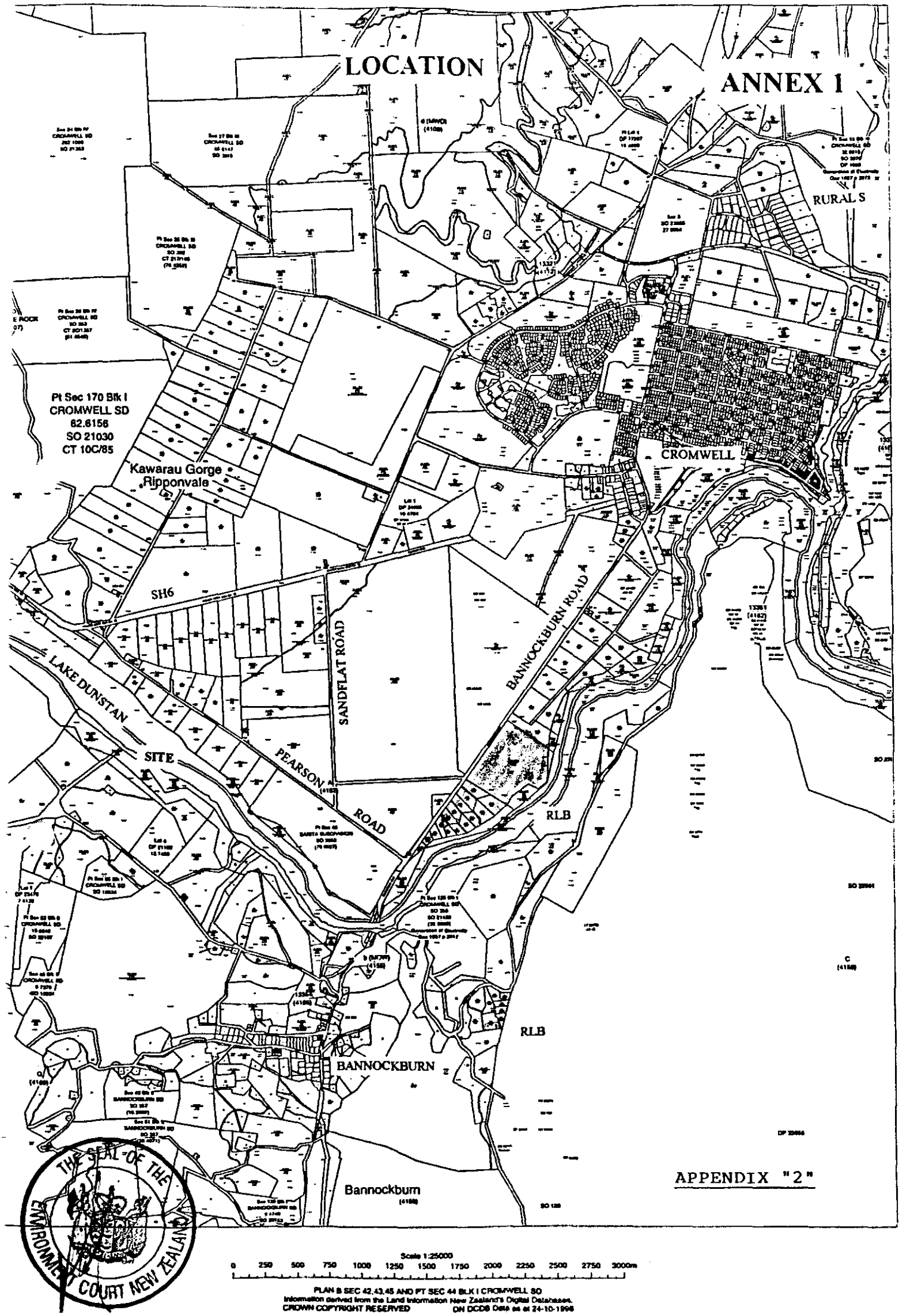
AREA: 23.7 hectares approx.

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

Certified Correct Copy .....
General Manager

JOHNSTON WHITNEY
Planning & Surveying Consultants
Alexandra
Phone 448-7232
Fax 448-6329
P.O. Box 175

SCALE	PLAN No.
1:10,000	S.C. 21
DATE	JOB No.
October 1993	52/3/16


LOCATION
ANNEX 1
RURAL S
Pt Sec 170 Blk I
CROMWELL SD
62.6156
SO 21030
CT 10C/85
Kawarau Gorge
Ripponvale
CROMWELL
SH6
SANDFLAT ROAD
BANNOCKBURN ROAD
LAKE DUNSTAN
SITE
PEARSON ROAD
RLB
RLB
BANNOCKBURN
Bannockburn
APPENDIX "2"
THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND
Scale 1:25000
0 250 500 750 1000 1250 1500 1750 2000 2250 2500 2750 3000m
PLAN B SEC 42,43,45 AND PT SEC 44 BLK I CROMWELL SD
Information derived from the Land Information New Zealand's Digital Databases.
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TAB 3

BEFORE THE ENVIRONMENT COURT

Decision No. [2017] NZEnvC 12

	IN THE MATTER	of the Resource Management Act 1991
	AND	of an appeal pursuant to s 120 of the Act
	BETWEEN	ENVIROFUME LIMITED
		(ENV-2016-AKL-000055)
		Appellant / Applicant
	AND	BAY OF PLENTY REGIONAL COUNCIL
		Respondent

Court:	Environment Judge JA Smith Environment Commissioner SK Prime Environment Commissioner ACE Leijnen
Hearing:	at Tauranga, 12-14 December 2016, including site visit
Appearances:	HA Atkins for Envirofume Limited MH Hill for Bay of Plenty Regional Council (the Regional Council) SJ Browning for himself (s 274 party) DW Marquand for Z Energy and Mobil Oil (the oil operators) D Heke and L Waka – occasional appearance commencing afternoon of 13 December
Date of Decision:	2 February 2017
Date of Issue:	3 February 2017

DECISION OF THE ENVIRONMENT COURT

A: The decision of the Commissioner is confirmed and the appeal is dismissed.

B: Costs are reserved. Any application for costs are to be filed within 20 working days; any reply 10 working days after that and any final reply, if any, 5 working days thereafter.

REASONS

Introduction

[1] This is an appeal from the refusal of an independent commissioner for the Bay of Plenty Regional Council to grant consent for the discharge of methyl bromide from log fumigation of ships holds and under tarpaulin at the Port of Tauranga within an area specified on maps produced to the Court.

The application before this Court

[2] By the time of the hearing before this Court, the applicant had substantially changed elements of their proposal to rely solely on a mechanical ventilation system known as a Verdünnung system. This mechanical dispersion system is intended to both mix methyl bromide with air to a 14:1 ratio minimum, and project discharge at a rate of some 25m/second.

[3] The original application was simply for passive and mechanical ventilation from ships holds and fumigation under tarpaulin in relation to logs. The exact volume of logs to be covered by the consent, and the amount of methyl bromide to be used (measured in kilograms), are also matters that have been subject to refinement during the appeal period. By the end of the hearing, we understood that the applicant was seeking a maximum dosage rate, independent of scale, of 720kg, and acknowledged that there would need to be some volume to dosage rate that could not be exceeded.

The decision appealed

[4] At first instance, the independent commissioner refused the application on the basis:

(a) there is no certainty that the proposed discharge of methyl bromide to air will meet (not exceed) the mandatory tolerable exposure levels (**TELs**) set by the Environmental Protection Agency (**EPA**) at the boundaries of the Port of Tauranga site;

(b) there is no certainty that members of the public can be effectively excluded from that part of the adjoining coastal marine area at which the TELs would be exceeded;

(c) consequently, significant adverse and potentially fatal effects on human health would not be avoided. Any such adverse effects, should they occur, could not be remedied or mitigated;

(d) the application was inconsistent with significant provisions of the operative

Regional Policy Statement, and the operative Regional Air Plan;

(e) reported positive effects of the application were not supported by qualified evidence; and

(f) the proposed discharge of methyl bromide to air was contrary to Part 2 of the RMA and so the purpose of the RMA would best be achieved by declining the application.

[5] We are required to have regard to the Commissioner's decision under s 290A of the Act. The main basis for the appeal before this Court was essentially that the proposed ventilation system had now been clarified to such an extent that the applicant was now able to meet the TELs at the port boundary. From there, much of the evidence of the parties turned upon the wording of conditions.

[6] The Commissioner was referred to both the Regional Policy Statement (**the RPS**) and the Regional Air Plan (**the RAP**). Given his conclusions on effects, he addressed the same in broad terms at part 7 of his decision. He identified RPS Objective 1 and Policy AQ2A as well as RAP Objective 2, Policy 1(a), 1(b) and 3 as relevant, seeking to avoid in the first instance. It does not appear the Commissioner was referred to the Operative or proposed Regional Coastal Plan (**RCEP**) or any Iwi/Hapu management plans. Since March 2016 the proposed RCEP has proceeded to hearing at appeal, and a new Tauranga Moana joint Iwi/Hapu management plan was registered with the Regional Council in August 2016. As we will discuss, these reinforce aspects of the Commissioner's concerns and frame the issues of some s 274 parties.

Subsequent progress

[7] In the face of such a comprehensive refusal, the applicant appealed, but the change to the Verdünnung extraction system, and the imposition of a series of limits and proposed conditions, meant that the stated grounds of appeal were largely not pursued before this Court. The key argument was that the Verdünning extraction system overcame the concerns of the Commissioner.

[8] The parties have been to a number of mediations, and the Regional Council had involved a leading air specialist, Dr Graham, who had assisted the ERMA (now EPA) with their deliberations in setting the HSNO limits for non-occupational bystanders (**TEL**) and worker exposure (**WES**) limits. However, it was not until 12 October 2016 that a joint witness statement, including Dr Graham, was finalised. By the same date, Cooney Lees and Morgan, on behalf of the Bay of Plenty Regional Council, had advised the applicant and other parties that it intended to change its position in respect of the appeal and support the grant of consent.

[9] The appeal included several prehearing conferences, with mediation by the Court being offered and utilised. After resolution was not achieved by mediation a timetable was set down for the matter to commence hearing on 10 October 2016. Subsequently, a further request was made to extend the timetable so that discussions could continue between the parties, and a new timetable towards the hearing of this matter was set by the Court on 21 September 2016.

[10] It is, therefore, clear that the change of position by the Council was reached late in the process; and in fact on the same date that the appellant, respondent and oil operators were to file their evidence. The reasons for that change of position appeared to rely largely on the advice of Dr Graham, although neither the Court nor other parties appear to have been privy to that advice.

[11] Nevertheless, we are satisfied that the intent of the Council, and the nature of their advice, was communicated through the mediation process by both Mr McGill and Dr Graham. However, it would be fair to say that the case faced by the s 274 parties was somewhat different to that signalled from both the appeal, and from the proceedings to 12 October 2016.

The Court's role on an appeal from a grant of consent

[12] The role of the Court on a refusal of consent is clear. On an appeal from the grant of consent, the parties may reduce the appeal or even withdraw completely. Where consent is refused, this Court must be satisfied consent should be granted. The applicant must satisfy the Court that the application appropriately meets the various plans, policy statements and parts of the Act which may be applicable such that consent may be granted.

[13] The Regional Council was functus officio after the Commissioner's decision, and the Court stands in its place for the appeal. There was a failure by the experts to consider the relevant policies and plans in this case. This was significant, as we will explain later. It appears a limited range of relevant documents were identified to the Hearing Commissioner also, given his decision.

[14] The problems were compounded by an application filed by the applicant to redact information in relation to the performance of the Verdünnung system, the basis of the amended proposal. This sought to extract all technical information as to mixing rates, dispersal velocity and the like, which differentiated this mechanical ventilation from any other, particularly those that were in consideration before the commissioner at the first hearing. This position was supported in opening, but the application for redaction was subsequently withdrawn at the conclusion of the applicant's case.

[15] At that point, it became clear that Envirofume was seeking to distance itself from an existing discharge consent for methyl bromide use operated at Port of Tauranga by Genera Limited. That consent, which we will discuss in significantly more detail later, essentially allows the use of passive or mechanical ventilation provided certain measurements are met at the boundary of the port property.

[16] As will become clear later in this decision, the recent audits undertaken demonstrate that there has been no demonstrated compliance with the Genera consent conditions. Although non-compliance is not provable, it is reasonably inferred from the information. In respect of one parameter, the instantaneous parameter (1ppm limit[1]) readings of up to 63ppm show significant exceedences at worrying levels. In fact, instrumentation associated with measurement demonstrates ppm levels of around 220 – over ten times the USCDC[2] recommended instantaneous limit of 20 parts per million. The lack of proper measurement, measurement positioning, and continuous measurement to enable averages required under the TELs to be observed, constitute significant concerns through this case. We will discuss them in more detail later.

[17] To enable a more focussed discussion, we note that the Envirofume amended application now addresses the issue of health and safety of workers by providing a significantly more reliable dispersion system. This improves significantly the confidence levels in respect of the WES standard and the TEL limits, although there is still unreliability in respect of some measurements due to the potential cumulative effects between this operation and that of Genera. Again, we will discuss this in detail later in this decision.

[18] It was immediately accepted, by both Ms Atkins and Ms Hill, that it was necessary for the applicant to establish to the satisfaction of this Court that a resource consent should be granted. It could not rely on the change of position of the Regional Council to justify the grant of consent, although that appeared to be the premise on which a number of witnesses prepared their evidence.

The Court's broad conclusions

[19] It was acknowledged by the applicant in closing that this application did not address the issue of reduction of emissions of methyl bromide, which concerns we will discuss in more detail. Suffice to say it is our view that these are the very same issues that were addressed by the commissioner in the primary decision and remain extant at the conclusion of this hearing.

1 Parts per million.
2 United States Centre for Disease Control.

[20] For detailed reasons, which we will now proceed to discuss, we are not satisfied that the grant of this consent will lead to the reduction of the emissions of methyl bromide at the Port of Tauranga, and is therefore contrary to Policy 3 of the Regional Air Plan and inconsistent with both policies within the Regional Policy Statement and the Montreal Protocol (of which New Zealand is a signatory party).

[21] To be clear, we consider that there is a risk that the grant of this consent may lead to an increase in the overall discharge of emissions at the Port of Tauranga. Although we accept it also may lead to the same levels of discharge, we do not consider that there is any basis upon which there would be a reduction unless the volume of logs treated was to reduce.

[22] We accept any increase is most likely to be related to an increase in the number of logs processed, but conclude that it could also be due to:

(a) active marketing by Envirofume or associated parties to increase treated methyl bromide timber to one of the key requiring markets;

(b) two companies treating smaller volumes, but using more product (less efficiency per load).

[23] Overall, the discharge of methyl bromide to air is contrary to Part 2 of the Act and does not fit within one of the particular exceptions that are provided either within the Montreal Protocol, New Zealand Coastal Policy Statement, Regional Policy Statement or the Regional Air Plan. It also affects policies in the RCEP and Tauranga Moana Iwi/Hapu Management Plan, as we will discuss.

[24] In reaching conclusions over Part 2, we note that the commissioner took into account matters in relation to:

(a) human health under s 5(2)(c),

(b) s 6(d) – access to or along the coastal margin; and

(c) Māori cultural matters under s 6(e).

[25] We also conclude it does not meet s 7(c) and (f). Importantly, it is inconsistent with objectives and policies through a variety of Policy Statements and Plans.

[26] In short, little has been done in the evidence of the parties to address specifically the issues raised by the commissioner. The concerns expressed by the commissioner remain concerns that this Court holds at the conclusion of this case. Even more regrettable, the parties failed to address some important documents – particularly the Tauranga Moana Iwi Management Plan, Policy 12.

[27] The more detailed description of the evidence relating to these concerns, and how these are addressed, is significantly more complex. It relates in part to the inter-relationship between the Hazardous Substances & Natural Organisms Act, amendments particularly made in 2010, and a substantive review of the worker standards (WES) and bystander limits (TELs) set by ERMA (now EPA) in 2010-2011.

[28] This in turn leads us on to questions of the relationship between the Resource Management Act and relevant legislation, and the discussion as to how those limits are measured in real terms at the Port of Tauranga and applied with multiple operators. In practical terms, the problems with such an approach can be demonstrated clearly by the Genera consent and the audit that has been undertaken in respect of that. This demonstrates difficulties:

(a) in reaching reliable averages where there is short-term measurement;

(b) setting appropriate monitoring points when the area in question is well over 1km long and only around 200m wide with multiple application points;

(c) when conditions are highly localised and variable, affected by the placement of log rows, ships, containers and other obstacles which are in a constant state of flux; and

(d) the insidious nature of methyl bromide and the difficulty of detection and reporting.

[29] In trying to assess this matter, we consider that the starting point is to discuss:

(a) methyl bromide and logging exports;

(b) international treaties and how these have been reflected in national and regional documents;

(c) the effect of methyl bromide on the ozone layer;

(d) the effect of methyl bromide on human health;

(e) the applicant's proposal, particularly how it is intended to:

(i) avoid acute failure;

(ii) achieve lower emissions levels overall;

(iii) address concentration v dispersion; and

(iv) the cumulative effect of this discharge with other discharges

(v) monitoring issues.

Methyl bromide

[30] Methyl bromide is a colourless, odourless toxic substance. It is fatal in sufficient dose. Although no primary evidence was supplied as to what that the fatal dose was, we were subsequently told that a fatal dose would be approximately 250 parts per million or 970mg/m^3 for approximately 30 minutes; although the dosage factor was not exactly known. The evidence was that applications of fumigants, both in ships holds and under tarpaulins, were typically at a level between 60,000 and 120,000 mg/m^2, ie 60 gram per m^3 to 120 grams per m^3. A fatal dose appears to be around one hundredth of this concentration. The Court was surprised that there was no information as to fatal dosage rates provided to it in the base information, and we rely on Dr Graham's evidence to us that anything in the order of 50 or 60 ppm would be very worrying. This would be a figure of around 240mg/m^3 or 0.25g/m^3.

	grams/m^3	milligrams/m^3	ppm
Treatment dose	120g/m^3	120,000mg/m^3	30,769.23
Remaining dose after fumigation	57.6g/m^3	57,600m^3	14769.23
Dilution 14 times at discharge	~ 4.0g/m^3	~ 4,000mg/m^3	~ 1050.00
Dilution 1000 after mixing	.004g/m^3	4mg/m^3	~ 1

The changing parameters

[31] One of the Court's immediate criticisms was the lack of a common parameter to describe the various limits. Some were described to the Court in grams per cubic metre, ie the dosage rate 720kg maximum between 60 and 120 grams per cubic metre; and when discussing detection limits this immediately switched to parts per million.

[32] The conversion rate from ppm to mg/m^3 is 3.9. Although nobody was able to tell us, we assume that 1,000mg is a gram, 1,000g make up 1kg. Accordingly, a fatal concentration of 250ppm converts to approximately 970mg/m^3 or 0.970g/m^3. Less than 1/100th the concentration under the tarpaulin. (We discount for the moment the dosage period, which the parties had no firm evidence on.)

Effects of methyl bromide

[33] Methyl bromide has two major mechanisms for attack on the human body (and all other animals, birds and insects). Firstly, it is corrosive both to the nasal passages and to the lungs on inhalation. Secondly, it is a neuro-toxin and enters the body through the skin, into the blood stream and thence into the brain. It accordingly has

both acute (fatal) effects from inhalation and also long-term neuro-toxicological effects, including cancers and other neurological issues. Because it is virtually undetectable by humans, specialist equipment is required to know it is present, and the concentration.

[34] A person affected may not know that they have been exposed unless they immediately suffer breathing difficulties. Otherwise we understand the gas eventually dissipates from the human body. Again, there was no precision as to the time of this, but it may be several months, and the damage caused is both long term and irreversible. Clearly, this is a hazardous and dangerous substance that needs to be used with the utmost care. Its use has ceased in Europe and a number of other countries.

[35] For these reasons it is treated in international documentation and in New Zealand with highly conservative limits to try to avoid any potential acute or chronic effects. Given the acute effect requires significantly higher doses than chronic effects, limits are normally set with these chronic effects in mind. We should also note that, in addition to its many other qualities, methyl bromide also has the ability to penetrate clothing, latex, plastics and most other materials. Nobody was able to tell the Court if it could penetrate metals and glass. We shall assume for the current time that it does not.

[36] Accordingly, focuses of treatment with the material have been upon the acute outcomes for those workers working directly with it relating to breathing apparatus. In fact, Dr Graham felt that workers were better not to have protective clothing on because it enabled the gas to release from the workers' clothing more readily.

[37] Further from the source, the basic concern relates to total exposure, given that the product is absorbed both through the lungs and the skin, and therefore chronic exposure levels become of more concern.

[38] To complete the picture of this gas, we need to identify that methyl bromide is also a significant ozone oxidiser, and has an effect sixty times greater per molecule than that for CFCs. Although the molecules are heavier than air, at certain levels of dispersion they remain suspended and eventually make their way into the ozone layer.[3] At this point they have a significant adverse effect on the ozone layer, and for this reason have been the subject of international attention over recent decades.

[3] Known as Brownsian motion causing molecular disruption due to energy from other air particles. May be more fully captured by Quantum dissipation dynamics developed by Fokker Plancke and Langev equations.

The use of methyl bromide for logs

[39] In light of this chilling information, the use of methyl bromide is immediately questionable. It is, however, the most effective known fumigant for large scale cargoes. Several countries, particularly China and India, still require all log imports to be fumigated with methyl bromide. Other countries have developed alternatives. One alternative in use in New Zealand is phosphene. Nevertheless, cargoes are usually fumigated with phosphene during the voyage within the cargo hold, and phosphene is not suitable for deck cargo. New Zealand also fumigates some of its imports, including wood products, using methyl bromide, and there are several other cargoes for which methyl bromide is used.

[40] For current purposes, however, we shall focus on logs. These are, of course, bulky and difficult cargoes that require particular handling. For the most part they are stored at or near the port after cartage by logging contractors to marshalling areas. At Tauranga port they are moved using either trolley machinery (which are large cradles carrying the logs) or log lifters, which are specialised machines for moving logs. They may even be moved several times before exportation – firstly from storage to the port, and secondly from that storage to the holding areas immediately adjacent to the loading berth. So far as we were able to tell (and the evidence on this issue was sketchy), the fumigation occurs during storage at the wharf in particular areas identified in the map annexed hereto as **A**. Logs are then loaded onto ships either in the holds or as deck cargo.

[41] As shown in **A**, fumigation may occur adjacent to the loading berths. However, we gather that using this area for treatment is not usual given that the logs can only be moved to that area immediately prior to loading onto the ship. Usually, logs are treated one of two ways:

- Some logs are fumigated in the storage areas marked (but rarely adjacent to the ships) using tarpaulins with securing weights. The fumigant is pumped under the tarpaulin, left for a prescribed period of time and the tarpaulin is either lifted off (passive ventilation) or mechanically ventilated using a fan (and in the case of Envirofume the Verdünnung fan). Given the strict quarantine requirements for the loads to be treated within 36 hours of loading, a number of log rows are usually treated at once using this tarpaulin method for logs that are to be loaded as deck cargo (above the hatches on the vessel).
- Logs loaded within the hold are sometimes pre-treated on the wharf, but often are treated once the hold is full and the hatch lids are down. In those circumstances, the fumigant is pumped into the relevant hold/s and then

discharged using passive or mechanical ventilation at sea. Given the requirement for the hatches to be open during passive ventilation, we suspect that such holds are largely evacuated using mechanical ventilation given the desire to complete loading the deck cargo of the ship as soon as possible. Nevertheless we were given no specific information on this.

[42] At Tauranga, the area for the storage of these logs the subject of the application, is between 100m and 200m wide and over a kilometre in length. Only two berths are intended to be utilised for ship hold fumigations (berths 10 and 11), but we suspect other berths may, from time to time, be used for the loading of logs where hold fumigation is not required. Beyond the areas covered by the application, there are also further significant log storage areas both on the immediate area of the port and nearby. These areas are not the subject of this application for fumigation consent.

The Tauranga port environment

[43] Tauranga Port is New Zealand's major export port. It has split its cargo activities between Sulphur Point, which largely handles containers, and the Mt Maunganui wharves that deal variously with fertilisers, cement, logging, general cargo (including some containers) and, during the season, kiwifruit. In addition to this are the significant number of tour vessels and passenger liners that come to Mt Maunganui every year, generally occupying the berths furthest to the north near Salisbury Street (known as Berths 1, 2 and sometimes 3). The port has recently been the subject of resource consent for a deepening of the channel, and is now receiving New Zealand's largest container ships (known as Maersk 9600 being 9,600 container equivalent). These larger vessels generally use Sulphur Point, and the ships used for logging are generally specialised and carry only one cargo.

[44] One of the matters that was accepted by the applicant and other witnesses was that, at the time the HSNO regulations of 2001 were put in place, the evidence the EPA had been considering indicated significantly lower levels of methyl bromide application in areas of significantly less complexity than Tauranga port. Given the significant number of different activities that occur simultaneously at the port of Tauranga, the logistics and organisation of the port are critical for its safe operation. For whatever reason, Port of Tauranga has essentially created licence areas within the port that are occupied by one of four marshalling/stevedoring companies, which hold contracts with the Port of Tauranga. It is unclear to us whether this involves exclusive use areas, but it is clear that there are areas of roading that travel from north to south immediately adjacent to the areas the subject of this application. These are commonly used by almost all users of the port, including port staff, staff of the various stevedoring companies, logging contractors and the many, many subcontractors that operate on

this site. Genera and Envirofume are contractors, and there are many other suppliers, electricians, engineers, oil operators and the like that are constantly utilising the port, aprons and roads to attend the various activities or deliver or uplift goods.

[45] Our understanding is that, of the *exclusive use* areas, various forestry companies then have arrangements with the various marshalling companies in respect of the particular contractual loads that are involved. Organisation of this is well beyond any proper treatment in this decision. Nevertheless, we can conclude access and use is both subtle and complex, even within the areas 1, 2, 3, 4 and 6 shown on **A**. Other persons must gain access from time to time for various purposes. This includes:

(a) oil operators (for fuelling if necessary);

(b) crew of the various ships;

(c) various officials and visitors to the ships at various times, including the port companies, the marshalling companies, forestry companies and others.

[46] This access appears to be controlled, nevertheless there are many persons who are legitimately within areas 1-4 and 6 at any particular time.

[47] To this complexity it needs to be added that this is a 24 hour operation port, with ships being loaded and unloaded at all times of the day and night. Many of the staff work 12 or more hours per day, and visitors may be working in unusual positions (such as under the wharf for the oil operators, vessel repairs etc). It was clear from the oil company evidence that their workers were likely to be working in these areas for up to 12 hour shifts. What is not clear is what the period of work for other workers might be. There has been a tendency in the past for workers to be focussed around loading ships as quickly as possible. This may mean that those people preparing for the arrival of a ship and then loading a ship may work for longer periods than 8 or 12 hours. There was no evidence given to us beyond that for the oil companies, and we can have no assurance that people on the wharf are there only for short periods. This work period is critical for establishing the period of potential exposure to methyl bromide.

International approach

[48] For current purposes, the Montreal Protocol governs substances that deplete the ozone layer. This commenced in 1987, and control measures for the chemical methyl bromide were included in 1992. New Zealand ratified the Protocol in 1987 and was required to phase out production and consumption of methyl bromide except for quarantine or pre-shipment (QPS) uses and other critical use or purposes by 1 January 2005. Nevertheless, it is clear that New Zealand has an obligation under the Montreal Protocol to:

> Refrain from the use of methyl bromide and to use non-ozone depleting technologies wherever possible. Where methyl bromide is used, parties are urged to minimise emissions and use of methyl bromide through containment and recovery and recycling methodologies to the extent possible.

[49] It is clear that the objective obligation of New Zealand under the Protocol is to reduce emissions where they cannot be avoided. The Hazardous Substances and New Organisms Act 1996 (**HSNO**) s 6(f) requires consideration of the Montreal Protocol as an international obligation. The matter has been given particular consideration by decision HRC 08002 dated 28 October 2010. The EPA noted its obligations under the Montreal Protocol, and in particular the obligation the Court has just cited. It concluded at 2.5.2:

> Accordingly, the committee has given particular consideration to the possibility of minimising emissions by requiring applications of methyl bromide to be subject to recapture technology.

[50] We attach as **B** that decision, which includes the controls that apply to the use of methyl bromide. We note in particular that methyl bromide can only be applied in an enclosed space, in this case under a tarpaulin, or within a ship's hold. There are particular obligations under Table C2, clause 2, for maintaining and collecting data generally, and in respect of each particular discharge that must also be provided in accordance with that report, and buffer zones are set in paragraph [6]. We note, in particular, the obligation under [7]: "fumigation may only be carried out in a place that is secured against ready access by unauthorised persons". Paragraph [13] of Table C2 includes the requirement for recapture technology. This applies from ten years after the approval (namely 28 October 2020). The decision also includes the definition of recapture technology to mean:

> Recapture technology means a system that mitigates methyl bromide emissions from fumigation enclosures such that the residual level of methyl bromide in the enclosed space is less than the worker-exposed standard set out under s 77B.

[51] Finally, we note that the sheet (ie the tarpaulin covers referred to) are defined as being a heavy duty polyethylene cover which is:

(a) gas proof;

(b) water proof; and

(c) non permeable.

[52] Ventilation is also defined to mean the release of methyl bromide into the atmosphere.

[53] To understand the provisions, it is necessary to identify that it was at least suggested by one counsel that the requirement did not require the recapture of all emissions to the atmosphere. With respect, we consider that the matter needs to be examined in a slightly different way. It is clear that the EPA, and in fact the Montreal Protocol, see a clear distinction between gas that is applied to the fumigation area and that which is subsequently released. Although it is clear that much of the gas that is placed into the enclosed space (around 58 percent) is utilised either by:

(a) take-up in the logs; or

(b) lost to some degree to the atmosphere through the cover sheets involved (a very minor level); or

(c) remain in the atmosphere after application and ventilation. The EPA has specified that this must be less than 5ppm, but is silent on the topic of the log take up.

[54] This is, of course, entirely practical given that there is no way to remove the fumigant from the logs, although some of it is released over the following weeks after fumigation is completed. Again, no-one was able to give us any figures as to how much was released, and what dosage over what period. We accept that there are going to be post-fumigation and post-ventilation releases that are acceptable, and are put to one side in terms of the approach of both the Montreal Protocol and the EPA decision.

[55] Nevertheless, we consider that the only conclusion that can be reached from the documents we have sighted is that all free gas material (excepting the residual gas of 5ppm after ventilation) is to be recaptured. By that, this means that it is not to be released to the atmosphere.

Relevant documents

Introduction

[56] We had three planning experts before us, and none of them set out the RMA context for this application in their evidence. We would have thought this to be the starting point for Mr Makgill (Consents team leader for the Bay of Plenty Regional Council), but the Court had to ask for this information. The planning evidence was clearly focussed on the agreement by the parties rather than provision to the Court of a full context for a decision on the application.

[57] The starting point for this consent application under the RMA is:

15 Discharge of contaminants into environment

(1) No person may discharge any—

> ...
> (c) contaminant from any industrial or trade premises into air;
> ...
> unless the discharge is expressly allowed by a national environmental standard or other regulations, a rule in a regional plan as well as a rule in a proposed regional plan for the same region (if there is one), or a resource consent.
>
> (2) No person may discharge a contaminant into the air, or into or onto land, from a place or any other source, whether moveable or not, in a manner that contravenes a national environmental standard unless the discharge—
> (a) is expressly allowed by other regulations; or
> (b) is expressly allowed by a resource consent; or
> (c) is an activity allowed by section 20A.

[58] There is no relevant regulation, national environmental standard, regional rule or resource consent which expressly allows the proposed activity. As we will come to, the Bay of Plenty Regional Air Plan contains a specific rule which requires a Discretionary Activity consent to be sought.

[59] The Regional Planning documents set the framework for the status of the activity, and contain objectives, policies and rules which guide emission activities to air and water. In this case there are three relevant documents:

(a) Bay of Plenty Regional Policy Statement (Operative October 2014) (**the RPS**);

(b) Bay of Plenty Regional Air Plan (Operative December 2003) (**the RAP**) (A draft New Regional Air Plan was released for public feedback on 26 April 2016 but has no statutory effect); and

(c) Bay of Plenty Regional Coastal Environment Plan (Operative and amended 22 February 2011) (**the RCP**); and a Proposed Bay of Plenty Regional Coastal Environment Plan (for which Council's decisions on submissions were issued in 2015 and parts are subject to appeal).

[60] There is also a need to reference the Tauranga Moana Iwi Management Plan 2016 (registered August 2016), given the provisions of the Policy Statement and Plans.

[61] There are also a number of national environmental documents of relevance, being:

(a) The HSNO EPA decision we have already discussed;

(b) The National Environmental Standards for Air Quality 2004 (**the NES**); and

(c) The New Zealand Coastal Policy Statement 2010 (**the NZCPS**).

[62] The NES does not address the emissions of methyl bromide. However, the NZCPS has a number of relevant objectives and policies – none of which were really

canvassed by the parties other than in a cursory way.

[63] This part of the Port of Tauranga is clearly within the coastal environment, and is shown as such in relevant Regional Council documents, including the RCEP (operational and proposed). Thus, the objectives and policies of the NZCPS apply, although there was no evidence on these from the experts. Policy 9 clearly provides for "*safer ports*", but other provisions, such as Objective 3 (role of Tangata whenua), Objective 4 (monitor and enhance public space quality and recreation opportunities), and policies relating to tangata whenua such as 2, 23 (5)(a) and Policy 3 (the precautionary approach) all seem relevant to us.

The RPS

Context

[64] In the introduction section of the RPS some of the context for this application is expressed. For instance, under the heading "Land Use and Industry" it is explained:

> Plantation forestry is of major importance to the region's economy. The region contains one of the biggest concentrations of plantation forests in New Zealand. The region is home to 13% of New Zealand's exotic plantation forest resources, totalling 215,340 hectares and accounting for 22% of the country's forestry sector workforce.
>
> The processing and manufacture of wood products and the manufacture of paper, paper products, printing and publishing are the two primary forms of employment related to wood processing in the region.

and

> The Port of Tauranga is the largest export port in New Zealand and the major international link for the region. The Port of Tauranga is a major component of the region's economy. Strategic road and rail corridors provide the key connections between areas of production and the Port of Tauranga as well as between the ports of Auckland and Hamilton.

Air quality

[65] Part 2, Section 2.1 of the RPS addresses air quality, and here it is noted:

> A range of chemicals and combustion gases are released by industrial activities within the region. These emissions may result from activities such as pulp and paper processes or from the use of solvents. Sprays and chemical compounds, including herbicides, insecticides, fungicides and fumigants (such as methyl bromide) used for horticultural, agricultural and quarantine of pre-shipment purposes, are also of concern when used inappropriately.

[66] The RPS directs us to the RAP for guidance on the management of effects from discharges of chemicals.[4]

> Objective 1
> The adverse effects of odours, chemical emissions and particulates are avoided, remedied or mitigated so as to protect people and the environment
>
> Policy AQ 2A Managing adverse effects from the discharge of odours, chemicals and particulates
>
> Protect people's health and the amenity values of neighbouring areas from discharges of offensive and objectionable odours, chemical emissions and particulates.

Coastal

[67] The coastal environment is addressed in Part 2, section 2.2 of the RPS, setting out that within the coastal environment, the Port of Tauranga is a nationally significant infrastructure, and that this environment is sensitive to Māori cultural values. This includes such matters as the mauri of the water body and mahinga mataitai, tikanga and gathering of seafood (kaimoana). Consistent with national policy directives, the RPS seeks to provide integrated management across the interface of land and water, and among many other things, it seeks to manage the adverse effects of land-based activities in the coastal environment and on marine water quality. Relevant objective and policy directives include:

> Objective 2
> Preservation, restoration and, where appropriate, enhancement of the natural character and ecological functioning of the coastal environment.
>
> Policy CE 6B Protecting indigenous biodiversity
> Policy CE 9B safeguarding the life supporting capacity of coastal ecosystems
> Policy CE 10B managing adverse effects of land-based activities in the coastal environment on marine water quality.

[68] We were alerted to the matter of stormwater runoff related to the proposed activity, and the need for a consent in this regard. We understood Envirofume is pursuing this consent separately, and application has been lodged with the Regional Council. We had no direct evidence of the nature of the consent being sought or the framework for its consideration. We address this matter elsewhere.

Iwi

[69] Resource management issues of significance to iwi authorities in the region are

[4] Bay of Plenty Regional Policy Statement Part 2, Table 1, page 22.

addressed more specifically at s 2.6 of the RPS. Here relevantly it is noted:

> 2.6.7 Degradation of mauri
>
> Mauri can be harmed by insensitive resource use. For example, the health and vitality of the sea, streams and rivers, and plants and animals they support, can be threatened by activities such as discharges of pollutants, stormwater and sewage, runoff of contaminants from land, excessive water use, changing the course of water bodies, or diverting water between catchments and rivers. Māori consider that rivers are the lifeblood of land, and that the wellbeing of natural resources is reflected in the wellbeing of people
>
> ...
>
> There needs to be better interpretation by resource management decision-makers of the effects activities and development have on mauri. Mauri, in relation to water, means life and the living. It has the capacity to generate, regenerate and uphold creation. Because of this, all living things in the water and its environs are dependent on its mauri for their well-being and sustenance. Hence, each water type is seen as a taonga, and is sacred due to the potential prosperity it can give to Māori associated with it. The mauri of each waterway is a separate entity, and cannot be mixed with the mauri of another. There are clearly effects on mauri caused by water pollution, agricultural spray, fertiliser run-off and effluent discharges.
>
> [emphasis added]

[70] Table 6 *Iwi resource management objectives and titles of policies and methods to achieve objectives* of the RPS include the following objective:

> Objective 17
>
> The mauri of water, land, air and geothermal resources is safeguarded and where it is degraded, where appropriate, it is enhanced over time.
>
> [emphasis added]

The RAP

[71] The RAP provides key guidance for consideration of this proposal. The following objectives and policies are relevant.

> Objective 1 Maintain and protect high air quality in the Bay of Plenty region and in instances or areas where air quality is degraded, to enhance it by specifically addressing discharges into air of gases, particulates, chemicals, agrichemicals, combustion and odour.
>
> Objective 2 Avoid, remedy or mitigate the adverse effects of all discharges of contaminants into air on the environment which includes the effects on: ecosystems, human health and safety, crops and livestock, amenity values, cultural values, the mauri of natural and physical resources and the global environment.
>
> Policy 1(a) Significant adverse effects of discharges of contaminants into air should be avoided.
>
> Policy 1(b) Adverse effects of discharges of contaminants that cannot be practicably avoided should be remedied or mitigated.

Policy 2 When the effects of discharges of contaminants into air are not adequately understood or are unknown, the discharges should be avoided, and if the discharges cannot reasonably be avoided, they should be monitored so that the effects become known, understood and effectively managed.

Policy 3 Discharges into air of contaminants identified as hazardous air pollutants or carcinogens (Schedule 3 – Hazardous Air Pollutants) are to be avoided, or where avoidance is not possible, the quantity of discharge is to be reduced using best management practice to acceptable levels, which are relevant national or international standards or guideline.

Policy 4 Promotion of the use of best practicable option approach including the efficient use of resources, eg raw materials and energy, whenever it is the most efficient and effective means of preventing or minimising adverse effects on air quality.

[emphasis added]

[72] The following part of the explanation assists us in understanding these provisions:

4.1 Explanation and Principal Reasons for Adopting the Policies

...

After discharge of contaminants into air have occurred, their adverse effects may be difficult or impossible to remedy or mitigate. Therefore the policies require that discharges or contaminants causing significant adverse effects are avoided. However, since avoiding all discharges of contaminants is impracticable, the adverse effects from those discharges that cannot be reasonably avoided will need to be remedied or mitigated.

This approach, of avoiding discharges of contaminants, is continued in the policies promoting the use of the best practicable option approach and encouraging energy efficiency.

Where discharges of contaminants cannot practicably be avoided, the policies recognise that their adverse effects should be remedied or mitigated. An important policy tool is the separation of incompatible activities – this does not avoid the discharge of contaminants but does reduce the adverse effects of those discharges.

...

[73] Rule 17(d) of the RAP provides:

...

(d) Any emissions of hazardous air pollutants (listed in Schedule 3 – Hazardous Air pollutants of this plan) must be minimised and in any event must be no more than 1kg per hour except that:

(i) For category 1, 2A and 2B carcinogens listed in Schedule 3, or any heavy metals listed in Schedule 3, the maximum emission rate must not exceed 0.01kg per hour. If a substance is listed as both a hazardous air pollutant and a carcinogen in Schedule 3 the 0.01kg per hour rate applies.

[74] Methyl bromide is specifically listed in Schedule 3, and the proposal is to exceed the maximum emission rate of 0.01kg/hr. However, the expected exceedence is somewhat unclear, which we address in our discussion of adverse environmental effects.

[75] The RAP clearly seeks to avoid, remedy and mitigate adverse effects of all discharges. This includes a range of things including the mauri of natural and physical resources and the global environment. Policy 1(a) provides:

> Significant adverse effects of discharge of contaminants into air should be avoided.

[76] Where they cannot be avoided, Policy 1(b) provides:

> Adverse effects of discharges into air of contaminants that cannot be practicably avoided should be remedied or mitigated.

[77] Policy 3 specifically provides:

> Discharges into air of contaminants identified as hazardous air pollutants or carcinogens (Schedule 3 – Hazardous Air Pollutants) are to be avoided, or where avoidance is not possible, the quantity of discharge is to be reduced using best management practice to acceptable levels, which are relevant national or international standards or guidelines.

The RCEP

[78] We did not receive evidence on this plan as it was considered that there would be no discharge to the harbour from the proposal, or that the discharge related to stormwater and was the subject of a separate application before the Council and not part of these proceedings. We have briefly read parts of the operative RCEP and note it addresses coastal discharges (Chapter 9) and it contains the following objective, with various potentially relevant policies. However, we are not able to take that too much further in our assessment.

> Objective
> Maintenance and enhancement of the water quality and mauri of the Bay of Plenty coastal marine area.

[79] Given this area is in the coastal environment, the Objectives and Policies apply, whereas any rules apply only in the CMA. Given some of the wharf area is over the CMA, the application of the RCEP is clear.

[80] We are at a disadvantage in not hearing any expert evidence on the operative or proposed RCEP. Nevertheless, the strong policy direction in relation to tangata

whenua, and Policy 3 of the NZCPS would lead us to a view that significant air emission in the CMA areas are not supported. We acknowledge that the RAP is intended to address the discharges more directly.

Tauranga Moana Iwi Management Plan

[81] The RPS acknowledges that iwi management plans are relevant to consent applications as does the operative and proposed RCEP. In any event, they may be a relevant consideration under s 104(1)(c) and are to be borne in mind at every level of planning process under the RMA.[5]

[82] The Taonga Moana (Iwi management Plan 2016) (Iwi Management Plan) was registered with the Regional Council in August 2016 and is thus relevant to this application. It replaced an earlier plan also registered with the Regional Council. This new plan was not in place at the time of the Commissioner's decision, so we are unsure whether the Regional Council or applicant experts were aware of it. The Plan includes mapping showing it applies to the Port of Tauranga water and land. Policy 12, relating to the Port, includes:

> 12.1 (g) Concerns about the use of methyl bromide
>
> (i) there is a preference for the use of methyl bromide to be prohibited for the health of the environment, the community and staff involved in fumigation processes;
>
> (ii) a Safe Practice Plan, as well as Emergency Procedures must be in place for the use of methyl bromide;
>
> (iii) stringent monitoring is carried out to prevent any occurrences of harmful chemical releases into Te Awanui.

[83] This focusses on concerns held by several s 274 parties, Mr Heke and Mr Waka. It cannot be said that cultural issues were not at large in this hearing.

The application of policy 3 to RAP

[84] In this case it is clear that overseas requirements mean that the product needs to be used. The question is whether the discharge (referred to as ventilation) of the enclosed fumigation avoids the release of a hazardous substance. The parties are agreed that this is a hazardous substance, and furthermore agree that whatever system is proposed by Envirofume it does not avoid or reduce the emissions of the hazardous substance; it simply disperses it into the atmosphere faster, and higher above the ground, than the traditional, passive method. The question then is whether the discharge is in accordance with best management practice – the RAP policy 3

[5] *McGuire v Hastings District Council (P.C.)*, [2001] NZRMA 557 at [21].

specifically refers to international and national guidelines.

[85] We were not assisted in the question of potential reduction by either the evidence for the Regional Council (Mr McGill) or by the applicant's chief executive (Mr Hilton). Mr Hilton advised that they had made little progress in recapture technology, and that he did not consider the other available systems were viable (a Nordico system was promoted by Mr Browning). Further, there were issues as to the application of the various standards of the EPA and others.

The dual effects

[86] We conclude that methyl bromide has two key adverse effects.

Impacts upon the ozone layer

[87] These occur from mass dosage into the atmosphere, in which a proportion reaches the ozone layer and leads to ozone depletion. There are natural sources of methyl bromide, which it is not possible to alter. These constitute around 5.8 million tonnes of methyl bromide per year. The balance is anthropogenic, caused by the various uses for which methyl bromide is created and used.

[88] Given the Montreal protocol, the amount of this substance has reduced worldwide significantly over the last few years and the balance essentially relates to its use within fumigation of international trade products. Recent figures show that New Zealand methyl bromide use commenced in the mid-1990s from a low of around 50 tonnes per year to over 500 tonnes from 2012 onwards. Of that amount, the Port of Tauranga used over 200 tonnes in 2014 and some 176 tonnes in 2015.

[89] It was agreed that the usage of fumigant at the Port of Tauranga relates largely to the volume of logs exported in any one year. We see that there is a correlation between the number of logs, particularly exported to China and India, and the amount of fumigant used on the Mt Maunganui side of the Port of Tauranga.

[90] The Port of Tauranga contributes some 2.5% of global anthropogenic methyl bromide emissions. It is also important to note that New Zealand is the highest industrial user of methyl bromide on a worldwide scale, and has contributed 7.7% of the global anthropogenic emissions of methyl bromide. These figures are explainable, given the significant log trade from New Zealand, but nevertheless indicate that there is a significant role for New Zealand to play in meeting its international obligations and reduce global emissions.

Impacts on human health

[91] There are clearly concerns about the impact on human health – both from acute dosage (large exposures over short periods of time) – and chronic exposure (lower exposures over a longer period of time). Dr Graham tells us that acute exposure, as we have noted, would attack the inhalation passages, particularly the nasal capacities in the first instance. Chronic exposure through the skin and otherwise reaches the blood cells and has longer term effects, which are significant and irreversible. Because of the inability for a person to detect the presence of the gas, the amount of exposure and period of exposure are difficult to estimate. The EPA, in considering this issue, has set WES (worker exposure standards) and TELs (tolerable exposure limits) taking into account these factors. Although the factors are conservative, we need to recognise that exposure through skin is added to any inhalation exposure, and that the toxicity limits of this product are not well known or recognised.

[92] Workers for Envirofume would be aware of the risks, and have special respiration equipment. They would still be exposed to the material through the skin, and thus the acute and chronic aspects of the exposure need to be taken into account. Worker exposure limits or standards have been set having regard to an eight hour working day, with a conservative limit of 5ppm adopted. No one suggested that this was the subject of review at this hearing, although all parties acknowledged that the Court had powers to impose a stricter standard to protect people's health and safety, if necessary, under the Resource Management Act. Given that there was a general view that a 5ppm exposure limit was appropriate for workers working an eight hour day, the question is where that limit should be imposed. This comes down to the areas of exclusive use.

[93] Dr Graham made it clear that, at the time of the EPA's investigation of this chemical, they were not considering its application at anything like the volumes of Tauranga, or the complexity of the Port operation that Tauranga has. Although it is not clear, it appears as if the EPA was considering the application on a single site totally controlled by the fumigator, where logs were delivered, fumigated and then taken away for loading. At Tauranga the log stacks that we saw were stacked as close as 1-2m from each other. The roadway utilised by the many visitors to the site, and thoroughfares utilised by most of its visitors to the site, were proximate to rows that would be fumigated. In short, it would be difficult to imagine that even a 5-10m exclusion area could be maintained at the Port of Tauranga. It may be possible for a WES limit to apply, some 5m from the log pile, provided that this meant adjacent log piles were not utilised in that period. How practical that is was not addressed or discussed by any of the parties.

[94] What we do know from the union representative's evidence that there have been problems, generally with drivers, considering they have received a whiff of chemical adjacent to a methyl bromide fumigation when the tarpaulin is lifted.

[95] The EPA was mindful of concerns about properly measuring such a dangerous chemical, and imposed relatively strict criteria for the measurement of the various exposure levels required. As we will discuss shortly, we were surprised that there was little, if any, information relating to the existing consent that fitted within the full criteria required by the EPA. One would have anticipated that there would be constant ambient monitors throughout the port, particularly near berths 10 and 11, to ascertain whether the residual levels of methyl bromide were within the safe range.

[96] We also note our concern that the TELs adopted for 1 hour, 24 hour and annual do not deal with acute exposure levels. Dr Graham told the Court that the American CDC considered 20ppm as an indicator for instantaneous levels. One of the significant criticisms the Court has of the expert witnesses who gave evidence is that they have variously used different parameters, such that it is difficult to compare various levels.

[97] Putting aside the question of the period of exposure, we want to deal with the various toxicity levels as they relate to health. We were told that the level of application of methyl bromide beneath a 6,000m^3 tarpaulin-covered log pile would be 720kg or 120g/m^3. However, most parties thereafter used milligrams and parts per million. We hereby set out a table so we can compare the various quantities.

	grams/m^3	milligrams/m^3	ppm
Treatment dose	120g/m^3	120,000mg/m^3	~ 31,000
Remaining dose	~ 58g/m^3	58,000m^3	~ 15,000
Dilution 14 times	~ 4.0g/m^3	~ 4,000mg/m^3	~ 1050.00
Dilution 1000	.004g/m^3	4mg/m^3	~ 1

[98] Conversion from gms/m^3 to ppm is dependent upon an ambient temperature and pressure, but the experts agreed on a divisor of 3.9 as appropriate in this case. It can be seen from this table that to achieve a level of 1ppm requires significant dilution (near the order of 1:14,000) to reach those levels. Even at a dilution of 14 times, the original concentration would still represent a dangerous dose (depending on the period of exposure).

Passive ventilation vs mechanical ventilation

[99] Passive ventilation relies on the tarpaulin being lifted off, and then wind

providing for the dilution of the material to acceptable levels. The performance of that system has inherent problems relating to the potential for the wind to create puffs of the methyl bromide, and also for the material to interact with the log stacks in unusual ways. Nevertheless, the exposure of the entire surface at once avoids any further concentration of the materials as a result of ventilation.

[100] Mechanical ventilation, of course, relies upon a fan to draw the material from the covered stack or ship's hold and direct it into the atmosphere in such a way that it achieves mechanical mixing. The advantage of this system is that it will result in better mixing, but does involve – especially in the initial stage of ventilation – the potential for much higher levels of material to be concentrated into one area.

The Verdünnung system

[101] The Verdünnung system is essentially a mechanical fan system that involves the introduction of large quantities of air into the fan process to ensure a higher level of mixing from the initial stage. The technical evidence indicated an expected dilution through a Verdünnung fan of something in the order of 14 times. This is the reason we have given the initial dilution of 14 times. This would still show that the parts per million was well above the dangerous dose and it relies upon further mechanical mixing as a result of the discharge of the material from the fan outlet into the atmosphere.

[102] On initial start-up the atmosphere through the entire log stack should be around 57g/m^3, given evidence we have received about the overall mixing of this material, even after 12-14 hours under tarpaulins.

[103] Thus, at initial draw-down through the fan, the concentration would be at that level, and as further air was drawn into the log stack of course dilution would begin to occur, and the volume of methyl bromide would gradually fall until it reached the safe level of 5ppm identified in the EPA's Schedule C. With the Verdünnung system, we are told that ventilation is likely to take something less than an hour. We are unclear as to the period of time that would be involved using a standard mechanical fan.

[104] Because the velocity from the exit on a Verdünnung fan is envisaged to be in the order of 25m/s, the intent is that this would impel the material well into the atmosphere, where it would mix better before eventually being redistributed and reaching ground sensors. Mr Noonan suspected that the mixing rate would be somewhere between 1,000 and 10,000 times. As we have noted in the table, a conservative further mixing rate of 1,000 times would indicate levels at or around the acceptable level of 1ppm. This was the basis on which the applicant expects confidence of the health and safety aspects of the matter.

[105] The Verdünnung system would have to have an inlet pipe into the stack, to allow air to replace that sucked out by the fan. One of the particular concerns was the reliability of the fan, and the potential for higher concentrations to affect either workers or persons in the vicinity from either a malfunction or accident. Examples might include a splitting of the tarpaulin or piping; a breakdown of the fan with the gas still being released. Various fail-safes were suggested, although we note that none of these were part of the original proposal put to the Court or in the specifications available to us.

[106] Viewed in isolation, the end result is that the Verdünnung system is likely to significantly improve the mix of methyl bromide with the air after it has completed mixing from the machine and the atmosphere over the other systems currently used on site. However, until mixing has occurred, it may constitute a greater risk to both workers and other persons within the vicinity if there was a failure. The benefit of this system turns upon a satisfactory separation of this activity from surrounding activities. In other words, when the machine is properly functioning, we are satisfied that it would better meet the health and safety of workers within the area, and give more confidence in achieving the TEL figures at any point beyond the worker risk area. Nevertheless, in respect of acute exposure, we are not confident that this machinery would reduce the risk to either workers or other persons, especially ones who may be working within a 50 or so metre radius of the machinery.

Reduction in emissions

[107] Fundamentally, the Verdünnung system may provide better mixing, and thus better control of chronic issues, but it does not address the issue of acute risk in the event of failure, or the total mass of emissions. More fundamentally, it does nothing to demonstrate a reduction in emissions of methyl bromide. To this end, the applicant relies upon conditions imposed, requiring it to comply with the EPA by October 2020 in setting two initial intermediate recapture requirements of 15 percent by 2018 and 65 percent by 2019.

[108] Although there was initially some attraction to the argument that over the period of the consent, these conditions would mean that there was a reduction in the emissions rate from the port, we acknowledge that this was illusory. Mr McGill, in his evidence, attaches a copy of the current Genera consent, which also requires a recapture of similar quantities over a similar period. Mr McGill's evidence was that Genera's researches in this matter were relatively well advanced, and that there was some confidence that they would achieve these figures. On the other hand, Mr Hilton's evidence for Envirofume was that there was no proven technology at this time that was cost effective, and that they had abandoned trials of a former system and were now looking at an alternative.

[109] We cannot have any confidence that the granting of this consent would lead to a reduction in the emissions of methyl bromide. To the contrary, although there is no evidence that it would lead to a reduction, there is at least a possibility that it may lead to an increase of the use of methyl bromide at the port.

[110] The reasons for this conclusion relate to the questions of how the market for timber to India and China is established and maintained. There was no evidence given to us as to any limitations of fumigation service by Genera, and the applicant's proposition was simply that they would be supplanting Genera. Firstly, we consider that the applicant relying on taking another company's work seems optimistic. It is more likely that they would seek to work with forestry companies developing performance criteria for clients and/or encouraging them to increase their supply from New Zealand on the basis of the availability of their service. We acknowledge that the log market is driven by a great many factors, most of which are beyond the control of the New Zealand growers and fumigators. Nevertheless, like any other market, it is likely to be affected by price, availability and quality. It is clear that New Zealand contributes to international log markets rather than supplies their entire needs. Accordingly, there is at least the prospect that the use of methyl bromide at Tauranga may increase by virtue of competition and a desire for both companies to supply more of their services.

Cumulative effects

[111] One of the most difficult issues for this Court (and the commissioner) was the question of cumulative effects. Unfortunately, although all parties agreed that they needed to take into account the effect of this operation in combination with Genera, all parties assumed that the volume of logs would remain unchanged between the one supplier versus two supplier scenario. For the reasons we have already outlined, we do not know that that can be taken as given and that there is at least a real risk that further ability to supply fumigation may encourage an expansion in the market.

[112] There are practical problems with multiple operators here. The first practical constraint is how to avoid a cumulative effect from the operation of the current fumigator (Genera) that has no controls addressing cumulative effect. To address this issue, the applicant has accepted that it would have to bear the responsibility for achieving cumulative impact targets, given it was the later supplier.

[113] There is, however, no ability to distinguish the methyl bromide from each operator, so some system needs to be developed which would monitor any cumulative effect. The first step proposed is to avoid the plume from one ventilation overlapping the plume from another. Originally, this suggestion involved a condition that there would not be a ventilation within 100m from another. Clearly, however, if the receptor is

downwind they may still receive an overlapping or additional amount of methyl bromide from the overlapping plume. This led to Dr Graham propounding an amendment to the conditions to read that the distance between the stacks was measured at right angles to the wind direction.

[114] We have concluded that there are several significant problems with this proposal:

- The shape of the port area the subject of this application is long and narrow. It rarely would exceed 200m width, but is well over 1 kilometre long. It is not simple to ascertain whether another ventilation might be occurring at the same time. This is in part because of the exclusive use areas and how information on ventilation by Genera would be obtained. We suspect a reluctance by Genera and Envirofume to share information.
- The wind at Mt Maunganui is rarely uni-directional and constant. It is also affected by a great many obstacles (silos, ships, buildings, log rows) which all change the direction of wind flow even if there is a relatively constant flow higher up in the atmosphere. There does not appear to be a simple accepted way in which wind direction would be ascertained in any event. For example, if wind was blowing from either the north or the south one would assume that no separation distance would be acceptable utilising Dr Graham's formula. In our view, such a condition would be unenforceable and essentially impossible to measure in a practical way on the ground.
- We also conclude it would be simply too dangerous to try and physically measure the distance, given the other activities occurring in the same area and the exclusionary areas. A comprehensive site management system controlling all operators would be required, and this is not available to the applicant.

[115] There are also more fundamental problems with cumulative effect as follows:

(a) monitoring; and

(b) compliance.

Monitoring

[116] The original proposal put to this Court was that monitoring would occur at the boundary of the port property, several hundred metres away from the areas in which these activities were to take place. The view of the parties was that we should rely on

the existing rules to control workers (WES) and non-occupational bystanders through the TELs if you are within the port land. On that basis the only concern would be beyond the port boundary, with persons who would be regarded as the public.

[117] The Resource Management Act does not work in this way. It refers to the health and safety of people. *People* includes all the people who may visit the port, for whatever reason, together with workers and residents. In this regard, we note that it was acknowledged that the WES of 5ppm is not reliable for workers who are working 12 or more hours per day. The oil company suggests, and we understand the applicant now accepts, that the parts per million rating in this area should be something in the order of 2.5ppm to recognise the additional exposure of at least some workers or contractors at the Port.

[118] We are unclear whether workers work even longer hours on the port, but would not be surprised. Should the WES ignore the exposure of these people? Or should the ppm be adjusted to take that into account? From our point of view, we consider that any consent must be cautious in setting limits to ensure health and safety. We would have thought that a ppm for workers of Envirofume should be no more than 5ppm, and for other people should be set at 2ppm. Whether or not this might turn upon an exclusive occupation area of, say, 5m around the stack – to which a ppm of 5 was met, but only Envirofume Limited persons could enter – and then for other workers in the port 2ppm, with a 1ppm being at the Port boundary. In practical terms the difficulty with these type of arrangements is how they would ever be measured or calculated. We would have thought that a series of constant monitoring points along the wharf and partway through the wood stacks, together with instantaneous monitoring and relocatable monitoring, would have been the appropriate course. A brief reading of the EPA's decision would indicate that that is the type of information they expected.

The monitors

[119] There are problems with monitoring. This is an environment which is essentially occupied briefly and intensively for many different reasons. All elements can move, including the exclusive use areas, and we were unable to see any positions within the loading areas where one could safely locate long term monitoring machinery.

[120] Envirofume has balked at the cost of the constant monitoring machinery, which appears to be in the order of $250,000 per machine. We agree with them that it would involve more than one machine, and may include more than three if adequate cover of the entire loading areas was to be sought.

[121] The difficulty in using mobile monitoring stations would be in positions which are

general occupation positions such as thoroughfares or roads. If one attempted to utilise some of the existing buildings along the site as an attachment point, the difficulty is then that that position would be contingent upon wind direction and fumigation point. Given these change on a daily basis we would consider such measuring points to be relatively unreliable.

[122] In relation to instantaneous measurement, the practical concern is ensuring that an independent person undertakes the measurement. This leads us to the Genera audit report, which displayed some disconcerting information in relation to monitoring methods and measurements. Firstly, the Genera consent has a 1ppm instantaneous limit included. It is clear from the papers we have seen that this has been exceeded on many occasions, and on some occasions quite seriously. Measurements of up to 63ppm have been recorded on instantaneous measurement at the port boundary, and the machine (an MX6 machine) has even recorded instantaneous measurements as high as 221ppm for reasons that were not explained.

[123] The response of the Regional Council to this has been that the relevant 1ppm condition should not have been included, and should be modified. This led to the assertion by Mr McGill that the council had the power to review the conditions of consent, and might do so on a non-notified basis. He also indicated that he had delegated authority on which he could make the decision (on behalf of the regulatory regional council) as to whether notification was required. Mr McGill conceded to the Court that the Regional Council held a significant shareholding in the port, and derived significant income from it. This must raise concerns for transparency and independent monitoring.

[124] An independent audit report of the Genera consent also showed that there were real concerns about meeting the other limits but that inadequate information had been obtained to enable proper comparison. On the face of it this appears to be a breach of the requirements under the EPA's Schedule as set out in Appendix C of **B**. At this stage we can express no confidence that the current use of methyl bromide at the Port is meeting the standards set by the EPA. We consider that some of the measurement points set by the council are more liberal than those set by the EPA, ie using the port boundary rather than the zones provided for by the TEL and WES measurements.

[125] There has been a failure to provide information demonstrating compliance. The suggestion to this Court seemed to be that the information did not demonstrate that there was non-compliance. With respect, that is not the point with such a dangerous chemical.

[126] Overall, it is not possible for us to conclude that the addition of further methyl

bromide from Envirofume would meet the WES or TEL limits set out by the EPA. Some of the activities of Genera appear to have exceedences without the addition of cumulative effects of Envirofume.

Improvement by Genera

[127] Initially, Envirofume sought to operate on the same terms and conditions as Genera. It has now modified its position to accept that it must seek improvement, adopt better technical methods and accept that its effects, together with Genera's, must be within appropriate limits.

[128] Ms Atkin put the proposition to Mr Browning that the introduction of another operator at the port of Tauranga would improve competition and therefore lead to innovation and improvement. Mr Browning's view was that it may, in the alternative, lead to the necessity for cost cutting and further compromise the achievement of the long term goals of the Regional Council, the EPA and the Montreal Protocol.

Conclusion on effects

[129] We have concluded that the benefits of such a proposal are at best speculative in terms of reducing emissions from the port or improving compliance with the health and safety standards already in existence.

[130] Overall, our view is that this matter requires an integrated approach from the Port of Tauranga, the marshalling/stevedoring companies, the forestry industry and the fumigators to adopt an approach for the safe application of methyl bromide and the recapture of all reasonable emissions. This would probably require a dedicated area for fumigation, and may involve a building or other system that seeks to encapsulate and recapture gas. We are not satisfied that the introduction of another company into the Tauranga market is going to bring about those changes. In our view, the advance towards reduction of emissions has seen little progress since the 1990s, and the Court is surprised to see that there is approximately ten times as much methyl bromide being applied in Tauranga as there was in the 1990s.

[131] In the end we consider that there is a fundamental issue in granting a further application to undertake an activity which is currently due to end in 2020 where we have no confidence that the technology utilised will recapture all of the relevant emissions by October 2020. Further, we are not satisfied that the activity can be properly monitored and avoid cumulative effects.

Assessment of s 104

[132] We now consider the various provisions of s 104(1) in summary form.

Actual and potential effects on the environment

[133] We are not satisfied that there will be any reduction in mass emissions. There is a risk that there might be an increase.

[134] We are not satisfied that the potential for cumulative effects, and thus an increased effect on the local environment, will not occur. However, this is simply due to the addition of the lower emissions of this operator onto the emissions of the existing operator, and the difficulties in achieving appropriate separations to avoid plume mixing.

[135] For current purposes, we can commence our discussion of this matter with the Montreal Protocol. All parties acknowledged that it was relevant; it had required the phasing out of methyl bromide for all but quarantine protection systems (**QPS**) by 2005. Further, it urged parties to minimise emissions. The EPA addressed this by requiring emissions to be fully recaptured by 2020.

National Environmental Standard

[136] We discuss the WES exposure standard under other matters, given it is not a document produced under the Resource Management Act.

Other regulations

National Coastal Policy Statement

[137] Although the New Zealand Coastal Policy Statement does have provisions relating to the operations of ports, it also addresses, in general terms, cultural and effect issues.

Regional Policy Statement

[138] We have already discussed the relevant regional policy provisions, which seek largely to avoid hazardous contaminants.

The regional plan

[139] We have discussed this in detail, and it seeks to minimise these emissions.

Any other matter

[140] Clearly, we have considered the terms of the Montreal Protocol, the HSNO decision of the EPA and concluded that these are generally applicable. We do note that the controls are difficult in application at the Port of Tauranga due to the complexity of its operations. We also note that there are difficulties in achieving monitoring in a way that would satisfy us that Schedule C of the control has been met, or that would enable the protection of the health and safety of people. The only permitted activity standard that was mentioned to us was the discharge of 1 kg of methyl bromide. Nevertheless, this must be to an enclosed space, thus for current purposes can be regarded as irrelevant to the determination of this appeal.

[141] We have discussed the Tauranga Moana Iwi Management Plan, which expresses a preference for prohibition. It also highlights safety and monitoring issues.

Part 2 of the Act

[142] The meaning of 'subject to Part 2' in s 104 has been subject to very recent discussion in *Davidson v Marlborough DC*.[6] This held that a resource consent is subject to the meaning in *King Salmon*:[7]

> ...because the relevant provisions of the planning documents, which include the NZDPS, have already given substance to the principles in Part 2. Where, however, as the Supreme Court held, there has been invalidity, incomplete coverage, or uncertainty of meaning within the planning documents, resort to Part 2 should occur

and later at paragraph [77]:

> ...it would be inconsistent with the scheme of the RMA and *King Salmon* to allow Regional or District Plans to be rendered ineffective by general recourse to Part 2 in deciding resource consent applications.

[143] We conclude that Part 2 is still relevant to resource consent for the following reasons:

(a) as an overview or check that the purpose of the Act and that Part 2 issues are properly covered and clear;

(b) to focus the Court or decision makers on the overall purpose of the consent in question; and

(c) as a check that the various documents have recognised, provided for or given effect to the Act and other documents in the Hierarchy.

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6 [2017] NZHC 52.
7 [2017] NZHC 52, at [76]

[144] The Act is concerned with sustainable management of natural and physical resources. In that regard we take into account that the port must operate to contribute to economic success and businesses which rely on it for transportation requirements. We acknowledge that certain logging exports, particularly to China and India, require fumigation within set criteria prior to despatch.

[145] In considering any application for consent, we note that the EPA has identified a number of controls, including that there must be a recapture of emissions (except those residual to the logs and 5ppm atmospheric) by October 2020. In granting a new resource consent, we conclude that the various documents we have referred to require us to be satisfied the application reduces the emissions of methyl bromide into the atmosphere. There is nothing in this application which reduces methyl bromide emission to the atmosphere, and we are concerned that there is a possibility that there may be an increase in fumigant use as a result of having a second operator at the Port of Tauranga. We are not satisfied that there will be any reduction in the use of methyl bromide as a result of a second applicator. Critically, we consider cumulative effects cannot be satisfactorily addressed, and the proposals for monitoring are inadequate.

[146] In this case, all documents from provisions of Part 2 to the NZCPS, the RPS, RAP, RCEPs and Iwi Management Plan establish a clear and certain connection. While the value of the Port is clearly recognised, the objective is to minimise emissions of methyl bromide and monitor its use for safety purposes.

[147] In the end, we have reached similar conclusions to the commissioner for similar reasons, even though there has been a change to the method of mechanical ventilation. In the end, that change to the mechanical ventilation does not go to whether the Court has jurisdiction to consider the application. The Verdünnung system simply provides for a higher level of mixing and a higher exit velocity than the mechanical system proposed earlier. In doing so, it does not change the fundamentals of the application, or in fact the impacts of the activity beyond a better mixing to give a higher level of confidence as to the parts per million of methyl bromide that will be received in the surrounding area. Neither does it address the cumulative effect issue, given the inability to control Genera, and the difficulty of formulating conditions that would enable proper and adequate monitoring to occur and ensure compliance with any conditions or standards at all times.

[145] We agree with the commissioner that the application does not meet the purposes of Part 2 of the Act, the RPS or the RAP. Although we have not particularly had regard to the question of mauri of the air, or the potential for contaminants to reach water and the like, we do acknowledge the potential for a hazardous substance of this sort to have an impact upon the mauri of the area. The reasons for our conclusion in this regard are based largely on scientific argument, given the lack of any detailed cultural evidence that would take us beyond the addition of contaminants to the air.

[146] Overall we have concluded that the application is contrary to the policies and objectives of the Regional Air Plan and inconsistent with the Regional Policy Statement. We acknowledge that there are significant difficulties with cumulative effects and applying the EPA's controls under Schedule C given problems with monitoring and recapture. We conclude that there are no set of conditions in prospect to overcome these difficulties.

Decision

[147] For these reasons we confirm the decision of the commissioner and dismiss the appeal.

[148] Costs are reserved. Any application for costs are to be filed within 20 working days; any reply 10 working days after that and any final reply, if any, 5 working days thereafter.

For the court:

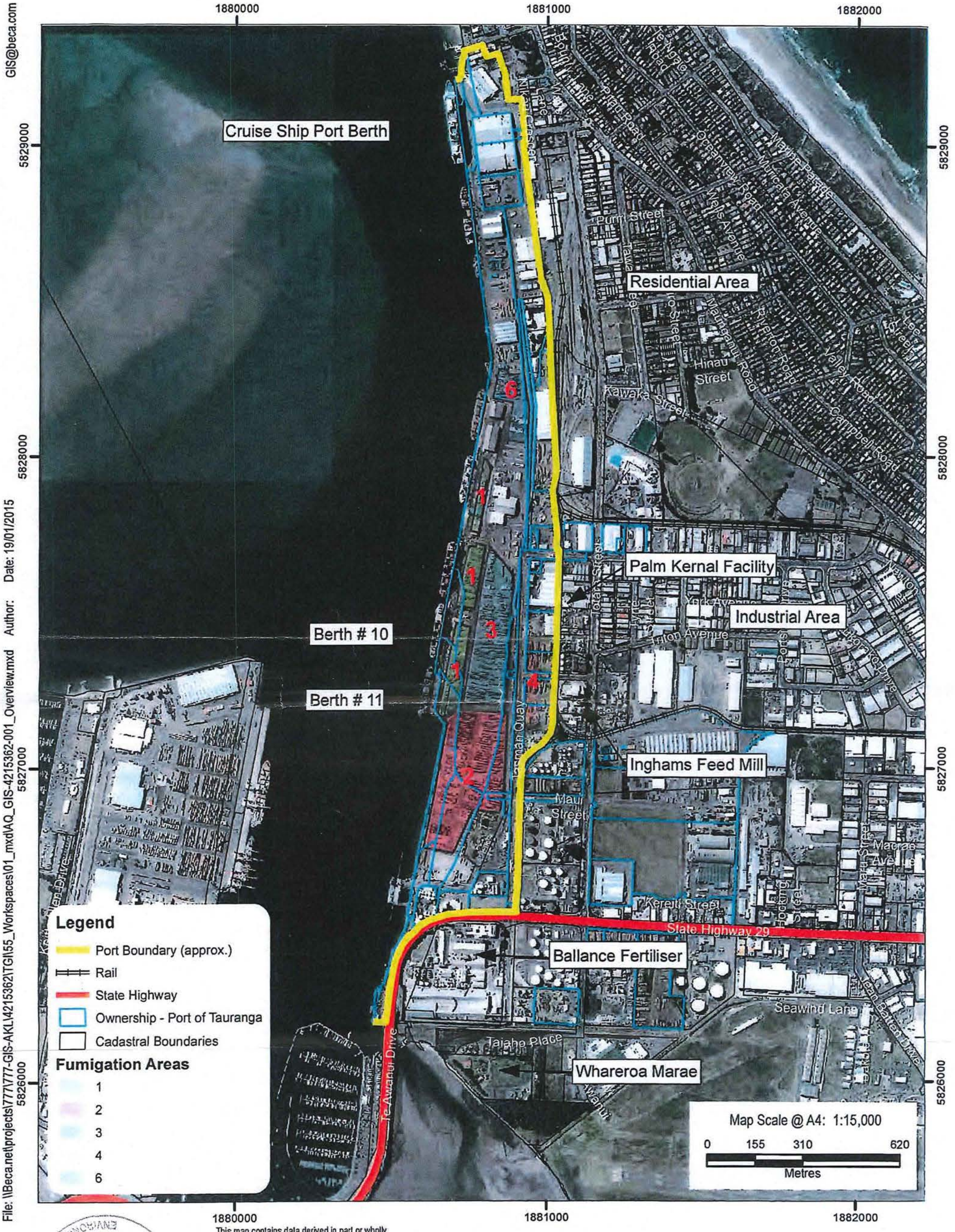
JA Smith
Environment Judge

ENVIRONMENT COURT NEW ZEALAND

"A"

Appendix 1

Statement of Evidence Dylan Makgill - ENV-2016-AKL-000055- Page 4 - Assessment of Effects – Discharges to Air from Methyl Bromide Fumigation, prepared for UML - 14 January 2015.



"B"

Environmental Risk Management Authority Decision

Application for the Reassessment of a Hazardous Substance under Section 63 of the Hazardous Substances and New Organisms Act 1996

Name of substances: Methyl bromide and formulated substances containing methyl bromide

Application Number: HRC08002

28 October 2010

Amended under s67A of the HSNO Act on 1 June 2011

Chair's introduction

Methyl bromide is a broad spectrum fumigant used internationally and in New Zealand for quarantine use. Methyl bromide is required of New Zealand by importing countries on a number of products prior to their shipment and is also used in quarantine applications on imported goods. The application of methyl bromide for large-scale fumigation of export logs under tarpaulins has attracted considerable public interest.

The Authority agreed there were grounds to reassess methyl bromide in July 2008 and the reassessment application was notified in November 2009. Ninety-five submissions were lodged with us and we heard in person from 38 submitters during our week of hearings around the country.

Our decision is to approve the continued use of methyl bromide but impose a new overall management regime which includes strengthening the tolerable exposure limits, requiring air quality monitoring and reporting, and imposing minimum buffer zones. We also are requiring all methyl bromide fumigations to be subject to recapture within a 10-year period. In addition, we recommend more research into alternatives to methyl bromide and recapture technology.

Public opinion is divided on the use of methyl bromide. Almost all of the submitters acknowledged the dilemma faced by the Committee. On the one hand, New Zealand must protect itself from the invasion of pest species and it must meet the requirements of those countries it trades with to continue to be allowed to trade. On the other hand methyl bromide is a highly toxic substance with known health effects if not used and managed properly. It is also an ozone depleting substance and many of its uses are required to be phased out under the Montreal Protocol.

The Committee took full account of the concerns of many (particularly those in areas where large-scale fumigations take place) about the risks and costs involved in the use of methyl bromide. However, the Committee also needed to take into account the critical importance of methyl bromide in relation to quarantine use and use on exports.

Our decision recognises that for the time being there is no practical alternative to the continued use of methyl bromide.

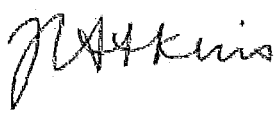
However, the Committee acknowledged that while the current management regime adequately managed the risks, improvements were needed to ensure consistency of approach around the country. This new management regime is designed to focus on the human health risks in particular.

In relation to the ozone depleting properties of methyl bromide the Committee noted that the only method of managing this is to require either a ban of the substance or recapture. As there is no alternative to methyl bromide at present, banning the substance was not considered to be an appropriate option. However, the Committee is of the view that requiring recapture within a 10-year time frame is appropriate and necessary for New Zealand to meet its obligations under the Montreal Protocol and to manage the indirect effects that the use of methyl bromide poses to human health and the environment due to its ozone depleting properties.

The Committee strongly recommends and appeals for research on both recapture technology and alternatives to methyl bromide.

The Committee is requiring annual reporting on a number of matters which will enable the Environmental Risk Management Authority to monitor the use of methyl bromide and the process on researching recapture and alternatives, and respond accordingly.

The Committee wishes to place on record its gratitude to all those who took the time and trouble to present their views to us during the submission and hearing stages of the reassessment. We were greatly impressed with the quality of the presentations. We believe that the hearings have helped clarify a number of misunderstandings as well as contribute to a better informed public debate on methyl bromide use in New Zealand.



Helen Atkins
Chair
Methyl Bromide Reassessment Committee of the Environmental Risk Management Authority

29 October 2010

Contents

1 Summary of decision

1.1.1 Following consideration of reassessment application HRC08002, the Committee:

(a) approves the continued importation, manufacture and use of *Gas containing 1000 g/kg methyl bromide* ("methyl bromide") (HSNO Approval HSR001635) in New Zealand with controls; and

(b) declines to approve the further importation or manufacture of:

- Gas containing 980 g/kg methyl bromide and 20 g/kg chloropicrin (HSNO Approval HSR001637); and
- Gas containing 300–670 g/kg methyl bromide and 330–700 g/kg chloropicrin (HSNO Approval HSR001638).

1.1.2 The controls imposed on methyl bromide are part of a revised management regime which involves three main elements:

- the setting of short-term (1 hour and 24 hour) tolerable exposure limits (TELs) in addition to a chronic TEL;
- air quality monitoring and reporting requirements;
- requirements for minimum buffer zones.

1.1.3 In addition, 10 years from the date of this decision, all methyl bromide fumigations are to be subject to recapture.

1.1.4 The controls that now apply to methyl bromide are set out in **Appendix C**.

2 Background to use of methyl bromide in New Zealand

2.1 The substance

2.1.1 Methyl bromide is an odourless, colourless gas, used internationally as a broad-spectrum fumigant. It has proved to be a highly effective means of treating timber, agricultural produce, buildings, vessels and containers to eradicate a wide range of pests (including soil-borne fungi, nematodes, weeds, insects, mites and rodents) because of its good penetrating and toxic properties and rapid toxic action. Formulations containing methyl bromide have been registered for use in New Zealand since at least 1970. This application was for the reassessment of three approvals granted under the Act for methyl bromide and related products (HSNO Approval Numbers: HSR001635, HSR001637 and HSR001638). There are currently six products covered by these three approvals.

2.1.2 Methyl bromide is imported as a liquid and held under pressure in metal cylinders. It is applied by releasing the liquid through an evaporator[1]/vaporiser which converts it to methyl bromide gas. Methyl bromide is a liquid at 1°C which boils at about 4°C.

2.1.3 The use of methyl bromide, particularly for large-scale fumigation of logs, has attracted considerable public interest, largely due to concerns over the potential health effects of the methyl bromide released during ventilation and the recognition that larger quantities of the gas are being used. The main environmental concern around methyl bromide use is its effect on ozone depletion.

2.2 Methyl bromide and the Montreal Protocol

2.2.1 Methyl bromide was recognised as an ozone-depleting substance under the *Montreal Protocol on Substances that Deplete the Ozone Layer (UNEP Ozone Secretariat 2000)* in 1987 and control measures for the chemical were included in 1992. The Protocol was an international response, based on a scientific consensus, to concerns that continued use of such substances would threaten the integrity of the ozone layer which in the long term would allow greater amounts of ultra violet (UV) radiation to reach the earth's surface and cause harm to human health and the environment.

2.2.2 New Zealand, which ratified the Protocol in 1987, was required to phase out the production and consumption of methyl bromide except for quarantine or pre-shipment (QPS) uses and other "critical use" purposes by 1 January 2005.

2.2.3 **Quarantine applications** are treatments to prevent the introduction, establishment and/or spread of quarantine pests (including diseases), or to ensure their official control, where:

(a) official control is that performed by, or authorised by, a national plant, animal or environmental protection or health authority; and

[1] An evaporator consists of 5 m long coil of copper tubing surrounded by hot water at approximately 70°C.

(b) quarantine pests are pests of potential importance to the areas endangered thereby and not yet present there, or present but not widely distributed and being officially controlled.

2.2.4 **Pre-shipment applications** are non-quarantine applications applied, within 21 days prior to export, to meet the official requirements of the importing country or the existing official requirements of the exporting country. Official requirements are those which are performed or authorised by a national plant, animal, environmental, health, or stored product authority.

2.2.5 An important aspect of these definitions is that they both relate to *official* actions. Contractual or commercial requirements alone are not sufficient reason to allow exemption from phase-out under the QPS exemption.

2.2.6 Thus, under the Montreal Protocol, methyl bromide can only be used if authorised for QPS purposes by the Ministry of Agriculture and Forestry Biosecurity New Zealand (MAFBNZ) or other relevant government agencies.

2.3 Quarantine or pre-shipment use in New Zealand

2.3.1 QPS use of methyl bromide is exempted from the phase out requirements of the Montreal Protocol; however, under the Ozone Layer Protection Regulations 1996 importers are required to obtain an import permit from the Ministry of Economic Development for any amount of methyl bromide to be imported for QPS use.

2.3.2 Methyl bromide is used in New Zealand for the QPS fumigation of logs and other goods in order to:

- ensure that imported goods meet New Zealand's border biosecurity requirements (quarantine use); or
- enable New Zealand exporters to meet the importing requirements of other countries (pre-shipment use).

2.3.3 Pre-shipment fumigation by methyl bromide is a requirement of New Zealand's own biosecurity policy and that of many of our trading partners. New Zealand is among the countries whose use of methyl bromide has increased, largely because of an increase in demand for export timber (logs) by countries requiring methyl bromide use. The increase over time of methyl bromide use for QPS uses can be attributed to increases in imports and exports and therefore increased biosecurity requirements.

2.3.4 The primary QPS uses of methyl bromide are fumigation of:

- logs in ships' holds;
- logs onshore;
- stacks of cut timber;
- shipping containers containing imported goods; and
- commodities at transitional facilities and quarantine treatment centres.

2.4 Critical-use exemption (CUE)

2.4.1 In the past, a critical use of methyl bromide in New Zealand was as a soil fumigant for strawberry and strawberry runner growing. This CUE expired on 31 December 2007. However, growers who imported methyl bromide prior to 31 December 2007 were legally able to use it to fumigate strawberry beds until their stocks were exhausted. The Environmental Risk Management Authority (ERMA New Zealand) has been advised that New Zealand strawberry growers have now exhausted the stocks of methyl bromide imported for this purpose.

2.5 Ozone layer depletion

2.5.1 The Committee notes that New Zealand has an obligation under the Montreal Protocol to:

> *refrain from use of methyl bromide and to use non-ozone-depleting technologies wherever possible. Where methyl bromide is used, Parties are urged to minimise emissions and use of methyl bromide through containment and recovery and recycling methodologies to the extent possible;*

2.5.2 Accordingly, the Committee has given particular consideration to the possibility of minimising emissions by requiring applications of methyl bromide to be subject to recapture technology.

3 The reassessment of methyl bromide

3.1 Select Committee

3.1.1 A petition (2002/0182 of Claire Gulman and 1,452 others) was presented to Parliament on 4 August 2005. The petition arose from concern of a possible link between methyl bromide and cases of motor neurone disease reported in people who had worked in the Port Nelson area.

3.1.2 Following consideration of this petition, the Local Government and Environment Committee reported to the House on 27 October 2006 recommending that ERMA be asked to reassess methyl bromide and set new conditions as soon as possible. The Government's response to this recommendation was to agree that ERMA should be asked to reassess methyl bromide and set new conditions as soon as possible.

3.2 Grounds

3.2.1 On 3 July 2008, the Chief Executive of ERMA submitted an application to establish whether there were sufficient grounds to justify a reassessment of methyl bromide and its formulations.

3.2.2 On 18 July 2008, the Authority decided, under section 62(2) of the Act, that there were grounds for the reassessment of methyl bromide and its formulations, namely that there was:

- information available showing a significant change of use of methyl bromide (to meet New Zealand's biosecurity requirements as well as those of trading partners);
- information available showing a significant increase in the quantity of methyl bromide imported;
- ongoing public concern relating to the use of methyl bromide for large-scale fumigation of logs; and
- a need to review the tolerable exposure limit (TEL) for methyl bromide set under the Act.

3.3 The application

3.3.1 An application for the reassessment of methyl bromide was prepared by the staff of ERMA (the Agency) on behalf of the Chief Executive under section 63 of the Act.

3.3.2 The Agency sought information from a wide range of sources in the preparation of the application, mainly in respect of the New Zealand lifecycle and use of methyl bromide and benefits associated with its use.

3.3.3 The Agency also commissioned reports from:

- Dr Martin Edwards of Toxicology Consulting Limited – a review of the toxicological hazard profile and the current HSNO class 6 and 8 classifications for methyl bromide; and

- Dr Bruce Graham of Graham Environmental Consulting Limited – an evaluation of a number of air quality monitoring reports relating to the use of the substance at New Zealand ports.

3.3.4 In addition, the Agency considered publicly available sources of toxicology and environmental fate and effects test data, studies and other references relating to methyl bromide and, to lesser degree, potential alternatives.

3.3.5 The Chief Executive formally submitted the application for reassessment on 4 November 2009.

3.3.6 The Agency's project team comprised the following members of staff:

Name	Title
Andrea Eng	General Manager, Hazardous Substances
Noel McCardle	Senior Advisor, Hazardous Substances
Jim Waters	Senior Advisor, Hazardous Substances
Cora Drijver	Advisor, Hazardous Substances
Richard Mohan	Senior Advisor, Hazardous Substances
Patrick Gemmell	Senior Advisor, Kaupapa Kura Taiao
Janet Gough	Principal Analyst, Strategy and Analysis
Curtis Gregorash	Manager, Legal and Risk

3.4 Legislative basis

3.4.1 The application for the reassessment of methyl bromide and its formulations was lodged pursuant to section 63 and, as required under that section, deemed to be an application made under section 29. Section 29 requires the Committee to consider adverse and positive effects of the substance and to make a decision based on whether or not the positive effects of the substance outweigh the adverse effects of the substance.

3.4.2 In making this decision, the Committee has applied the relevant sections of the Act and clauses of the Methodology as detailed in the decision path attached to this decision as **Appendix A**. Unless otherwise stated, references to section numbers in this decision refer to sections of the Act, and clauses, to clauses of the Methodology.

3.5 Timeline

3.5.1 The timeline for the application was as follows:

Table 3.1: Timeline for the application for the reassessment of methyl bromide

Action	Date
Application formally received	4 November 2009
Application publicly notified	5 November 2009
Public submissions closed	26 February 2010
Update paper circulated	3 May 2010
Hearings held	17–21 May 2010

3.6 Time limits and waivers

3.6.1 Under section 59, the Committee waived the statutory time limits three times:

- In response to a request to provide submitters with additional time to prepare submissions, the Committee extended the submission period. The submission period was initially due to close on 18 December 2009 and was extended until 26 February 2010. A press release was issued on 23 November 2009 and an email sent to interested parties on 25 November 2009 advising them of this extension.
- The requirement to fix a hearing date within 30 days after the closing date for submissions was waived, pending finalisation of the Agency's review of the submissions. Hearings were subsequently held between 17 and 21 May 2010.
- Given the high public interest in the reassessment of methyl bromide, the need for the Committee to gather further information and to carefully consider the wide range of views and weigh all the information carefully, the requirement for the Committee to publicly notify its decision no later than 30 working days after the conclusion of the hearing was waived.

3.7 Māori interests and concerns

3.7.1 Sections 6(d) and 8 of the Act require that decision making under the Act takes into account the relationship of Māori and their culture and traditions with their ancestral lands, water and other taonga, as well as the principles of the Treaty of Waitangi (Tiriti ō Waitangi).

3.7.2 Accordingly, the Agency held consultative hui with iwi/Māori groups in regions containing ports where there is significant use of methyl bromide (namely Auckland, Tauranga and Blenheim) to canvass iwi/Māori opinion and obtain information about issues or concerns posed by the continued use of methyl bromide.

3.7.3 In addition, opinion was further canvassed at ERMA New Zealand's Māori National Network hui held in Auckland in September 2009.

3.7.4 Ngā Kaihautū Tikanga Taiao, the statutory committee established under the Act to advise the Authority on Māori issues, prepared its own report on the reassessment application.

3.8 Ministerial call in

3.8.1 The Minister for the Environment was advised of the application on 5 November 2009 (under section 53(4)(a)) and given the opportunity to "call-in" the application under section 68. This action was not initiated.

3.9 Notification of the application

3.9.1 In accordance with section 53, the application was publicly notified on the ERMA New Zealand website on 5 November 2009 and advertised in the New Zealand Herald, the Dominion Post, the Christchurch Press and the Otago Daily Times on 7 November 2009.

3.9.2 The application summary was also sent to government agencies which were identified as having a specific interest in the application and interested parties who had indicated that they wished to be notified of this application.

3.10 Public submissions

3.10.1 A total of 95 public submissions were received on the methyl bromide application. A summary of the submissions received is set out in Appendix 1 to the update paper.

3.11 Appointment of the committee

3.11.1 The following members of the Authority were appointed to consider the application (in accordance with a delegation under section 19(2)(b)): Ms Helen Atkins (Chair), Dr Deborah Read, Dr Max Suckling and Mr Richard Woods.

3.12 Update paper

3.12.1 The Agency prepared an update paper to provide the Committee and submitters with a review of the submissions received in response to the public notification of the reassessment application.

3.12.2 In preparing this paper, the Agency reviewed all the submissions and prepared responses to the significant issues. A summary of the submissions was attached as Appendix 1 to the update paper.

3.12.3 The update paper was circulated on 3 May 2010.

3.13 Information available for the consideration

3.13.1 The Committee had available for its consideration the application, the update paper, the Ngā Kaihautū Tikanga Taiao report, the written submissions and additional information provided by submitters prior to the hearings. During the hearings the Committee considered the evidence presented, and the additional information provided by the submitters, Ngā Kaihautū Tikanga Taiao and the Agency.

3.13.2 During the hearings the Committee requested additional information from port authorities about methyl bromide fumigations at their ports and further information on the costs of recapture from submitters.

3.13.3 Subsequent to the hearings, the Committee requested further information, in accordance with section 58(1), from various ports, industry and fumigation companies and MAFBNZ on the impacts of requiring the use of recapture technology. The Committee also requested further information from MAFBNZ on the operation of transitional facilities and the use of methyl bromide to control potato wart, a disease caused by a soil fungus which is a notifiable organism under the Biosecurity Act.

3.13.4 The Committee is satisfied that it had sufficient information, both relevant and appropriate to the risks, costs and benefits of the substances to enable it to consider the application (clause 8).

3.14 Public consultation and hearings

3.14.1 Thirty-eight of the 95 submitters indicated that they wished to be heard in support of their submission at a public hearing.

3.14.2 In accordance with section 60 and clause 2(b), hearings were held on the following dates at the following locations:

Date	Location
17 May 2010	The Wellesley Boutique Hotel, Maginnity Street, Wellington
18 May 2010	The Rutherford Hotel, Trafalgar Square, Nelson
19 May 2010	The Mercure Hotel, Waikawa Road, Picton
20 May 2010	The Oceanside Resort & Twin Towers, Mt Maunganui
21 May 2010	The Holiday Inn, Airport Oaks, Auckland

3.14.3 The hearings were, therefore, held in some of the locations in New Zealand where methyl bromide is used, namely, Wellington, Nelson, Picton, Tauranga and Auckland.

3.14.4 The Committee formally visited three ports (Wellington, Napier and Nelson) and familiarised themselves with the others they did not have time to formally visit. The Committee records their sincere thanks to the ports they visited. The site visits were of great assistance in understanding the issues.

3.14.5 The Committee also received written submissions from a number of the port companies and oral presentations from the Port of Napier and CentrePort (Wellington). In addition, representatives from the Port of Tauranga, Ports of Auckland, and Port of Nelson were present at hearings and provided input into the submission process. The Committee also requested and received further specific information from the ports on operational matters as noted above.

3.14.6 The Committee thanks all the submitters who presented to them in the hearings as well as the large number of submitters who did not attend the hearings but submitted in writing.

3.14.7 In particular, the Committee thanks representatives from MAFBNZ (Ken Glassey),

Genera (Alan Perry), Nordiko Quarantine Systems Pty Ltd (Ken Fitzpatrick and Joe Falco) and Value Recovery (Peter Joyce) who attended more than one hearing and were able to provide answers to questions that arose during the hearings.

3.14.8 MAFBNZ has provided valuable information on New Zealand's use and trade of, and biosecurity dependence on, methyl bromide not just at our ports but also at transitional facilities located throughout the country.

3.14.9 Nordiko and Value Recovery were able to provide significant information on the recovery and recycling possibilities for methyl bromide and the Committee valued their inputs throughout the process.

3.14.10 The Committee heard from Genera Limited (Jon Trevenna) in Tauranga and Alan Perry was able to answer questions throughout the hearings and this was of great assistance. The Committee also heard from two other fumigant companies, Rentokil Pest Control (Rowan Washer) and Ecolab (Eric van Essen). These companies were able to answer some of their questions about the use of fumigants in the transitional facilities. Mr van Essen also presented as the President of the Pest Management Association of New Zealand.

3.14.11 Lance Dear of BioVapor (NZ) Limited provided a presentation on an alternative to methyl bromide (heat treatment) that is successfully used at Ports of Auckland for a number of imports, particularly used motor vehicles.

3.14.12 The forestry and wood processing industries presented in a number of locations and the Committee heard from:

- New Zealand Forest Owners Association;
- New Zealand Institute of Forestry;
- Wood Processors Association of New Zealand;
- Rayonier New Zealand Limited; and
- Carter Holt Harvey Limited.

3.14.13 Obviously the use of methyl bromide is of fundamental importance to these industries due to the requirements of New Zealand's trading partners (e.g. Australia, China (for ship decks[2]) and India). The Committee heard that wood product prices are highly volatile, particularly for unprocessed logs. This volatility is relevant because the low margins that apply in this industry mean that small changes in costs can have a disproportionate impact on the viability of the trade.

3.14.14 Likewise, the Committee heard of minor (in volume terms) but important uses of methyl bromide in the horticulture fresh produce, and farming industries. The Committee thanks Federated Farmers of New Zealand Inc, Horticulture New Zealand, New Zealand Fresh Produce Importers Association Inc, and John and Helen Wright of the New Zealand Comb Honey Producers Association Inc, for their submissions in assisting them to understand the issues faced by these industries.

[2] Phosphine hold fumigation is permitted for QPS use for China, so methyl bromide is required for logs to be stowed as deck cargo

3.14.15 Joseph Stafford of Primal Communication, provided a helpful submission on the Māori perspective of methyl bromide use, including economic considerations as Māori realise the potential of Treaty of Waitangi settlements and are becoming significant owners of forestry resources.

3.14.16 The Committee heard from a number of organisations (The Green Party of Aotearoa New Zealand Inc, the Sustainability Council of New Zealand, the Soil and Health Association of New Zealand Inc, the New Zealand Council of Trade Unions Pte, Friends of the Earth and the Royal Forest and Bird Protection Society – Nelson Tasman Branch) concerned about the Agency recommendations that essentially recommend a continued use of methyl bromide with additional controls put in place. The main concern raised by this group of submitters was that the Agency was effectively mandating an increase in methyl bromide use as log demand increases from developing markets (India and China). The Committee acknowledges the reasonable manner in which these submitters presented their submissions in that they were very aware that an immediate ban would be very difficult to achieve due to trading issues. The Committee is grateful to these submitters for the various suggestions and options they presented as to their view of the way forward.

3.14.17 The Committee heard from individuals (Sue Lindsay in Nelson and Darryl Marriner in Picton) and community groups (Peter and Takutai Beech for the Guardians of the Sounds, and Gwen Struick for the Friends of Nelson Haven & Tasman Bay Inc.,) who were very concerned about the health and environmental effects of methyl bromide use on them as individuals and on their communities. The Committee acknowledges that there are very strong views held in the community about methyl bromide use and that it was helpful to hear them.

3.14.18 Two local authorities (Environment Bay of Plenty and Nelson City Council) and one district health board (Nelson-Marlborough District Health Board) presented on the interface between their functions and those of ERMA. Nelson City Council was advocating that ERMA take the same approach as it has in relation to buffer zones, use of recapture technology and monitoring approaches at Port Nelson.

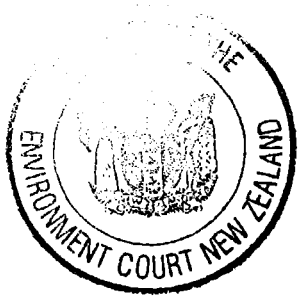
3.14.19 The Ministry of Health presented from a biosecurity perspective on the importance of methyl bromide use to control insects that have public health impacts (such as mosquitoes that are commonly found in shipments of used tyres).

3.14.20 The Committee wishes to thank Tom Batchelor and Melanie Miller for their thoughtful submission which Melanie presented orally via a telephone conference link. The information provided in the written submission and Melanie's answers to the Committee's questions have been of assistance to them.

3.14.21 Gordon Hosking from Stakeholders in Methyl Bromide Reduction (STIMBR) presented on the work of that group in finding ways to reduce methyl bromide use and find alternatives that are acceptable to our trading partners.

3.14.22 The Committee also thanks Professor Ian Shaw from the University of Canterbury who accepted its invitation to attend the hearing in Wellington and provide the Committee with a presentation into his work on a possible link between methyl bromide use and motor neurone disease.

3.14.23 Finally, the Committee is grateful to both Ngā Kaihautū Tikanga Taiao and the Agency team for their reports on this important matter and wishes to reiterate its thanks to all submitters including those who made written submissions but did not attend the hearings.



4 Sequence of the consideration

4.1.1 In accordance with the Methodology, and as outlined in the decision path used by the Committee (set out in Appendix A), the approach to the consideration adopted by the Committee was to:

- review the available information (clause 8);
- establish the hazard classifications for each substance and derive the default controls that are prescribed under section 77 for each classification;
- identify potentially significant risks, costs, and benefits (covered by clauses 9 and 11);
- assess the potentially significant risks and costs (risks were assessed in accordance with clause 12, and costs in accordance with clause 13) using recognised techniques (clause 24). The adequacy of the default controls, prescribed under section 77 was considered alongside the assessment of risks and costs to determine whether those controls should be varied and identify where additional controls need to be applied, under section 77A, to mitigate any unacceptable risks;
- consider all the risks and costs and determine whether the individual risks and costs (when combined) are negligible or non-negligible;
- review any non-negligible residual risks and determine whether the decision should follow clause 26 or clause 27;
- establish the approach to risk with respect to the individual non-negligible risks in accordance with clause 33;
- consider (a) whether any of the non-negligible risks could be reduced by varying the controls in accordance with sections 77 or 77A, and (b) the cost-effectiveness of the application of controls in accordance with clause 35 and sections 77 and 77A;
- assess the benefits associated with this application in accordance with clauses 9, 11, 13 and 14 and section 6(e);
- taking into account the risk characteristics established under clause 33, weigh up the risks, costs and benefits in accordance with clause 26 or clause 27 and clause 34 and section 29 taking into account aspects of uncertainty (clauses 29, 30 and 32) and determine whether the application should be approved or declined; and
- confirm and set the controls.

5 Ethical considerations

5.1.1 In preparing this decision, the Committee has taken into account the ERMA New Zealand ethics framework. This framework was developed as a tool to assist in the ERMA New Zealand decision-making process in terms of:

- asking the 'right' questions in order to identify ethical issues that need to be considered; and
- using the answers to those questions to explore how ethical considerations should be addressed.

5.1.2 The foundation of the framework is a set of ethical principles, supported by procedural guidelines and standards. The two general principles embodied in the Act and the Methodology are:

- respect for the environment; and
- respect for people (including past, present and future generations).

5.1.3 Under these general principles lies a set of specific principles which includes concern for animal welfare, concern for co-operation, concern for cultural identity, concern for sustainability and concern for peoples' wellbeing.

5.1.4 The primary mechanisms for supporting the principles outlined in the framework and for evaluating whether or not they are upheld are the following procedural standards:

- honesty and integrity;
- transparency and openness;
- a sound methodology;
- community and expert consultation; and
- fair decision-making process.

5.1.5 In its consideration, the Committee has been mindful of the criteria in the procedural standards listed above, and has reviewed all of the information made available to it in the context of the principles and procedural standards. The Committee has been respectful of the views expressed by the applicant and submitters.

5.1.6 The Committee has used the principles in the framework to help analyse ethical dilemmas such as where submitters expressed opposing views about effects of methyl bromide. In this regard, the Committee notes that many of the issues raised in submissions focused on the effects of methyl bromide on human health.

6 Treaty of Waitangi

6.1 Principles of the Treaty of Waitangi

6.1.1 All persons exercising powers and functions under the Act are required (under section 8) to take into account the principles of the Treaty of Waitangi (Tiriti ō Waitangi). The Authority has developed the Protocol "Incorporating Māori Perspectives in Part V Decision Making" to provide some guidance in the consideration.

6.1.2 There is no exhaustive list of Treaty principles, rather the Courts and the Waitangi Tribunal have made it clear that they continue to evolve as the Treaty is applied to particular issues and new situations. However, when reviewing the issues raised by this reassessment application, the Committee has focused its attention on the generally accepted principles of partnership, participation and protection.

6.2 Partnership and participation

6.2.1 The principles of partnership and participation refer to the shared obligation on both the Crown and iwi/Māori to act reasonably, honourably and in good faith towards each other to ensure the making of informed decisions on matters affecting the interests of Māori.

6.2.2 In reference to this reassessment application, the Agency undertook consultative hui with iwi/Māori most affected by the use of methyl bromide (i.e. those in proximity to major ports utilising the substance) to ensure issues and interests were reflected in the application.

6.2.3 Implementing these principles may extend to the inclusion of a control requiring the involvement of iwi/Māori in local decision making regarding any ongoing operational use and management of the substance.

6.2.4 This issue was highlighted by Māori attending the consultation hui, where they stressed the desire to be part of a process that enables a traditional control such as rāhui in managing any adverse effect arising from specific activities. The Committee notes the consideration of this issue in Section 5.4 of the reassessment application.

6.3 Active protection

6.3.1 The principle of active protection is of particular relevance in this application and refers to the Crown's obligation to take positive steps to ensure that Māori interests are protected, and to consider them in line with the interests guaranteed to Māori in Article II of the Treaty. Specifically, the Court of Appeal in the 1987 *Lands* case[3] noted that "... the duty of the Crown is not merely passive but extends to active protection of Māori people in the use of their lands and waters to the fullest extent practicable".

6.3.2 Taking into account the principle of active protection requires this application to

[3] *New Zealand Maori Council v Attorney-General* [1987] 1 NZLR 641

provide sufficient evidence to show that the use of methyl bromide does not pose significant risk to native or taonga species, ecosystems and traditional Māori values, practices, health and well-being. A number of these issues were addressed by the Agency in Section 5.4 of the reassessment application, but overall there are differing Māori views on the risks posed by methyl bromide and the opportunities afforded by its continued use.

6.3.3 Given the recommendations made and controls outlined in this decision the Committee considers that the implementation of this principle is provided for.

6.4 Ngā Kaihautū Tikanga Taiao

6.4.1 Ngā Kaihautū Tikanga Taiao, the statutory committee established under the Act to advise the Authority on Māori issues, prepared its own report on the reassessment application during the public submissions period.

6.4.2 The Committee had an oral presentation (via teleconference) from Ngā Kaihautū Tikanga Taiao where there was an opportunity for them to expand on their submission and answer questions.

6.4.3 Ngā Kaihautū Tikanga Taiao's submission is reflected in the Committee's assessments of the adverse and beneficial effects to Māori of methyl bromide use.

7 The substances

7.1.1 The reassessment application related to three existing approvals granted under the Act for methyl bromide and related products. These approvals and their related registrations under the Agricultural Compounds and Veterinary Medicines Act 1996 (ACVM Act) are shown in Table 7.1 as follows:

Table 7.1: Methyl bromide-based products with HSNO approvals

HSNO approval #	Substance description		Trade names	ACVM registration no.	Registration date
HSR001635	Commodity Fumigant	Gas containing 1000 g/kg methyl bromide	AG Fume methyl bromide	P003401	26 November 1985
			Brima-Fume Methyl Bromide	P003888	3 August 1990
HSR001637	Gas containing 980 g/kg methyl bromide and 20 g/kg chloropicrin		Brima-Fume Methyl Bromide Fumigant	P003886	21 December 1988
HSR001638	Gas containing 300 – 670 g/kg methyl bromide and 330 – 700 g/kg chloropicrin	670 g/kg methyl bromide 330 g/kg chloropicrin	Bromafume Soil Fumigant	No longer registered	21 December 1988
		300 g/kg methyl bromide 700 g/kg chloropicrin	Vertafume	P007248	26 April 2005
		500 g/kg methyl bromide 500 g/kg chloropicrin	Fungafume	P007249	26 April 2005

7.1.2 As the importation of methyl bromide for non-QPS uses is now unlawful under the Ozone Layer Protection Regulations, the Agency did not assess the risks associated with those methyl bromide products currently approved (approvals HSR001637 and HSR001638) for use as soil fumigants.

7.1.3 MAFBNZ has indicated that methyl bromide is used as a soil fumigant for controlling potato wart and has advised that they use Brima-Fume Methyl Bromide (covered by HSNO approval HSR001635).

7.1.4 The Committee considers that the other soil fumigant approvals, that is the ones containing chloropicrin (covered by HSNO approvals HSR001637 and HSR001638), should not be continued. Details of the prohibition of further use of these substances are set out in Section 16.14 of this decision.

8 Hazard classifications

8.1.1 In the reassessment application, the Agency provided a review of the HSNO classifications for methyl bromide and substances containing it. As a result of the review, the Agency proposed four changes as follows:

- change from 6.3A (skin irritancy) to 8.2C (skin corrosivity) based on the reported severity of the damage (partial thickness second degree burns) after human exposures to methyl bromide in liquid form.
- change from 6.4A (eye irritancy) to 8.3A (eye corrosivity) based indirectly on the severity of skin damage after human exposures.
- change the soil ecotoxicity classification from 9.2A to 9.2D on the basis that the only valid data available is that on nematodes and this indicates a 9.2D classification.
- change the 9.4A classification to 9.4 (unspecified) as while methyl bromide is designed for biocidal action against invertebrates, there is no data available to enable definitive classification.

8.1.2 The Committee agrees with the proposed changes from 6.3A (skin irritancy) to 8.2C (skin corrosivity) and from 6.4A (eye irritancy) to 8.3A (eye corrosivity).

8.1.3 However, the Committee has decided to retain the current 9.2A and 9.4A classifications as methyl bromide, used as a fumigant, is known to eradicate all soil organisms and invertebrates.

8.1.4 The HSNO classification of methyl bromide is as follows:

Table 8.1 HSNO classifications of methyl bromide

Hazardous property	HSNO classification
Flammable gas	2.1.1B
Acute toxicity (oral)	6.1C
Acute toxicity (inhalation)	6.1B
Skin irritancy/corrosivity	8.2C
Eye irritancy/corrosivity	8.3A
Mutagenicity	6.6B
Reproductive/ developmental toxicity	6.8B
Target organ systemic toxicity	6.9A
Aquatic ecotoxicity	9.1A
Soil ecotoxicity	9.2A
Terrestrial vertebrate ecotoxicity	9.3B
Terrestrial invertebrate ecotoxicity	9.4A

9 Previous management regime

9.1.1 In Section 4 of the reassessment application, the Agency listed the previous controls applying to methyl bromide and formulations containing methyl bromide. These controls were prescribed as part of the approval of these substances under the Act and the Agricultural Compounds and Veterinary Medicines Act 1997, and through requirements under the Resource Management Act 1991 (the RMA), the Health and Safety in Employment Act 1992 and the Biosecurity Act 1993.

9.1.2 The previous controls under HSNO comprise the regulations (known as default controls) assigned to the substances based on their hazardous properties, with variations and additions to these controls which were applied to these substances at the time of transfer from control under the Fumigation Regulations 1967 (pursuant to the Health Act 1956) to the HSNO Act. The full set of HSNO controls currently assigned to these substances is set out in **Appendix G** of the reassessment application.

9.1.3 The current controls were used as a reference point in the Agency's application and the risk assessment on the use of methyl bromide was carried out with the assumption that the previous controls are in place.

10 Current lifecycle of methyl bromide in New Zealand

10.1 Manufacture

10.1.1 Methyl bromide is not manufactured in New Zealand.

10.2 Importation

10.2.1 Methyl bromide is imported by sea as a liquid in 50 kg and 100 kg pressurised metal cylinders packed in shipping containers and delivered direct to the importer where they are removed from the shipping containers and stored in purpose-built storage facilities.

10.2.2 Two companies, Agricultural Fumigation Ltd (in Auckland) and Leicester's New Zealand Ltd (in Napier), import methyl bromide into New Zealand. Entitlement to import methyl bromide for general use was allocated to these two wholesalers on the basis of their market share in 1993. Import permits are issued annually and are subject to reductions as set out in the Ozone Layer Protection Regulations 1996.

10.3 Transport

10.3.1 Transport within New Zealand is by sea or road.

10.3.2 Methyl bromide is only on-sold by the importer to MAFBNZ-accredited operators (the customer must present their approved handler certificate and controlled substances licence (CSL), if applicable[4]). Cylinders are either picked up by customers or the cylinders are transported by commercial transport operators (sea and road).

10.3.3 Operators must carry gas cylinders, packages of fumigant and associated equipment in a secure way, outside the passenger compartment of transport vehicles. These cargo areas are kept well ventilated at all times and respiratory protective equipment (RPE) is available in the driver's cab in case of emergency. RPE is kept in a suitable container with the canister/filter in a sealed plastic bag to ensure it is not exposed to chemicals until needed. Emergency response information is also required to be carried.

10.4 Storage

10.4.1 Long-term storage by the importer or by users is in purpose-built facilities that comply with New Zealand regulations.

10.5 Disposal

10.5.1 When cylinders have been emptied they are returned to the importer and from there shipped back to the manufacturer in the United States. A deposit scheme for the cylinders is operated by importers to ensure a high return rate.[5]

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[4] A person does not need a CSL if the aggregate quantity of the fumigant being handled is less than 3 kg.

[5] One of the two importers quotes a 100% return rate.

10.6 Use of methyl bromide

10.6.1 Methyl bromide is used in New Zealand for QPS purposes on import and export goods. Information on the range of treatment methods used in New Zealand has been obtained from a number of operators.

Logs in a ship's hold

10.6.2 The required quantity of methyl bromide for logs in a ship's hold is injected as a gas, by means of a vaporiser, and the holds sealed up for 12 to 24 hours depending on the importing country requirements. The holds are then ventilated. The procedure used for venting can vary significantly between ports and under different circumstances.

Logs under sheets

10.6.3 Logs under sheets are fumigated onshore, preferably on a sealed surface. The piles of logs are covered with low-permeability tarpaulins, and a ground seal is achieved by placing water or sand "snakes" around the edges. The fumigant is injected inside the enclosure and left for 12 to 24 hours. The "snakes" are then removed, followed by removal of the tarpaulins.

Stacks of timber under sheets

10.6.4 Timber stacks may be treated outdoors or inside a building. The stacks are covered with tarpaulins and treated in much the same way as logs. The buildings may be either naturally ventilated (via open doors, windows and vents) or force ventilated using fans. At the Port of Nelson timber stacks are fumigated within a building, and after fumigation are initially connected to an activated carbon absorption unit.

Containers

10.6.5 Treatment of containers may take two forms. Groups of containers are covered with tarpaulins, with the container doors left slightly ajar to assist fumigant penetration. Ventilation is done in two stages, with the tarpaulins being removed first, and the container doors fully opened after about 30 to 60 minutes.

10.6.6 Alternatively, and more commonly, containers may be fumigated without using tarpaulins. The fumigant is injected through the door seal. At the end of the treatment period, the doors are opened wide to allow the gas to disperse.

Transitional facilities

10.6.7 Fumigation with methyl bromide can be carried out at locations other than ports. These locations must be MAFBNZ approved transitional facilities where cargo is consolidated. There are approximately 6,000 transitional facilities some of which may fumigate only one or two containers per year and many of which may not fumigate at all in a given year.

10.6.8 At most transitional facilities treatment takes place either under a tarpaulin or inside a container.

Use of methyl bromide for the management and eradication of potato wart

10.6.9 Potato wart is a disease that disfigures potatoes and is caused by a persistent soil-borne fungus *Synchitrium endobioticum.* MAFBNZ has advised that it regards methyl bromide as an essential tool in the management and eradication of potato wart and that the use of methyl bromide for controlling potato wart is a legitimate quarantine use (i.e. exempted from the Montreal Protocol).

10.6.10 Eradication operations involving soil fumigation treatment with methyl bromide are carried out by commercial fumigation contractors, employed by AsureQuality Ltd. This involves soil fumigation under heavy polyethylene sheeting using a border trench to maintain a perimeter seal for at least 24 hours.

11 Alternatives

11.1.1 In the reassessment application, the Agency reviewed the potential alternatives to methyl bromide fumigation and concluded that there is no single alternative fumigant or method of treatment to replace methyl bromide for all intended uses or overseas markets.

11.1.2 This situation was confirmed by submitters who noted that:

- fumigation of logs with phosphine is accepted for export to the Peoples' Republic of China (logs fumigated above deck are excluded from this (ie they are fumigated using methyl bromide), Japan, Malaysia and the Republic of Korea. However, negotiations with India over possible use of phosphine have been in progress for four years to date with no swift resolution expected;
- for quarantine purposes, treatment is required to be fast (ie within a 24 hour period). It was noted that phosphine treatment takes 7 to 10 days and therefore for quarantine purposes some insects cannot be controlled by this gas;
- heat treatment has been used in place of methyl bromide for imported used vehicles and machinery, International Organization for Standardization (ISO) shipping containers and for International Standards For Phytosanitary Measures No. 15 (ISPM 15) wood treatments;
- only a small proportion of New Zealand's horticultural exports is fumigated with methyl bromide and its use is restricted to circumstances where an importing country specifically requires methyl bromide fumigation or where no other treatment is available;
- used tyres are fumigated with methyl bromide to prevent exotic mosquitoes entering New Zealand;
- methyl bromide fumigation is necessary to protect honeycomb from wax moth. Such fumigation is required for export purposes and alternative procedures are not available; and
- methyl bromide is also used in a limited way for some horticulture products where there is no alternative available.

11.1.3 The Committee acknowledges that it is not possible to replace methyl bromide with a single fumigant or a single type of treatment. However, the Committee recommends the replacement of methyl bromide where possible, particularly in areas where alternative methods of treatment, such as phosphine and heat treatment, are available and acceptable.

11.1.4 The Committee also strongly encourages industry and other parties to actively encourage and stimulate research into alternatives. Likewise the Committee strongly encourages MAF and industry to negotiate with our trading partners with a view to reducing the amount of methyl bromide being used as a result of trading partners' requirements.

12 Assessment of adverse effects

12.1 Summary

12.1.1 The Committee's view, set out in more detail below, is that the adverse health effects of the continued use of methyl bromide and formulations containing methyl bromide are primarily associated with potential exposure of workers and the general public. The Committee notes the high degree of public concern in some places regarding potential adverse human health effects from the use of methyl bromide.

12.1.2 The Committee is satisfied that, while potential adverse health effects associated with methyl bromide fumigation can be adequately managed by the controls currently in place, improvements to the overall management regime should be made to better ensure the health and safety of workers and the general public.

12.2 Introduction

12.2.1 Adverse effects, or risks and costs, are assessed in terms of the magnitude of the consequence of the effect if it should arise and the likelihood of the effect occurring.

12.2.2 Much of the evidence available to the Committee was largely scientific in nature and was considered in terms of clause 25(1) of the Methodology, taking into account the degree of uncertainty attaching to that evidence. This evidence comprised the information provided by the Agency in the application and update paper, evidence provided in submissions at or following the public hearings and the advice of experts (as outlined in Section 3.13).

12.2.3 In each case, the Committee's assessment includes a discussion of:

- the nature of the adverse effect (clause 12(a));
- an assessment and evaluation of likelihood and consequences (clause 12(b)), noting that the methods for these assessments follow recognised techniques (clause 24) and are made taking account of the application of controls;
- an assessment of the level of risk as a combination of the likelihood of occurrence and the magnitude of the adverse effect (clause 12(c));
- the options and proposals for managing the risks identified (clause 12(d)); and
- the uncertainty bounds (clause 12(e)) and how uncertainty affects the assessment of the risk (clauses 25 – scientific and technical uncertainty; 29 – materiality of uncertainty; and 30 – the need for caution where uncertainty is not resolved).

12.2.4 Clause 33 of the Methodology requires the Committee to have regard to the extent to which a specified set of risk characteristics exist when considering applications. The intention of this provision is to provide a route for determining how cautious or risk averse the Committee should be in weighing up risks and costs (adverse effects) against benefits (positive effects).

12.2.5 Where risks are considered to be potentially significant, the Committee has discussed these characteristics and established a position on its approach to risk.

12.3 The Committee's assessment of the adverse effects of methyl bromide

12.3.1 In the following sections (12.4 to 12.8) the Committee sets out its assessment of the adverse effects of methyl bromide on:

- human health;
- the environment;
- the relationship of Māori to the environment;
- society and communities; and
- the market economy.

12.3.2 In conducting its assessment, the Committee followed the following steps, it:

(a) identified the potentially significant effects that could occur in the areas listed in paragraph 12.3.1;

(b) assessed the level of risk taking into account the existing controls that apply to methyl bromide;

(c) revised the controls with a view to mitigating the level of risk; and

(d) assessed the level of risk taking into account the revised controls.

12.4 Adverse effects on human health

12.4.1 The Committee's qualitative assessment reviewed the likelihood that people will be exposed to methyl bromide during the different stages of the substance's lifecycle, and the extent to which this exposure will result in adverse effects on human health.

12.4.2 The adverse effects on human health have been assessed separately for the following sub-populations:

- fumigation operators (people carrying out the fumigation with methyl bromide);
- occupational bystanders, who are people who work in the vicinity, but are not working on the fumigation itself; and
- the general public[6] (also called non-occupational bystanders).

12.4.3 The Committee notes that an individual may at different times fall within more than one of these descriptions.

Nature of adverse health effects

12.4.4 The Committee notes that the adverse health effects associated with methyl bromide exposure are primarily the effects of inhalation of relatively low concentrations which can cause destruction of the nasal epithelium.

12.4.5 The Committee also notes that exposure to higher concentrations may be associated with reproductive toxicity (based on studies in rats showing reduced fertility and reduced offspring weights), developmental effects (in animal tests at exposures

[6] In the application and update paper the general public were referred to as "non-occupational bystanders"

causing maternal toxicity) and mutagenicity (based on animal studies). Damage to the central nervous system is the most common finding in humans following high accidental exposures. Skin and eye damage from direct contact with the liquid has also been reported in humans.

12.4.6 A number of submitters raised concerns that exposure to methyl bromide is associated with an increased risk of motor neurone disease, due to some cases reported in Port Nelson workers. The Committee considers that the conclusions of the review of the cases that occurred at Nelson by the Medical Officer of Health are still valid.[7] The Medical Officer of Health concluded that:

> *... the most likely explanation for the group of cases who had a work history involving work sites in the Port Nelson area was "chance".*

12.4.7 The Committee notes that recent research by Professor Shaw of the University of Canterbury on the effects of methyl bromide on nerve cells[8] is cited by some submitters. As mentioned above Professor Shaw attended the Wellington hearing at the Committee's request. The Committee records that Professor Shaw stated at the hearing that his research is at a preliminary stage and it currently does not confirm a causal link between methyl bromide exposure and motor neurone disease.

12.4.8 The Committee acknowledges the high degree of public concern in relation to the adverse health effects of methyl bromide that exists in some local communities. The Committee has assessed this high degree of public concern in Section 12.6 – effects on society and communities.

Risks to human health associated with import and distribution

12.4.9 The Committee notes the very strict requirements relating to cylinders containing methyl bromide and the manner in which they may be transported around the country. The Committee is satisfied that the level of risk associated with transportation of methyl bromide is negligible.

Risks to human health associated with disposal of methyl bromide

12.4.10 In relation to disposal methyl bromide is unlikely to require disposal as the gas is completely used up when applied, therefore the Committee considers that the level of risk associated with disposal is negligible based on its assessment of the risk.

Risks arising from occupational exposure to methyl bromide

Fumigation staff

12.4.11 The Committee notes the extensive controls that currently apply to the use of methyl bromide. These include the use of personal protective equipment, signage at fumigation sites and the training of staff.

12.4.12 In particular, fumigation staff must be licensed and hold approved handler test certificates. Accordingly, fumigation staff are trained to ensure safe practice when

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[7] Kiddle, E. (2005). *Cluster Investigation into Motor Neurone Disease Nelson.* Nelson, Nelson Marlborough District Health Board.

[8] Shaw I (March 2010). "Motor neurone disease – a methyl bromide exposure cluster points to a causal mechanism" *Human and Experimental Toxicology, Vol 29* (3), p241 – 242.

handling methyl bromide and they will have knowledge of the safe use of personal protective equipment, including respiratory protective equipment (RPE) and the use of methyl bromide gas detection equipment.

12.4.13 The Committee notes that guidance on these requirements is set out in the Pest Management Association of New Zealand (PMANZ) Code of Practice which is a HSNO approved code. The Code ensures a clear distinction is made between fumigation staff and other persons who may be present near the fumigation.

12.4.14 With these clear requirements in place the Committee's overall evaluation is that the level of risk to fumigation staff is negligible.

Occupational bystanders working in the vicinity

12.4.15 The Committee notes that non-fumigation staff working in the vicinity of a fumigation may be at risk during ventilation activities. The controls on methyl bromide require that fumigation staff must ensure than no person is present in an area where a gas concentration above the workplace exposure standard (WES) value is present, unless they are wearing appropriate respiratory protective equipment.

12.4.16 To achieve compliance with this requirement, the PMANZ Code recommends that fumigation staff establish an adequate risk area within which non-fumigation staff must not be present.

12.4.17 Taking these requirements into account, the Committee considers that the level of risk to occupational bystanders from the use of methyl bromide is negligible.

Occupational bystanders unloading containers

12.4.18 A potential risk to occupational bystanders relates to exposure of persons who are unloading goods from shipping containers due to the off-gassing of methyl bromide from fumigated goods. Employers must ensure that procedures are in place so that shipping containers are checked for gas concentrations if there is any risk that a concentration greater than the WES value may be present.

12.4.19 The controls require that appropriate RPE is worn to ensure that workers are not exposed to a concentration of methyl bromide which is greater than the WES. In this regard, the PMANZ Code recommends that appropriate respiratory protection (full face mask) is worn when spending long periods of time unloading containers. The Code also recommends that shipping containers should be vented for no less than two hours (using forced ventilation to circulate the air) before unloading is permitted.

12.4.20 The Committee considers that, with adherence to these controls the level of risk to occupational bystanders unloading containers is negligible.

Risks to the public from the use of methyl bromide

12.4.21 Adverse effects on the general public from exposure to methyl bromide may occur in relation to the ventilation of fumigations.

12.4.22 In relation to ventilation generally, the Committee notes that any risk of health effects relates to the distance that a member of the public may be from the activity and the atmospheric and weather conditions at the time.

12.4.23 The Committee considers that additional controls should be put in place requiring the use of minimum buffer zones to ensure the safety of members of the public. Additionally, the Committee considers that monitoring of gas concentrations reaching the edges of the buffer zones ought to be undertaken. These additional controls are discussed in Section 16 of this decision.

12.4.24 Some submitters expressed concern relating to the venting of small fumigations (such as a single shipping container). The Committee notes that this risk was addressed in the previous controls regime by a requirement that fumigations must be carried out at a place that is secured against ready access by unauthorised persons and not where a member of the public may legally be present. The Committee considers that this control should continue to be part of the revised management regime.

12.4.25 In addition, the Committee considers that shipping containers without recapture should only be ventilated in areas where they are able to comply with minimum buffer zone requirements, and that air quality monitoring should be carried out to ensure that the TELs are not being exceeded at locations where the public may be. These additional controls are discussed in Section 16 of this decision.

12.4.26 Overall, the Committee considers that, with the previous and additional controls in place, the level of risk to public health is ***negligible***.

Soil fumigation for biosecurity purposes (potato wart)

12.4.27 The Committee learned during the submissions and hearing process that MAFBNZ requires methyl bromide as a soil fumigant to treat a particular fungal pest, potato wart, at a small number of mostly residential properties in the South Island. No detailed assessment of the methyl bromide exposures likely to result from this soil fumigation use was undertaken by the Agency. However, the Committee notes that use of methyl bromide in a residential area as a soil fumigant presents human health concerns, particularly as no stenching agent is used. For this reason, the Committee considers that procedures should be established to ensure that members of the public resident at the fumigated properties and, where appropriate, residents of neighbouring properties, are not exposed to the fumigant.

12.4.28 These procedures are discussed in Section 16.13 of this decision.

Overview of risks to human health

12.4.29 The Committee is satisfied that the potential adverse health effects associated with methyl bromide fumigation can be adequately managed by the extensive current controls together with improvements to the overall management regime which will provide greater assurance that the health and safety of workers and the general public is being protected. The improvements to the management regime are addressed in Section 16 of this decision.

12.4.30 The Committee notes that, as methyl bromide is an ozone-depleting substance, the release of the substance into the atmosphere will have indirect effects on human health. As discussed above, the international response to this matter has been the Montreal Protocol. The Committee's consideration of New Zealand's obligations under the Protocol appears in Section 14 of this decision.

12.5 Adverse effects on the environment

12.5.1 The Committee notes that the use of methyl bromide as a fumigant will not result in direct exposure to plants, terrestrial or aquatic organisms. Furthermore, methyl bromide will quickly volatilise and dissipate in the atmosphere. Accordingly, the Committee agrees with the Agency's assessment that, due to a lack of direct exposure, significant ecotoxicological effects to plants, terrestrial or aquatic organisms are not expected.

12.5.2 Methyl bromide used as a soil fumigant at the appropriate concentrations will, as intended, eradicate all organisms in the soil environment. As non-QPS use of methyl bromide as a soil fumigant has been phased out, the risks associated with this use were not addressed in the application and have not been considered by the Committee.

12.5.3 The Committee notes that, as methyl bromide is an ozone-depleting substance, the release of the substance into the atmosphere will have indirect effects on the environment. As discussed above, the international response to this matter has been the Montreal Protocol. The Committee's consideration of New Zealand's obligations under the Protocol appears in Section 14 of this decision.

12.6 Adverse effects on the relationship of Māori to the environment

Kaitiakitanga and Manaakitanga[9]

12.6.1 Iwi/Māori submitters noted the role of methyl bromide in supporting their role as kaitiaki in the protection of taonga koiora (native species) and taonga tuku iho (other valued species). However, many also expressed concern about the unknown and/or unmeasured effects of the substance. They believe iwi/Māori needed more time to consider matters of relevance and felt it important that iwi/Māori in the immediate vicinity of fumigation activities be notified directly of any intended fumigation work.

12.6.2 The submission from Whareroa Marae, located opposite the port in Tauranga, expressed concern that cultural impacts posed by fumigation activities were not adequately accounted for. They believe it important that the Marae, associated kōhanga reo and kaumātua flats should be advised directly of any fumigation work so that they can take precautionary measures to ensure adverse cultural effects are minimised. The submission suggested that monitoring stations or equipment might be positioned on or near the Marae, kōhanga and associated kaumātua flats enabling them to participate in the regular monitoring of air quality.

12.6.3 The Committee, in considering these matters, agrees with the concerns raised about the ability of iwi/Māori in close proximity to fumigation areas to ensure cultural effects are minimised. This is of particular relevance in Tauranga, where a marae is opposite the port, in terms of their role in hosting manuhiri (visitors) and providing Manaakitanga (providing a safe and hospitable environment). Therefore, the Committee considers that fumigators should notify neighbouring properties in Tauranga, including Ngāti Kuku Hapū Environmental Unit and the community of Whareroa Marae, of intended fumigation activities. The Committee will instruct agency staff to assist to set up a process for the Port of Tauranga to notify Whareroa

[9] *Custodianship and hospitality*

Marae of fumigations. The authority will seek confirmation that the process has been set up and is operating well within 12 months of this decision being released.

12.6.4 As the effects from methyl bromide upon Manaakitanga will have a ***minimal*** to ***major*** impact if no mitigating steps are taken, the Committee is requiring that fumigators must make appropriate notification arrangements with local Māori. With such arrangements in place, the Committee considers that a ***moderate*** effect would be ***highly improbable*** to occur. Thus the level of risk to Manaakitanga is assessed as ***negligible.***

12.7 Adverse effects on society and communities

12.7.1 Adverse effects on society and communities are best described as effects caused by the concern about the potential for the adverse effects of methyl bromide fumigation. As evidenced by the Gulman petition, there is significant concern about the potential for adverse effects on human health. There is also public concern about the effects of methyl bromide on the global environment and the ozone layer.

12.7.2 Because of the significant level of public concern about the effects of methyl bromide fumigation, the Committee considers that requirements that will mean the public are better informed about fumigation activities and that provide greater assurance that the health of workers and the public is being protected should be imposed.

12.7.3 In this regard, the Committee considers that the following requirements will mitigate community concerns so that the level of risk is ***negligible.*** These requirements are the:

- monitoring and reporting on fumigation activities (see Sections 16.7 and 16.8);
- setting of minimum buffer zones between the fumigation site and members of the public (see Section 16.6); and
- public notification of large-scale fumigation activities (although in some circumstances such notification may be periodic rather than before each fumigation event) (see section 16.9).

12.7.4 In addition, the requirement for the introduction of recapture technology over the next 10 years will also mitigate community concerns.

12.8 Adverse effects on the market economy

12.8.1 In the reassessment application, the Agency identified the additional costs associated with adverse public reaction, for example having to do fumigation in alternative areas (different ports as well as different areas within a port); possible loss of jobs in a particular region (regional economic impact); and reduction in port throughput putting port viability at risk (regional economic impact) as having potentially significant adverse effects on the market economy from the continued use of methyl bromide.

12.8.2 The Committee acknowledges that, if methyl bromide continues to be used, there is the possibility that some regional and/or territorial authorities (district and city councils) may either ban or impose restrictions on the use of methyl bromide for log fumigation under covers using the provisions of the Resource Management Act 1991

(RMA), for example as part of the establishment of an air quality plan such as has been developed for Nelson.[10]

12.8.3 Bans or restrictions on the use of methyl bromide might result in a reduction in trade volumes for the port and a potential loss of jobs. This would be a regional effect, but not necessarily a national effect since the logs could potentially be taken to another port for fumigation, with equivalent increase in volume for that port and potential increase in employment. The main direct cost would be to the exporter. There would be a subsequent loss in export earnings as the cost of transferring the logs to alternative ports for treatment would increase exporters' costs and reduce their profit.

12.8.4 Thus, the continued use of methyl bromide could cause potentially significant adverse effects on the market economy resulting from public reaction to the use of methyl bromide causing changes in the use of methyl bromide at New Zealand's ports.

12.8.5 The Committee considers that the revised controls, including notification, monitoring, reporting and buffer zone requirements will mitigate community concerns as noted above. Accordingly, the Committee has concluded that the level of risk to the market economy is ***negligible.***

[10] Councils may need to justify a decision to restrict the use of methyl bromide on an effects basis that requires more stringent conditions than those associated with a national HSNO approval (see also sections 65, 68, 70A and 70B of the RMA).

13 Assessment of benefits

13.1 Summary

13.1.1 The Committee's view, set out in more detail below, is that the continued use of methyl bromide has significant benefits for New Zealand, particularly in relation to the market economy. These benefits would not be fully realised if the substance was severely restricted in its use.

13.2 Introduction

13.2.1 The Committee reviewed the Agency's assessment of the potential benefits associated with the use of methyl bromide in New Zealand, and discusses these in this section.

13.2.2 A "benefit" is defined in regulation 2 of the Methodology as "the value of a particular positive effect expressed in monetary or non-monetary terms". Benefits that may arise from any of the matters set out in clauses 9 and 11 of the Methodology are considered in terms of clause 13 of the Methodology.

13.2.3 In each case, the Committee's assessment includes a discussion of:

- whether the benefit is monetary or non-monetary (clause 13(a));
- an estimate of the magnitude of the benefit (clause 13(b)) and, where relevant, an assessment of the likelihood of occurrence;
- consideration of the uncertainty associated with the estimate (clauses 29 (materiality of uncertainty), 30 (need for caution where not resolved) and 32 (range of uncertainty);
- the distributional effects over time, space and groups in the community (clause 13(c)); and
- explicit consideration of the uncertainty bounds and how uncertainty affects the assessment of the benefits (clauses 29 – materiality of uncertainty; and 30 – the need for caution where uncertainty is not resolved).

13.2.4 As a basis for assessing the benefits, the Committee has considered the effects of the continued availability of methyl bromide in New Zealand.

13.3 The Committee's assessment of the positive effects of methyl bromide

13.3.1 The following sections (13.4 to 13.8) set out the Committee's assessment of the positive effects of methyl bromide on:

- human health;
- the environment;
- the relationship of Māori to the environment;
- society and communities; and
- the market economy.

13.3.2 In conducting its assessment, the Committee followed the following steps:

(a) identified the potentially significant effects that could occur in the areas listed in Section 13.3.1;

(b) assessed the level of risk taking into account the existing controls that apply to methyl bromide;

(c) revised the controls with a view to mitigating the level of risk; and

(d) assessed the level of risk taking into account the revised controls.

13.4 Human health benefits of the use of methyl bromide

13.4.1 In relation to the human health benefits of the use of methyl bromide, the submission from the Ministry of Health stated the following:

> *The Ministry of Health ... believes there is ample evidence that methyl bromide is an essential tool in the Ministry's strategy to exclude organisms of public health significance from New Zealand. The Ministry has articulated this view in its report to the Minister of Biosecurity, and since that report was rendered has had no cause to change its view that* "a nationally coordinated approach to exclude exotic mosquitoes ... is crucial to protect public health".

13.4.2 Thus the Committee considers that significant benefits for human health arise from the use of methyl bromide in the quarantine treatment of incoming goods to prevent the introduction of human disease vector organisms. If such organisms (such as particular species of mosquito) were introduced, very significant human health impacts could occur due to the transmission of diseases such as malaria, Ross River virus and dengue from a person infected with the relevant organisms. In addition, methyl bromide fumigation provides health benefits by preventing the establishment of exotic venomous spiders which would cause adverse health effects.

13.5 Environmental benefits

13.5.1 The Committee notes the Agency's assessment that the impact of the introduction and establishment of an exotic pest/disease could have a major effect on the productive capability of the agricultural production system and natural ecosystems. This assessment is supported by submissions from MAFBNZ and Horticulture New Zealand.

13.5.2 MAFBNZ stated in their submission that some imported goods, such as bamboo or scrap metal, have such a high likelihood of harbouring unwanted organisms or they cannot be detected by visual inspection, that the goods are mandatorily fumigated with methyl bromide prior to clearance.

13.5.3 Horticulture New Zealand stated in their submission that methyl bromide is an important tool in relation to preventing pest incursions and their establishment and spread. They consider methyl bromide to be an important risk management tool.

13.6 Benefits to Māori

Taha Ohanga[11]

13.6.1 In preparing the reassessment application, the Agency considered the impact methyl bromide has on the market economy generally and also sought views from iwi/Māori specifically on economic impacts given the growing size and nature of their asset and commercial base. A number of iwi/Māori and other submitters noted the importance of the continued availability of methyl bromide in terms of maintaining the sustainability of economic opportunities relating to forestry assets. Te Rūnanga o Ngāi Tahu noted that an immediate ban would have a significant adverse effect on the forestry sector and urges, along with several other submitters, the need for more prioritised research into alternatives. Carter Holt Harvey and MAF also noted that Māori interests in forestry assets are increasing and that methyl bromide provides a useful tool in maintaining the value of those assets. They also noted its importance in border control to ensuring the protection of native and valued species.

13.6.2 A report submitted by Joseph Stafford of Primal Communication provided some context and discussion around the potential socio-economic impacts for Māori of removing methyl bromide and notes that Māori interests in the forestry sector are significant. Māori are large forestry owners and significant forestry managers as well as having a proportionately significant percentage of constituents employed within the forestry industry and/or other service related industries. The report indicates the impact in terms of value to Māori forestry interests would be significant if methyl bromide (in the absence of a viable alternative) were removed.

13.6.3 A further key consideration discussed in the report builds on an issue raised during consultation identifying that in many cases the iwi/Māori groups benefiting from the use of methyl bromide (e.g. forestry owners) are not necessarily the ones carrying any cultural or other risks (e.g. iwi/Māori groups associated with ports).

13.6.4 Given that Māori forestry interests have increased significantly in recent years due to the return of assets through the Treaty settlements process, the Committee agrees that the economic benefits of retaining methyl bromide in the short to medium term are significant for iwi/Māori associated with those interests. This is partly due to the fact that Māori interests in this sector are relatively new and therefore very developmental in nature.

13.6.5 The Committee considers that a ***moderate*** positive effect from methyl bromide on the relationship of iwi/Māori to the environment and in their ongoing ability to develop economically is ***likely*** to occur. The corresponding level of benefit is therefore assessed to be ***medium.***

13.7 Benefits to society and communities

13.7.1 The Committee did not identify any potentially significant positive effects on society and communities over and above the level of employment, and reduction of pests in agriculture. There may be social effects from the reduction of introduced pests which might have positive effects on society and community. However, the

[11] *Opportunities*

Committee was not able to assess the nature or size of such benefits.

13.8 Market economy benefits

13.8.1 The Agency identified the economic benefits to New Zealand from trade as a significant positive effect on the market economy (see Section 5.6 and **Appendix K** of the reassessment application).

Economic benefits associated with use of methyl bromide for imports

13.8.2 MAFBNZ have indicated that all risk goods entering New Zealand require clearance by MAFBNZ prior to leaving a MAF-approved facility to ensure that the goods do not harbour unwanted organisms. Some goods, such as bamboo or scrap metal, have such a high likelihood of harbouring unwanted organisms that the goods are mandatorily fumigated with methyl bromide prior to clearance. There are situations where the goods that have already been treated and certified offshore require retreatment on arrival due to detection of quarantine pests. Currently, the most effective treatment available is methyl bromide.

13.8.3 Incursions are also detected after goods have been given clearance. In the majority of cases, methyl bromide is considered to be the most effective treatment and in some cases the only effective treatment.

13.8.4 The estimated impact on the economy of biosecurity breaches involving pests and diseases that can be associated with imported goods requiring fumigation is shown in Table 13.1.

Table 13.1: Estimates of impacts for biosecurity breaches[12]

Economic impact assessment of exotic pests	Year	Period (Years)	PV of total impact ($m)	Assessed annual impact ($m)	PV of total impact as at Jun 09 ($m)	Annual impact as at Jun 09 ($m)
Red imported fire ant	2001	23	665.0	74.9	820.6	83.1
Painted apple moth	2002	20	157.2	18.5	188.8	56.9
Gum leaf skeletoniser	2003	39	156	16	184.6	16.0
Fall web worm	2003	21	35.5	4.1	42.0	4.9
Asian gypsy moth	2004	50	114.4	11.5	132.2	13.3
Dutch elm disease	2004	13	111.0	15.6	128.4	19.7
Clover root weevil	2005	35	3800.0	394.0	4107.8	547.7
Total impact (excluding clover root weevil)					1496.6	193.9
Total impact (all pests)					5604.4	741.6

Source: MAFBNZ

[12] This table shows the total present value (PV) cost in dollars of impact, and the same value assessed as a constant value of impact over the study period. The annual PV at Jun 09 column shows the figures adjusted to June 2009 using the Consumer Price Index.

13.8.5 The New Zealand Fresh Produce Importers Association (NZFPIA) indicated that imported fresh produce contributes to both the economy and health outcomes. The year round supply of high-quality produce at reasonable prices flows though to all New Zealand households. The NZFPIA maintains that the on-arrival contingency availability of methyl bromide is important to the year-round continuity and certainty of supply.

Economic benefits associated with use of methyl bromide for exports

13.8.6 As explained in MAFBNZ's submission, many countries officially require particular products to undergo mandatory fumigation prior to export, e.g. apples to Japan or logs to China and India. The trade cannot occur without a treatment that is officially recognised by the importing country. In many situations the only treatment accepted by an overseas country is methyl bromide. In some situations, like with logs to China, phosphine is an option for the product below the deck (approximately two thirds of all logs); however, the remaining third of the logs on the top deck still have to undergo mandatory fumigation with methyl bromide in New Zealand.

13.8.7 Between 72% and 80% of the total methyl bromide used in New Zealand is for fumigation of export forestry products, mainly logs and sawn timber for pre-export quarantine treatment to meet the importing country's phytosanitary requirements. The volume of methyl bromide used is directly linked to trade volumes and overseas regulations.

13.8.8 New Zealand's trading partners that require fumigation of logs and/or sawn timber with methyl bromide are Australia, China, India, Malaysia, Thailand, Papua New Guinea and the Philippines.

13.8.9 The value of annual forest exports to countries requiring fumigation with methyl bromide prior to shipment exceeded $1.2 billion as at June 2009 (the most recent figure available).

13.8.10 Log exports to the two biggest markets, China and India, have increased significantly over the last 14 years with the most significant growth in the last five years. Since 2000/01 the volume of log exports to China more than tripled with the average growth rate higher than 36% per annum and the value of log exports reaching nearly $425 million in the 2008/09 financial year.

13.8.11 The volume of log exports to India has been growing at an average rate of 18% per annum with the value of log exports exceeding $62 million per annum by the end of the 2008/09 financial year.

13.8.12 Based on MAFBNZ's forecast of the volumes of logs available for export in the next decade and the growth trend of log exports to main markets, it is estimated that by 2014/15 the volume of log exports to China and India may exceed 12.5 million cubic metres from the current 4.2 million cubic metres.

13.8.13 Australia requires fumigation of sawn timber during the summer months. Although sawn timber exports to Australia have been decreasing in the last five years, the value of solid wood exports to Australia was still in excess of $147 million in 2008/09.

13.8.14 It is MAFBNZ's view that New Zealand's economic and social prosperity to a great extent depends on its international trade and access to key agricultural and forestry export markets. Agricultural and forestry exports constituted 57.7% ($24.8 billion) of a total $43 billion of New Zealand merchandise exports in 2008/09.

13.8.15 While MAFBNZ has concentrated on the value of the use of methyl bromide for timber exports, areas such as horticulture are also important and loss of ability to use methyl bromide would mean that some markets would be lost with significant adverse effects on individual growers and the horticultural industry as a whole. For example, Australia requires that all imports of tomatoes and capsicum from New Zealand are treated with methyl bromide.

13.8.16 Horticulture New Zealand represents 7,000 commercial fruit and vegetable growers and indicated that the industry employs some 50,000 people in the peak periods. Horticulture exports contributed more than $3.1 billion to the New Zealand economy in 2008, representing 4.7% of the total merchandise exported from New Zealand. Horticulture New Zealand indicated that methyl bromide plays a small but important role in facilitating horticulture exports and managing biosecurity.

13.8.17 Several countries require pre-export fumigation of New Zealand produce. These include significant markets such as Australia, Fiji, French Polynesia, India, Japan and South Africa.

13.8.18 Methyl bromide soil fumigation also plays an important role in ensuring that New Zealand potato growers have access to overseas markets that require assurance the potatoes are free from potato wart.

Summary of assessment of benefits to the market economy

13.8.19 The Committee considers there is a major economic benefit in terms of preventing unwanted organisms entering New Zealand and allowing access to overseas markets for forestry and horticultural products as a result of the availability of methyl bromide.

14 International obligations

14.1.1 Section 6(f) of the Act requires the Committee to take into account New Zealand's international obligations.

14.1.2 As discussed above, New Zealand has an obligation under the Montreal Protocol to

> *refrain from use of methyl bromide and to use non-ozone-depleting technologies wherever possible. Where methyl bromide is used, Parties are urged to minimise emissions and use of methyl bromide through containment and recovery and recycling methodologies to the extent possible;*

14.1.3 Ozone layer depletion results in an increased incidence of human disease, in particular, skin cancer, cataracts and immune suppression due to the increased exposure to ultraviolet (UV) radiation experienced by the population. A guide recently published by the World Health Organization[13] indicates that some 220 deaths in New Zealand in 2002 were attributable to exposure to ultraviolet radiation.

14.1.4 The Committee also notes that there is public concern about the effects of ozone layer depletion on human health and the environment and also concern that New Zealand is not following the recommendations of the Montreal Protocol so is not fulfilling its international obligations.

14.1.5 The Committee notes that, while New Zealand is meeting its obligations under the Montreal Protocol, it is desirable to move to limiting the amount of methyl bromide used and to reduce the amount of the gas that is discharged into the atmosphere. Accordingly, the Committee considers that recapture technology should be introduced as soon as practical and affordable and definitely within a 10-year timeframe.

14.1.6 For further discussion on recapture technology, see Section 16.11.

[13] Lucas R. *Solar ultraviolet radiation: Assessing the environmental burden of disease at national and local levels.* Prüss-Ustün A and Perkins van Deventer E, eds. Geneva, World Health Organization, 2010 (Environmental Burden of Disease Series, No. 17).

15 Scenarios

15.1.1 Risk-benefit analysis is used to assess the adverse and positive effects. Risk-benefit analysis is a comparative tool; thus the results of the assessment of risks and benefits for one option need to be compared against one or more alternative options.

15.1.2 In Sections 12 and 13 of this decision, the Committee has evaluated the adverse and positive effects associated with the continued availability of methyl bromide.

15.1.3 The Committee considers that the continued availability of methyl bromide has significant benefits to New Zealand's economy; to the relationship of Māori with the environment; to the environment; and to public health.

15.1.4 The Committee considers that these benefits would be lost if an immediate ban on the use of methyl bromide was adopted.

15.1.5 The Committee also considers that the benefits would be severely diminished if a phase out of methyl bromide use in five years was adopted as it is unlikely that alternative treatments or changes in requirements of New Zealand's trading partners could be established in that timeframe.

15.1.6 Accordingly, the Committee considers that the continued import and use of methyl bromide should be approved with modifications to the controls regime as described in Section 16 and set out in **Appendix C**.

16 Revised management regime

16.1 Introduction

16.1.1 Fumigation activities using methyl bromide involve risks to the health of operators, occupational bystanders and the general public. They are also the subject of significant public concern and anxiety in some places.

16.1.2 The Committee is satisfied that, while adverse health effects associated with methyl bromide fumigation can be adequately managed by the previous controls, improvements to the overall management regime should be made to provide greater assurance that the health and safety of workers and the general public is protected. These measures are outlined in this section.

16.1.3 Accordingly, the Committee has strengthened the previous controls and added new ones to further mitigate the risks involved in methyl bromide fumigations. These include:

- setting revised tolerable exposure limits (TELs) for methyl bromide;
- requiring air quality monitoring;
- requiring regular reporting on fumigation activities;
- setting minimum buffer zones; and
- requiring notification of fumigations.

16.1.4 The Committee also notes that, as an ozone depleting substance, methyl bromide causes indirect effects on public health and the environment. To address these effects, the Committee is requiring all methyl bromide fumigations to be subject to recapture technology within 10 years.

16.1.5 During the hearing the Committee was informed that unstenched methyl bromide is required by MAFBNZ as a soil fumigant used for biosecurity purposes to control potato wart, most commonly in residential areas. Accordingly, some specific controls have been added to the use of methyl bromide for this remaining soil fumigation use.

16.1.6 In addition, the Committee strongly recommends that more research is undertaken into alternative methods of treatment, reducing the amount of methyl bromide required, and recapture and disposal of methyl bromide.

16.1.7 In order to monitor the progress of the introduction of recapture technology; the Committee will require all fumigators using methyl bromide to submit an annual report to the Agency outlining the progress that they are making in introducing recapture technology.

16.2 Strengthening controls

16.2.1 The Committee has determined that the controls attached to methyl bromide are those prescribed by the regulations made under the Act and which are assigned to methyl bromide on the basis of its hazard classification.

16.2.2 Under section 77(3), (4) and (5), the default controls determined by the hazardous properties of the substance may be varied (substituted, added, or deleted) in certain circumstances, taking into account whether the adverse effects are greater or less than the adverse effects normally associated with substances given the same hazard classifications. In substituting or deleting controls, the adverse effects of the substance must not be significantly increased.

16.2.3 Under section 77A, the Committee may impose as controls any obligations and restrictions that it thinks fit. Before imposing a control under this section, the Committee must be satisfied that, against any other specified controls that apply to the substance:

(a) the proposed control is more effective in terms of its effect on the management, use and risks of the substance; or

(b) the proposed control is more cost-effective in terms of its effect on the management, use and risks of the substance; or

(c) the proposed control is more likely to achieve its purpose.

16.2.4 The full set of controls which apply to methyl bromide are set out in **Appendix C**, Tables 1 to 4. This section of the decision contains a discussion of the changes (additions, substitutions, variations and deletions) made to the controls as part of the consideration of this application for reassessment of methyl bromide.

16.3 Approved handler

16.3.1 Methyl bromide is required to be under the personal control of an approved handler. As suitably qualified people should be able to handle methyl bromide during transport, the following exception to the approved handler requirements is added under section 77A.

Exception to approved handler requirement for transportation of methyl bromide

(1) Regulation 9 is deemed to be complied with if—

(a) in the case of methyl bromide being transported on land,—

(i) if by rail, the person who drives the rail vehicle that is transporting the methyl bromide is fully trained in accordance with the approved safety system for the time being approved under section 6D of the Transport Services Licensing Act 1989; and

(ii) in every other case, the person who drives, loads, and unloads the vehicle that is transporting the methyl bromide has a current dangerous goods endorsement on his or her driver licence; and

(iii) in all cases, Land Transport Rule: Dangerous Goods 2005 (Rule 45001) is complied with; or

(b) in the case of methyl bromide being transported by sea, one of the following is complied with:

(i) Maritime Rules: Part 24A – Carriage of Cargoes – Dangerous Goods; or

(ii) International Maritime Dangerous Goods Code.

16.4 Controlled substance licence

16.4.1 The Committee notes that methyl bromide and other fumigants currently approved under the Act were approved with an additional control requiring controlled

substance licences, and considers it appropriate that this control should continue to apply to methyl bromide.

16.4.2 Accordingly a person must not possess methyl bromide unless that person has a valid licence for methyl bromide issued pursuant to section 95B of the Act.

16.4.3 However, a person may possess methyl bromide without a licence if another person has such a licence and is present and available immediately.

16.4.4 The exception to the approved handler requirements set out in Section 16.3.1 also applies to the licensing requirements.

16.5 Setting of exposure limits for methyl bromide

Tolerable exposure limits (TELs)

16.5.1 The previous controls on methyl bromide included a tolerable exposure limit (TEL) of

TEL_{air} = 0.0013 ppm (0.005 mg/m^3).

16.5.2 This TEL is a chronic value derived on the basis that a person exposed to no more than the chronic TEL for a lifetime would not suffer adverse health effects. While the TEL (chronic) is designed to protect a member of the public from a hazardous concentration over a lifetime of exposure, the Committee considers that methyl bromide concentrations should be calculated on an annual basis in order to enable comparison against the TEL (chronic) in a meaningful timeframe.

16.5.3 The Committee also considers that both a 1 hour TEL and a 24 hour TEL should be set to assess acute exposures. This is because there is a chance that members of the public might be exposed to high concentrations of methyl bromide over a short period without the chronic (lifetime) TEL being exceeded.

16.5.4 The 1 hour TEL and 24 hour TEL values are concentrations of methyl bromide in air which are not allowed to be exceeded over the stated averaging period. A member of the public would need to be exposed to the gas concentration for the relevant period of time (1 hour or 24 hours respectively) before any adverse effect on health could potentially occur.

16.5.5 Accordingly, in accordance with section 77B, the Committee has set the following TELs:

- TEL_{air} (chronic, annual average): 0.0013 ppm (0.005 mg/m^3)
- TEL_{air} (24 hour): 0.333 ppm (1.3 mg/m^3)
- TEL_{air} (1 hour): 1 ppm (3.9 mg/m^3).

16.5.6 In imposing these TELs, the Committee notes that:

- they have considered the best international practices and have adopted international values as described below; and
- people affected by the imposition of these limits have been advised of them in the Agency's application and given the opportunity to comment on them during the public submission period.

Basis for the TELs

(a) Chronic (lifetime) TEL

16.5.7 A chronic (lifetime) duration TEL of 0.0013 ppm (0.005 mg/m^3) was established for methyl bromide when it was transferred to the framework of the HSNO Act. The TEL was amended by the Authority in 2007 around the time of the hearing in the Environment Court into the Nelson City Council Air Quality Plan under the RMA, when the Ministry of Health drew attention to uncertainty as to whether the TEL in the notice included a time weighting or was effectively a ceiling limit. The amendment under section 67A of the Act clarified that the level is for chronic exposure.

16.5.8 The basis of this value is the adoption of the chronic reference concentration (RfC) established by the US EPA (US EPA, 2008[14]). The chronic reference value was derived based on the need to protect humans from degenerative and hyperplastic lesions in the nasal epithelium.

(b) TEL (1 hour)

16.5.9 The 1 hour TEL is based on the permissible exposure limit (PEL) set by the Office of Environmental Health Hazard Assessment (OEHHA) of California. The value was current as at 2008 (OEHHA, 2008)[15].

16.5.10 The derivation of the value was based on a lowest observed adverse effect level (LOAEL) in a human population of 90 workers (OEHHA, 2008). The uncertainty factors applied were 1 for inter-species uncertainty (since it was based on human data) and an intra-species uncertainty factor of 10 (the standard value). An additional uncertainty factor of 6 was applied due to the use of a LOAEL rather than a no observed adverse effect level (NOAEL). This takes account of the mild adverse effects reported in the exposed population.

(c) TEL (24 hour)

16.5.11 The basis of this value is the adoption of the acute (24 hour) reference concentration (RfC) established by the US EPA (US EPA, 2008[16]). The acute reference value was derived based on the need to protect humans from developmental toxicity.

Workplace exposure standard (WES)

16.5.12 The Committee notes that the Department of Labour (DOL) is reviewing the WES value for methyl bromide which is also the current HSNO WES. The WES value has been set by reference to the DOL publication of 2010[17], but is unchanged from what previously applied. The Committee considers that any modified WES value set by the DOL should be adopted as a HSNO WES.

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[14] US EPA, 2008. —Reregistration Eligibility Decision (RED) for Methyl Bromide. U.S. Environmental Protection Agency, Office of Pesticide Programs, Health Effects Division (7509P). EPA 738-R-08-005.

[15] OEHHA, 2008: 1 hour REL for methyl bromide. www.oehha.ca.gov/air/hot_spots/2008/AppendixD2_final.pdf#page=166 (p170).

[16] US EPA, 2008. —Reregistration Eligibility Decision (RED) for Methyl Bromide. U.S. Environmental Protection Agency, Office of Pesticide Programs, Health Effects Division (7509P). EPA 738-R-08-005.

[17] "Workplace Exposure Standards and Biological Exposure Indices Effective 2010" published by the Department of Labour, September 2010, ISBN 978-0-478-36002-8. Also available at www.osh.dol.govt.nz/order/catalogue/pdf/wes2010.pdf.

Environmental exposure limits

16.5.13 The default controls include requirements to limit exposure of non-target organisms in the environment through the setting of environmental exposure limits (EELs). The Authority is reviewing the setting of EELs. As this review has not been completed, no EELs are being set for methyl bromide and the default values have been deleted.

16.6 Minimum buffer zones

16.6.1 As discussed above, the Committee has set 1 hour, 24 hour and chronic (annual average) TELs.

16.6.2 As compliance with the TELs is critical in ensuring that impacts upon public health resulting from methyl bromide exposure do not occur, the Committee is also requiring that the person in charge of a site where methyl bromide is applied and the person using methyl bromide must establish buffer zones around the fumigations.

16.6.3 A buffer zone is an area around a methyl bromide fumigation where the public is not permitted to be present.

16.6.4 Based on air quality monitoring data, minimum buffer zones for fumigations were proposed in the Agency's update paper. The Agency considered that adoption of these minimum buffer zones should mean that the 1 hour TEL is achieved on the majority of occasions.

16.6.5 The Committee has agreed to impose the buffer zones recommended by the Agency with the exception of reducing the buffer zone for single container fumigation.

16.6.6 The Committee notes that the Agency originally proposed a 25 m buffer zone for a single container fumigation. However, data provided by Genera Ltd for single container fumigations showed that, over a range of weather conditions at a number of different sites, instantaneous concentrations of methyl bromide varied between 0.0 and 2.3 ppm at a distance of 4 m away from the container, and were nearly always zero at 12 m away.

16.6.7 The data provided by Genera Ltd indicate that 1-hour exposures 12 m from a container should be well below the 1-hour TEL and in most cases close to zero. On the basis of these monitoring data, the Committee considers that a minimum 10 m buffer zone for ventilating containers should mean that members of the public would be very unlikely to be exposed to concentrations in exceedance of the 1-hour TEL.

16.6.8 Accordingly, the Committee considers that the following minimum buffer zones should apply from the source of the release of methyl bromide.

Table 16.1: Minimum buffer zones

Use	Minimum buffer zones (in metres)
Ship's hold (1000 kg or more of methyl bromide applied per site in any 24 hour period)	100
Ship's hold (less than 1000 kg methyl bromide applied per site in any 24 hour period)	50
Fumigation under sheets	50
Containers (total volume of 77 m^3 or more in any 60-minute period)	25
Containers (total volume of less than 77 m^3 in any 60-minute period)	10

16.6.9 Wind direction frequently changes; therefore the minimum buffer zones shall apply in all directions.

16.6.10 Where a buffer zone extends over water, the person in charge of the site and any person who uses methyl bromide must take all practicable steps to ensure that the water is monitored and, if a member of the public enters the buffer zone, that the person moves out of the buffer zone as soon as practicable.

16.6.11 A minimum buffer zone shall apply until such time as air quality monitoring has demonstrated that the concentration in the air has been below 0.05 ppm for 15 minutes where 7 kg or more of methyl bromide has been applied in a 1-hour period; or 3 minutes where less than 7 kg of methyl bromide has been applied in a 1-hour period.

Sensitive sites

16.6.12 The Committee considers that QPS fumigations, other than soil fumigations, using methyl bromide should not be carried out within 25 m of any sensitive site where the public may lawfully be present. Sensitive sites include schools, playgrounds, early childhood centres, prisons, hospitals or long-term care facilities where members of the public who may be unable to evacuate themselves could be present.

Signage

16.6.13 The Committee considers that a person who applies methyl bromide must ensure that signs are displayed at every point of access to the buffer zone. These signs must:

(a) *state that fumigation is being carried out; and*

(b) *state that methyl bromide is being used; and*

(c) *state that methyl bromide is toxic to humans; and*

(d) *describe the general type of hazard associated with methyl bromide; and*

(e) *describe the precautions necessary to prevent unintended ignition of methyl bromide; and*

(f) *comply with regulation 34(1), (2), and (4), and regulation 35(1), (3), and (5) of the Hazardous Substances (Identification) Regulations 2001, but as if the*

distances referred to in regulation 35(3) were a distance of not less than 10 metres; and

(g) *identify the person in charge of the site and provide sufficient information to enable the person to be contacted during normal business hours; and*

(h) *state the date on which the fumigation commenced; and*

(i) *be illuminated during the hours of darkness; and*

(j) *be able to be readily seen by a person approaching the buffer zone, including, when applicable, persons approaching from a seaward direction.*

16.6.14 The signs must be removed at the end of the buffer zone period.

Alternative buffer zones

16.6.15 The Committee notes that the minimum buffer zones may pose significant challenges for persons who apply methyl bromide with limited space for their operations and that persons who apply methyl bromide may have alternative procedures in place at a site to ensure that the TEL values can be adhered to without them.

16.6.16 Thus, the Committee considers that alternative buffer zones may be established by a person in charge of a site where methyl bromide is applied through compliance with a code of practice approved by the Authority where it can be unequivocally shown that following the code of practice will ensure compliance with the TEL values.

Recapture and buffer zones

16.6.17 The Committee considers that the minimum buffer zone requirements should not apply when recapture technology is in place as recapture technology (as defined in Section 16.11 below) is a proven way of reducing exposures.

Local requirements for buffer zones

16.6.18 The buffer zones are to be considered as minimum distances. The Committee notes that there may be periods (for example, during unfavourable meteorological conditions for pollutant dispersion) when either larger buffer zones or alternative controls are required to meet the TEL values. It is, therefore, the responsibility of the person who applies methyl bromide and the person in charge of the site to ensure that appropriate controls are in place so that TELs are not exceeded. If there is site-specific information which suggests that further controls are required in order to achieve the TELs then these must be put in place. An exceedance of any TEL value cannot be deemed acceptable even if the minimum buffer zone requirements have been met.

16.6.19 The Committee notes the concerns of Nelson City Council which suggested that the minimum buffer zones proposed in the reassessment application may conflict with local requirements under the RMA. It is very important to emphasise that these minimum buffer zones do not preclude regional councils, unitary authorities or port authorities from setting more stringent controls (e.g. larger buffer zones) if they deem them necessary because of local conditions. The Committee notes that section 142(3) of the Act specifically envisages situations where a local authority may choose to impose more stringent requirements on the use of a hazardous substance than that required under the Act.

Prohibition on the use of methyl bromide in excess of a tolerable exposure limit

16.6.20 As the TELs must not be exceeded at the boundary of the buffer zone, the control relating to exceeding TELs is varied under section 77A to read:

> *A person in charge of a site and a person who uses methyl bromide must ensure that methyl bromide is used in a manner that does not result in a concentration of methyl bromide, in air at the boundary of the buffer zone, that exceeds the TEL_{air} values.*

16.7 Air quality monitoring

16.7.1 In addition to requiring minimum buffer zones be adhered to, the Committee considers that air quality monitoring should be carried out to demonstrate compliance with the TEL values.

Fumigation size and air quality monitoring

16.7.2 The Committee notes the significant difference in the emission profiles of small fumigations carried out in containers and larger fumigations, for example, those carried out in ship holds. In addition, the Committee notes the concerns raised by some submitters about the practicalities involved with carrying out extensive air quality monitoring around all fumigations in particular those involving small amounts of methyl bromide. As a consequence, the Committee considers it appropriate to have different monitoring procedures for fumigations involving different amounts of methyl bromide.

Procedures for air quality monitoring using over 7 kg methyl bromide/hour

16.7.3 The Committee expects the vast majority of exposure to normally occur during the ventilation of the fumigation. Therefore, air quality monitoring should begin at the start of all ventilations. Monitoring shall occur in the downwind direction at the edge of the buffer zone (i.e. the location where members of the public could be present). Monitoring shall continue until the concentration of methyl bromide remains below 0.05 ppm (which is effectively the limit of detection for most photo-ionisation detectors (PIDs)) for at least 15 minutes.

16.7.4 Where the edge of the buffer zone in the downwind direction is over water, the monitoring location should be the point on land at the edge of the buffer zone that is in the most downwind direction from the enclosed space being ventilated

16.7.5 The results of the air quality monitoring along with information about the fumigation (e.g. type and amount of methyl bromide used) and weather conditions must be recorded.

Air quality monitoring around fumigations using less than 7 kg methyl bromide per hour

16.7.6 The minimum requirement for air quality monitoring for fumigations involving less than 7 kg methyl bromide per hour is for sampling to be undertaken in the downwind direction at the edge of the buffer zone. This monitoring is to begin at the start of the ventilation and shall continue for 3-minute intervals until the gas is not detectable (a concentration of < 0.05 ppm).

16.7.7 This monitoring is intended to complement air quality monitoring to check for leaks and compliance with the WES value which the Committee understands already takes place during the fumigation of many containers.

16.7.8 The results of the air quality monitoring along with information about the fumigation (e.g. type and amount of methyl bromide used) and weather conditions must be recorded.

Air quality monitoring results

16.7.9 The Committee considers that data recorded from the air quality monitoring shall then be averaged so that appropriate comparisons can be made with the 1 hour, 24 hour and the chronic (annual average) TEL values.

16.7.10 The chronic annual average TEL value should be calculated by establishing the highest recorded concentration at each location for each day of the year and assuming that when ventilation is not occurring the concentration is zero.

16.7.11 The Committee notes the possibility that more than one person who applies methyl bromide may be operating at individual sites over the course of a year. It is the responsibility of the person in charge of the site to collate the data to ensure that all monitoring data are compared to the appropriate TEL value. The chronic average value will be the average over the whole year.

16.7.12 The Committee agrees with the submitters who wished to see both the 1 hour and 24 hour TELs applied as running averages as this presents a more precautionary view of the monitoring data. These running averages must be reported in the annual monitoring report if one is required for the site.

16.7.13 The Committee requires that the person in charge of a site keep the monitoring records of all fumigations for seven years.

Compliance with the 24 hour and annual average TEL

16.7.14 The Committee expects the person in charge of the site to be continuously and proactively calculating the 24 hour or annual average TEL value. This sort of analysis should allow persons who apply methyl bromide to ensure that they do not exceed either of these values. If the person in charge of the site establishes that they are close to either of these values, they should take extra steps (such as larger buffer zones or controlled venting) to ensure that future fumigations do not release sufficient methyl bromide to cause the relevant TEL to be exceeded. If either of these values is exceeded no further fumigations may take place for the remainder of the period over which concentrations are being averaged (i.e. over the day or the year) unless recapture technology is used.

Recapture and air quality monitoring

16.7.15 Although the Committee accepts that fumigations which use recapture technology will still release some methyl bromide, the emissions would be expected to be significantly lower than fumigations which do not employ recapture technology. As a consequence the requirement to carry out air quality monitoring should not apply when recapture technology is used. The Committee understands that operational testing to verify recapture performance and lack of leakage is already carried out when recapture technology is used and recommends that this testing continues.

Reporting of TEL exceedances

16.7.16 The Committee requires that the person in charge of the site inform the relevant Medical Officer of Health and the Department of Labour of any breaches of any TEL values as soon as practicable, but within five working days.

Monitoring guidance and code of practice

16.7.17 The Committee strongly recommends that monitoring should adhere to the Ministry for the Environment "Good practice guide for air quality monitoring and data management 2009"[18] and air quality monitors should be located in accordance with AS/NZS35801.1.2007 Methods for sampling and analysis of ambient air: Part 1.1 Guide to siting air monitoring equipment. [19]

16.7.18 The Committee also strongly recommends that Stakeholders in Methyl Bromide Reduction (STIMBR) submit a revised version of their monitoring protocol (incorporating the changes resulting from this decision) to the Authority for consideration as a HSNO approved code of practice.

Requirements for record keeping

16.7.19 To give effect to the monitoring requirements set out above, the default control requirements to keep records are replaced under section 77A by the "Collecting data" controls set out in clause 2 of Table 2 in **Appendix C**.

16.8 Reporting of monitoring data

16.8.1 The Committee appreciates that there is considerable public concern regarding the potential adverse health effects of methyl bromide. In addition, many submitters expressed concern about the independence and quality of the air quality monitoring. As a consequence, the Committee considers that there should be procedures in place to ensure that the monitoring methodology and results are made publicly available.

16.8.2 To help reassure local communities, the Committee requires the person in charge of a site using over 500 kg/year of methyl bromide to prepare an annual report outlining their air quality monitoring results.

16.8.3 This requirement to produce an annual report outlining air quality monitoring does not apply to fumigations where methyl bromide is being recaptured.

16.8.4 The annual report must include:

- *the number of fumigations using methyl bromide carried out at the site;*
- *the total amount of methyl bromide applied at the site;*
- *the type of enclosed spaces being fumigated;*
- *the types of equipment used to carry out the monitoring;*
- *the annual exposure level;*

[18] Ministry for the Environment "Good practice guide for air quality monitoring and data management 2009 available online at www.mfe.govt.nz/publications/air/good-practice-guide-air-quality-2009/

[19] AS/NZS35801.1.2007 Methods for sampling and analysis of ambient air: Part 1.1 Guide to siting air monitoring equipment

- *how many times the exposure levels exceeded the TEL_{air} value;*
- *the number of notifications of breaches of any TEL values made to the Medical Officer of Health and the Department of Labour;*
- *if any breach of a TEL_{air} occurred,*
  - *a discussion of possible causes of each breach; and*
  - *an explanation of what measures will be taken to ensure that TELs will be complied with in the future.*
- *any accidents or other issues related to non-compliance with any controls under this approval including an estimate of the approximate total amount of methyl bromide accidentally discharged.*

16.8.5 This monitoring report is to be based on the calendar year (1 January to 31 December) and be submitted to ERMA New Zealand, the Department of Labour and the relevant Medical Officer of Health by 30 June of the following year. ERMA New Zealand will publish the reports on its website so they can be accessed by any member of the public.

16.9 Notification of fumigations

16.9.1 The Committee agreed that, due to submitters' concerns around the accidental release or intentional venting of fumigations, notification of neighbouring property owners and occupiers should be required for fumigations. This notification is additional to the notification of the New Zealand Fire Service and the person in charge of the site.

16.9.2 It is the responsibility of the person who applies methyl bromide to ensure that the notification in writing occurs, but the actual notification can be done by someone on their behalf (such as the person in charge of the port or transitional facility).

16.9.3 The notification should be made:

- at least 24 hours prior to the start of the fumigation;
- where recapture technology is not used, to the occupants of each property, within 25 m of the site to where the fumigation is to take place; and
- where recapture technology is not used, to the occupants of each property, including moored boats, within 100 m of the fumigation when more than 100 kg of methyl bromide is intended to be used.

16.9.4 The Committee recognises that, for some locations, the above requirement would be impractical as one or more notifications may be required on most days of the year based on the frequency of the activity. To address this more regular fumigation activity, the Committee proposes that where a fumigation company or site is involved in regular fumigation (at least weekly) involving the relevant quantities per day, the notification can be made as follows:

- The fumigation company or the person in charge of the site where the activity occurs can provide an annual written notification by letter/leaflet to each occupier/land owner prior to the fumigations occurring identifying:
  - where the fumigation activities will occur;
  - the time at which ventilation normally occurs (if this can be specified);

- the expected frequency of fumigation, and
- any likely seasonal trends.

16.10 Additional controls relating to methyl bromide

16.10.1 Several new controls, additional to the default controls, were applied to methyl bromide when it was approved under the Act. The Committee considers that it is appropriate to adopt these controls for methyl bromide, with some modifications. The additional controls applied under section 77A are:

Restriction on fumigation

16.10.2 A person may only apply methyl bromide into a container, under a sheet or into a ship's hold.

Controls relating to the adverse effects of unintended ignition

16.10.3 The controls set out in Schedule 10 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004 apply to methyl bromide.

Site must be secured

16.10.4 Fumigation may only be carried out in a place that is secured against ready access by unauthorised persons.

Container must not be moved during fumigation

16.10.5 A person must not move a container during fumigation other than from a wharf to a ship that is berthed at that wharf; or from a ship to a wharf where that ship is berthed.

Container must be gas tight

16.10.6 A person may not apply methyl bromide in a container unless the container is in good repair and capable of being securely closed and the container does not leak at any of the temperatures and/or pressures to which the container will be made subject.

Requirements for sheets

16.10.7 A person must not apply methyl bromide under sheets unless the sheet is in good repair without tears, rips or visible holes, is made secure against likely weather conditions at the site and is sealed with a border that is filled with heavy material.

16.11 Recapture

16.11.1 For the reasons set out in the following paragraphs, the Committee is requiring that all methyl bromide fumigations be subject to recapture technology within 10 years.

16.11.2 A 10-year timeframe has been chosen to allow for development, acquisition and installation of suitable equipment.

16.11.3 However, it is noted that the early introduction of recapture technology is advantageous in that requirements in terms of minimum buffer zones, monitoring, reporting and notification are reduced.

What is recapture technology?

16.11.4 Recapture technology is a term used to describe systems that reduce methyl bromide emissions from fumigation enclosures by:

(a) capturing methyl bromide on activated carbon or other medium so that it is not released into the atmosphere; or

(b) destroying the methyl bromide gas from the fumigation before a container is ventilated.

16.11.5 As described by submitters involved in developing the technology, recapture is normally done by ventilating air from the enclosure using fans that pull fresh air into the enclosure and "sweep" the air containing methyl bromide into the outlet stream. This methyl bromide laden air stream is then passed over a large carbon bed where the methyl bromide is adsorbed or trapped onto carbon particles.

16.11.6 The contaminated carbon can be buried in specific landfill sites or treated with a solution of sodium thiosulphate to produce non-toxic products.

16.11.7 The Committee notes that the use of recapture technology would:

- be consistent with the intent of the Montreal Protocol;
- reduce the risk of direct effects on operators, occupational bystanders and the general public by minimising the likelihood of exposure of people to methyl bromide; and
- reduce the risk of indirect effects on human health and the environment due to the ozone-depleting properties of methyl bromide.

16.11.8 Furthermore, the Committee notes that recapture would allow for the continued use of methyl bromide and enable the following benefits to be retained:

- the prevention of the introduction of human disease vector organisms such as particular species of mosquito which could transmit diseases such as malaria, Ross River virus and dengue;
- the prevention of the introduction and establishment of an exotic pest/disease which could affect natural ecosystems and the profitability of the agricultural production system; and
- access to overseas markets, particularly for the export of logs.

16.11.9 For these reasons, the Committee has reviewed the feasibility of requiring the recapture of methyl bromide used in fumigation activities.

16.11.10 In the reassessment application, the Agency considered the practicality and affordability of recapture technology, with reference to a report prepared by Aurecon New Zealand for STIMBR. This report was attached as **Appendix Q** to the application.

16.11.11 The Agency concluded that the high investment and operating costs of a recycling system would be a commercial decision and would need to be balanced against the cost of developing alternatives and gaining international acceptance for exports.

16.11.12 The Agency also noted that recovering the residual gases from several thousand tonne log fumigations had yet to be attempted. The mass of activated carbon (probably in the 20 to 80 tonnes range), the size of the containment vessels, and the need to regenerate or dispose of this mass of activated carbon would present logistical problems.

16.11.13 Overall, the Agency considered that further research is needed into the logistics and cost structure before recapture could be considered "practical and affordable" and thus be considered as a mandatory requirement in New Zealand.

16.11.14 A number of submissions received on the application confirmed that recapture of methyl bromide from shipping container fumigations is technically feasible.

16.11.15 Based on the submissions, the Agency concluded that the costs for small-scale fumigations are lower than was estimated in the reassessment application. Because of the reduction in exposure to people and the environment that can be achieved through recapture, the Agency recommended requiring the use of recapture technology for shipping container (20 foot and 40 foot) fumigations.

16.11.16 However, as indicated in the update paper, the Agency did not consider that the technology could be made mandatory for large-scale fumigations at this time as the practicality and cost of recapture for such fumigations which account for 80% of the methyl bromide used in New Zealand, is uncertain.

16.11.17 Following the hearings and review of the written submissions, the Committee concluded that it is desirable that emissions from methyl bromide fumigations be reduced by the use of recapture technology. Consequently, on behalf of the Committee, the Agency sought more information from submitters and stakeholders on the practicality and affordability of mandating recapture. Details of the information request and the parties contacted are given in **Appendix B**.

16.11.18 In particular, the Agency sought advice, on behalf of the Committee, on the impact the following scenario would have:

Recapture of methyl bromide fumigations required:	**100%**	**50%***
Shipping container fumigations	2 years	1 year
Ship hold fumigations	2 years	1 year
Logs under covers	10 years	5 years

***50% of fumigations** refers to half the methyl bromide fumigations carried out by each fumigation company in a 12 month period, not necessarily half the fumigations carried out a particular location.

16.11.19 The responses demonstrated the wide variability in what the parties consider recapture would cost at different localities and also the logistical implications requiring recapture would have for different locations.

Shipping container recapture

16.11.20 Submitters indicated that the current costs of fumigation on average are approximately $200 per 20 ft container, $300 per 40 ft container, on site at the importers' premises (transitional facilities). Requiring recapture would generate additional costs including alterations to vehicle fleet required to transport equipment and costs associated with carbon (i.e. purchase, storage and disposal). There will also be increased costs attributable to the increased cost of labour – from one to two persons per treatment and the increased time involved in releasing a container from fumigation – up to one hour for a 20 ft container due to restrictions on the number able to be released in a given area, compared with current practice of 15 minutes per container with multiple container releases at any one time.

16.11.21 As very low volumes of methyl bromide are administered to each fumigation (i.e. 1.4 kg to each 20 ft container) the recapturing of methyl bromide across multiple and widespread geographical sites will involve considerable effort and the costs may not be justified in comparison with fumigations at one site where large volumes of methyl bromide are administered (e.g. fumigation of large stacks of logs at a wharf).

16.11.22 MAFBNZ indicated that introducing recapture will mean extra time for venting will be needed resulting in a need for more space and extra costs for storage/ berthing.

16.11.23 The larger ports, Auckland and Tauranga, also expressed concern about additional time being needed for fumigation/venting. More time means additional costs in terms of space and delays in moving containers through the ports. Quick dispatch of containers from the port to the end user is considered essential with any delay being deemed unacceptable.

16.11.24 MAFBNZ and Genera expressed concern that, if the costs of fumigation become too high, pest incursions may not be reported and therefore not treated.

Ship hold fumigation recapture

16.11.25 MAFBNZ reported that there is no equipment currently available to recapture methyl bromide from ship hold fumigations. Development time would be required to design, build and test a suitable unit.

16.11.26 The fumigation companies, Rentokil and Genera, also indicated that no acceptable equipment is available to carry out fumigation in ship holds and that manufacturers/ suppliers of recapture equipment will need to demonstrate that the equipment is reliable, consistent, efficient and cost-effective.

Under sheets fumigation recapture

16.11.27 MAFBNZ estimated that the additional costs of methyl bromide fumigation of logs under covers would amount to more than $13 million/year based on estimated additional costs of $3–$8 per m^3 fumigated.

16.11.28 Port Tauranga expressed concerns about the logistics and practicality of log fumigation with recapture and noted that the procedure has yet to be proven.

16.11.29 The fumigation companies, Rentokil and Genera, also indicated that no acceptable equipment is available to carry out fumigation of logs under covers with recapture and that manufacturers/suppliers of recapture equipment will need to demonstrate that the equipment is reliable, consistent, efficient and cost effective.

Disposal of contaminated carbon

16.11.30 Port Nelson indicated that it is expensive to dispose of saturated carbon (app. $1.50 per kg) and at this stage no local/regional landfill is prepared to receive the carbon due to current landfill requirements.

16.11.31 Port Tauranga noted that, in general, disposal of any contaminated product is time consuming and costly and that storage of new and used carbon will be an issue.

16.11.32 NZ FPIA noted that Nordiko's recapture system requires single use of carbon to deactivate methyl bromide as it is removed from a container whereas other companies who provide recapture equipment recommend the use of "scrubbing"

agents to scrub the carbon after the methyl bromide has been deactivated. The scrubbing agent is then able to be disposed of in normal effluent disposal systems and the carbon re-used. NZFPIA considers that this additional technology should be investigated further.

Timetable

Shipping containers

16.11.33 MAFBNZ consider that two years is feasible for requiring recapture of shipping container fumigations as the technology is there and any issues relating to disposal of saturated carbon should be resolved in two years time.

16.11.34 However, the Port of Tauranga considers that there are important issues to be resolved before a timetable can be considered. The Port indicated that it will support any system which ensures the integrity of our imports and exports, but this cannot compromise the efficient throughput of cargo. With the move towards larger vessels servicing the ports with, consequently, much larger container exchanges, they cannot afford to have "bottlenecks" introduced to the quick dispatch of containers from the Port to the end user.

Ship holds

16.11.35 Genera do not consider a two-year timeframe to be achievable as there is no equipment available at this moment and there is no experience at all with recapture technology on ships' holds.

16.11.36 MAFBNZ consider it unlikely that equipment will be available in one year. Development time would be required to design, build and test a suitable unit. The timetable has to be determined after development of suitable technology and experience with the technique.

16.11.37 Rentokil consider one or two years too short but 10 years is achievable.

Logs under sheets

16.11.38 MAFBNZ submitted that there is no recapture technology available at this stage but expects the technology will be available within 10 years.

16.11.39 The fumigators, Rentokil and Genera, consider that the suggested timetable is not achievable because of the lack of suitable equipment.

16.11.40 Port Nelson confirmed that recapture technology is not available for this type of fumigation and it will take years to obtain the necessary approvals/consents.

Transitional arrangements

16.11.41 In their response, MAFBNZ indicated that requiring 50% recapture would increase the costs per container because of the lease costs of the equipment. They also noted that inequalities in the prices may cause difficulties for companies and the provision would be difficult to enforce.

16.11.42 Genera confirmed that a transitional period would cause problems commercially because of the different charges and suggested an option could be to do this on a port by port basis.

16.11.43 Rentokil also noted that it would be very hard to explain that some customers have to pay more than others during the transitional period. Rentokil also noted that different timelines for containers and fumigations under covers may result in all fumigations being carried out "under cover" instead of in containers to avoid the recapturing of container fumigation requirements.

Review

16.11.44 STIMBR, the Wood Processors Association and the New Zealand Pine Manufacturers Association suggested that, because of concerns about the timetable and uncertainties of costs and disposal of carbon, the introduction of recapture technology should be reviewed in 12 months time.

16.11.45 TPT Forests recommended that appropriate independent analysis, assessment and technology development work is undertaken for larger scale fumigations to:

- explore all the available options and recapture technology for large scale fumigations;
- commercially develop the appropriate technology and systems for recapture that are both operationally practical and efficient for large scale fumigations;
- undertake commercial trials to fully understand the operational process and requirements;
- determine the accurate costing of a commercial fumigation and recapture operation; and
- determine the commercial viability of methyl bromide fumigation recapture to ensure log exporting remains internationally competitive and provides an appropriate return to the forest owners.

16.11.46 Rentokil and Genera also recommended that a full independent assessment of the options currently available should be carried out before mandatory capture is required.

16.11.47 Brustics also supported a comprehensive feasibility study and industry-based trial before any change in the current process/ method is made.

Conclusion

16.11.48 The Committee notes the responses from the submitters and stakeholders and concludes that:

- while the recapture of methyl bromide used in shipping container fumigations is technically proven and is operational in some circumstances, its mandatory introduction in places where large numbers of containers are fumigated will have significant logistical and economic impacts;
- it will be some time before equipment is available to recapture methyl bromide used in ship hold fumigations; and
- the technology for recapture of methyl bromide from fumigations under sheets is still being developed.

16.11.49 Taking these conclusions into account, the Committee remains of the view that the use of recapture technology is a desirable outcome and decides that all methyl bromide used in fumigation activities in New Zealand should be subject to recapture technology within 10 years from the date of this decision.

16.11.50 A 10-year timeframe has been chosen to allow for development, acquisition and installation of suitable equipment.

16.11.51 The Committee has given consideration to setting out transitional steps which would see recapture technology progressively introduced over the next 10 years but acknowledges that such transitional provisions would be difficult to manage.

16.11.52 However, the Committee is requiring fumigators to report to ERMA New Zealand on an annual basis on progress in introducing recapture technology.

16.12 Managing the risk of fumigation with methyl bromide at transitional facilities

16.12.1 The Biosecurity Act 1993 prescribes requirements for the exclusion, eradication and effective management of pests and unwanted organisms which have the potential to cause harm to natural and physical resources and human health in New Zealand. Any imported risk goods must receive biosecurity clearance before they can officially enter New Zealand.

16.12.2 Uncleared goods include imported goods such as food products, items made from wood or plant material, sea containers, used machinery or vehicles, and other goods defined as risk goods under the Biosecurity Act 1993.

16.12.3 If biosecurity risks are identified or suspected in uncleared goods, the goods must be treated, destroyed or re-shipped as directed by a MAF Inspector. Goods directed for treatment must either be securely transported to a transitional facility approved to provide treatments, or treated on site at the importing facility by a MAF approved treatment provider.

16.12.4 The *Standard for General Transitional Facilities for Uncleared Goods (BNZ-STD-GEN)* (the Standard) sets out the minimum requirements for the construction, maintenance, operation and approval of transitional facilities and operators of transitional facilities. The facility operator is responsible for ensuring that the requirements of the Standard are met. The facility operator must be a fit and proper person to operate the facility.

16.12.5 Transitional facilities may encompass parts of or whole premises, and approvals are limited to the purpose, scope and activities described in the operating manual for each facility. Transitional facility approvals may be for the period of the import only, or may be for an unspecified time or until a specified event.

16.12.6 With regard to fumigation at transitional facilities, there are two scenarios where methyl bromide is used:

(a) to fumigate known risk goods, such as bamboo or scrap metal, which have a high likelihood of harbouring unwanted organisms; and

(b) where quarantine pests are detected (post border incursions).

16.12.7 The Standard sets out the requirements for the location of a transitional facility, based on the ability of the facility to deal with biosecurity risk material. Transitional facilities must be located in areas that can provide services and systems to ensure that

the biosecurity of uncleared goods is maintained and that adequate provision can be made for the management of contingencies in the event of an incident or containment breach (e.g., access to public sewer and mains power).

16.12.8 The approval of facilities outside serviced areas is dependent on the types of goods being imported and the provisions in place to ensure biosecurity can be maintained. Facilities need to meet specific physical and operational requirements outlined in the MAFBNZ facilities standards.

16.12.9 MAFBNZ records the names and locations of transitional and port facilities where methyl bromide has been used in fumigation, but there is no information available on the locations with respect to proximity to areas where members of the general public may be present.

16.12.10 In the year from 1 July 2008 to 30 June 2009[20], there were 5,871 transitional facilities that received containers. Of these, 719 had methyl bromide fumigations occur on site; 639 (89%) of the 719 had less than 12 fumigations per year; and 319 (44%) had only one container treated.

16.12.11 MAFBNZ supplied information in their submission that a 10 m buffer zone could be accommodated by 98% of the facilities.

16.12.12 As outlined in section 16.4, based on the air quality monitoring data that the Agency received during the submission process, requiring a minimum buffer zone should mean that members of the public would be unlikely to be exposed to concentrations in exceedance of the 1-hour TEL. However, because of the difficulty of evacuating people, the Committee considers that methyl bromide should not be applied within 25 m of any sensitive sites such as a school, playground, early childhood centre, prison, hospital or long term care facility.

16.12.13 If a person applies methyl bromide at a transitional facility and is unable to meet the minimum buffer zone requirements, they are not permitted to use methyl bromide without recapture technology unless they have an ERMA approved code of practice for complying with the TELs. As discussed above, the recapture requirements could add around $210 to $275 to the cost of fumigation per container.

16.12.14 In order to demonstrate that they are meeting the TEL value, persons applying methyl bromide will be required to carry out air quality monitoring for all fumigations. Furthermore, the Committee notes that to ensure compliance with both the 24 hour and chronic TEL, persons applying methyl bromide will need to continually review their air quality monitoring.

16.12.15 The Committee also notes the concerns presented by NZFPIA that recapturing methyl bromide across multiple and widespread geographical sites will involve considerable effort and the costs may not be justified given the small volume of methyl bromide administered, in comparison with fumigations at one site where large volumes of methyl bromide are administered (e.g. fumigation of large log stacks at a wharf).

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[20] K Glassey Email dated 25 May 2010 with attached list of locations where fumigations took place 2008-2009

16.12.16 MAFBNZ has advised that only 2% of transitional facilities will not be able to meet the 10 m minimum buffer zone requirements. Methyl bromide fumigation cannot be undertaken unless recapture technology is used. The Committee is satisfied that the benefits of requiring recapture, where the minimum buffer zone requirements cannot be met, outweigh the costs involved.

16.13 Treating potato wart

16.13.1 Eradication operations involving soil fumigation treatment with methyl bromide are carried out by commercial fumigation contractors, employed by AsureQuality Ltd. The information supplied to the Agency by MAFBNZ is as follows:

Treatment

Methyl bromide as a gas is used for treatment (chloropicrin indicator is optional). The application rate is 380 grams per square meter (380 g/m^2) for 24 hours. The contractor must meet all fumigation requirements. This may include them notifying the Ministry of Health, local Police, and local Fire Authority.

The contractor covers the site, sealing the cover in a border trench backfilled with material like damp sand, bricks, or timber. Inverted bottles or boxes can be used to keep the cover off the soil to allow better gas spread.

The contractor is responsible for the safety of the area during gas treatment.

The methyl bromide liquid is heated into gas and released under cover. After initial gas release the contractor will check for gas leakage using flame or vacuum sensors.

The cover remains sealed over the areas for at least 24 hours under the responsibility and supervision of the contractor and in accordance with any special requirements of the Ministry of Health Inspectors. An all night watch may be required.

16.13.2 MAFBNZ have advised that the focus of the official control programme for potato wart is to eradicate notified detections of the organism in home gardens. Potato wart incursions in commercial potato production or packhouses would require a large scale special emergency response involving tracing sources, controlling movement and decontamination. Such a response may or may not involve the use of methyl bromide.

16.13.3 The Committee considers that the use of methyl bromide for the management and eradication of potato wart incursions in commercial potato production areas or packhouses is outside the scope of this approval. Such use, if contemplated, would require an application for approval to use methyl bromide in a special emergency under section 49D of the Act.

Controls

16.13.4 The controls which apply to the import, transport, use, tracking and disposal of methyl bromide apply (see Table 1 in **Appendix C**). The Committee imposes the following <u>additional</u> controls which are specific to its use as a soil fumigant for the management and eradication of small scale incursions of potato wart (*Synchitrium endobioticum*).

(a) The substance approved for use as a soil fumigant for the management and eradication of small scale incursions of potato wart (*Synchitrium endobioticum*) is:

Gas containing 1000g/kg methyl bromide (HSNO approval HSR001635).

(b) The use of methyl bromide as a soil fumigant for the management and eradication of small scale incursions of potato wart may only be undertaken by an authorised person[21] or a person working under the direct supervision of an authorised person.

(c) Written notice will be given to the relevant Medical Officer of Health and the nearest communications centre of the New Zealand Fire Service in writing at least 48 hours prior to applying methyl bromide. In addition, notification will be given to the occupant of every property within 25 m of the fumigation site at least 24 hours prior to the fumigation and to the person in charge of each sensitive site within 100 m of the fumigation site at least 48 hours prior to the fumigation.

(d) If the fumigation is to take place on a residential property, residents (including pets) of the property shall be evacuated during and until 24 hours after completion of the fumigation. However, residents or other members of the public may return to the property after the removal of the sheet, if the concentration of methyl bromide measured at 30 cm above the treated soil is less than 0.05 ppm for a period of 15 minutes.

(e) The site to be fumigated must be covered with heavy duty polyethylene sheets which are fully water proof and non-permeable, with joins overlapped and bonded by plastic joining tape. The cover must be sealed in a border trench which will be filled with materials (e.g. sand, water, timber) to provide a good seal around the area to be fumigated.

(f) The maximum application rate for the substance to be applied to soil is 380 grams per square metre ($380g/m^2$) into the sealed and trenched area.

(g) The cover will remain sealed over the fumigation site area for at least 24 hours after the application of methyl bromide under the responsibility and supervision of the person who applied the methyl bromide. The treatment site will be under the authority of the authorised person and no public or unauthorised access will be permitted onto the site during the treatment period (the treatment period includes the fumigation, the 24 hour holding period and removal of the cover).

(h) At the end of the 24 hour holding period the operator will check the seal and remove the cover by slowly rolling it off the fumigation area.

16.13.5 The Committee also recommends that:

- neighbouring properties should be visited and assessed for risk and proximity and offered evacuation if appropriate or requested; and

[21] An authorised person is a person appointed as such under section 103 of the Biosecurity Act for the purposes of administering and enforcing the provisions of the Biosecurity Act or for the purposes of a national pest management strategy

- the operation should be planned such that the timing and conditions for removal of the cover is undertaken where there are fewer people around and low wind speed.

16.14 Declining approvals for methyl bromide/chloropicrin mixtures (soil fumigants)

16.14.1 Since the critical use exemption (CUE) under the Montreal Protocol has expired and these substances are not used in the management and eradication of potato wart, the Committee declines to continue the approvals of the two substances which were approved for use for soil fumigation –

- gas containing 980 g/kg methyl bromide and 20 g/kg chloropicrin (*HSNO Approval HSR001637*); and
- gas containing 300-670 g/kg methyl bromide and 330-700 g/kg chloropicrin (*HSNO Approval HSR001638*).

16.14.2 The Committee issues a direction, by Notice in the *New Zealand Gazette*, prohibiting the further use of the above two substances (including all formulations matching these approvals) containing methyl bromide and chloropicrin from 28 days after the date of the Notice. In addition, the substances are to be disposed of, at the owner's expense, in accordance with the controls placed on them by the Authority, by 1 January 2011.

17 Overall evaluation of significant adverse and positive effects

17.1 Introduction

17.1.1 The overall evaluation of risks, costs and benefits was carried out having regard to clauses 22 and 34 of the Methodology and in accordance with the tests in clause 27 of the Methodology and section 29 of the Act. Risks were evaluated taking account of all proposed controls including default controls plus proposed variations to the previous controls (see Section 16 of this decision).

17.1.2 Clause 34 of the Methodology sets out the approaches available to the Authority in evaluating the combined impact of risks costs and benefits, i.e. weighing up risks, costs and benefits.

Precautionary approach

17.1.3 Section 7 of the Act requires the Committee to take into account the need for caution in managing adverse effects where there is scientific and technical uncertainty about those effects. In identifying and assessing the risks, the Committee considered the upper and lower bounds on the assessment of individual risks. The assessment was based on the higher value of the risk, thus incorporating a precautionary approach.

17.1.4 Clause 29 of the Methodology notes that where there is scientific and technical uncertainty the Authority must consider the materiality of the uncertainty to the decision. If such uncertainty cannot be resolved, clause 30 requires the Authority to take into account the need for caution in managing the adverse effects of the substances. The Committee acknowledges that there is some uncertainty as to the magnitude and likelihood of some of the adverse effects but this uncertainty has been taken into account by the Committee in assessing the adverse and positive effects and establishing the new management regime.

Approach to risk

17.1.5 Clause 33 provides guidance on how cautious or risk averse the Authority should be in weighing up overall adverse effects (risks and costs) and positive effects (benefits). The factors to be considered are whether:

- exposure to the risk is involuntary;
- the risk will persist over time;
- the risk is subject to uncontrollable spread and is likely to extend its effects beyond the immediate location of incidence;
- the potential adverse effects are irreversible; and/or
- the risk is not known or understood by the general public and there is little experience or understanding of possible measures for managing the potential adverse effects.

17.1.6 The Committee has addressed these factors for each of the individual risks assessed as being potentially significant. The Committee does not consider that any additional caution over and above the conservative approach adopted in the Agency's application is required.

Likely effects of unavailability of methyl bromide

17.1.7 Section 29 of the Act requires the Committee to take into account the likely effects of the substance being unavailable. As noted in Section 15 above, if methyl bromide was not available then the benefits that have been assessed would not be realised. The Committee has incorporated the likely effects of the substance being unavailable into its assessment of adverse and positive effects.

Aggregation and comparison of risks, costs and benefits

17.1.8 A summary of the effects, the magnitude of those effects should they occur, the likelihood of the effects being realised and their associated level of adverse or beneficial effect (risk, cost or benefit) as determined by the Committee, is provided in Tables 17.1 and 17.2 below.

17.1.9 An explanation of the magnitude and likelihood and level of risk descriptors can be found in **Appendix D**.

17.1.10 As the Committee considers methyl bromide to pose negligible risks to the environment and human health, clause 26 of the Methodology applies. Under clause 26, the Committee may approve the import and use of the methyl bromide if it is evident that the benefits associated with it outweigh the costs.

17.1.11 In the following sections, the Committee sets out its overall evaluation of the risks, costs and benefits in the following areas;

- human health;
- the environment;
- the relationship of Māori to the environment;
- society and communities; and
- the market economy.

Table 17.1: A summary of the Committee's assessment of the level of risk from the use of methyl bromide

Area of impact	Key controls	Magnitude	Likelihood	Level of risk
Fumigation staff	• Approved handlers • Licensing • Personal protective equipment	Moderate	Highly improbable	Negligible
Occupational bystanders	• Worker exposure standard • Personal protective equipment • Signage • Approved handlers • Licensing	Minor	Very unlikely	Negligible
Workers opening containers		Minor	Very unlikely	Negligible
General public	• TELs • Buffer zones • Notification • Approved handlers • Licensing	Minor	Highly improbable	Negligible
The environment	Due to a lack of direct exposure, significant ecotoxicological effects to plants, terrestrial or aquatic organisms are not expected			
Kaitiakitanga	• Approved handlers • Licensing • Buffer zones	Minor	Very unlikely	Negligible
Manaakitanga	• TELs • Buffer zones • Notification • Approved handlers • Licensing	Moderate	Highly improbable	Negligible
Society and communities – concern about health effects	• Monitoring and reporting on fumigation activities • Buffer zones • Public notification of large-scale fumigation activities.	Minor	Very unlikely	Negligible
The market economy – additional costs associated with adverse public reaction	• Monitoring and reporting on fumigation activities	Minor	Very unlikely	Negligible

Table 17.2: A summary of the Committee's assessment of the level of benefit from the use of methyl bromide

Area of impact	Potential positive effects	Magnitude	Likelihood	Level of benefit
Human health	Prevention of the introduction of human disease vector organisms (such as particular species of mosquito) and venomous spiders.	Major	Likely	Medium
Environment	Prevention of the establishment of an exotic pest/disease that has effects on the productive capability of the agricultural production system and natural ecosystem.	Major	Likely	Medium
Iwi/Māori	The protection of native and valued species.	Moderate	Likely	Medium
	Maintenance of Māori interests in forestry assets	Moderate	Likely	Medium
Society and communities	No potentially significant benefits were identified			
Market economy	Prevention of unwanted organisms and market access for forestry and horticultural products	Major	Highly likely	High

17.2 Overall evaluation: human health and safety

17.2.1 The Committee considers that significant benefits for human health and safety arise from the use of methyl bromide in the quarantine treatment of incoming goods to prevent the introduction of human disease vector organisms and venomous spiders. If such organisms (such as particular species of mosquito) were introduced, very significant human health impacts could occur due to the transmission of diseases such as malaria, Ross River virus and dengue.

17.2.2 As indicated in Section 13.4, the Committee considers that protection from introduced disease vectors and venomous spiders presents a ***medium*** level of benefit to human health.

17.2.3 As indicated in Section 12.4, the Committee is satisfied that the level of risk to human health is ***negligible*** taking into account, the revised management regime which includes:

- short term exposure limits (TELs) for methyl bromide;
- minimum buffer zones; and
- notification for large scale fumigations.

17.2.4 As the risks to human health are ***negligible*** with the controls in place, and a ***medium*** level of benefit has been identified, the Committee is satisfied that the benefits to human health outweigh the risks and costs.

17.3 Overall evaluation: the environment

17.3.1 As indicated in Section 13.5, the Committee considers that there is a ***medium*** benefit associated with the use of methyl bromide in protecting the agricultural production system and the natural ecosystem from the potential introduction of damaging pests.

17.3.2 The Committee considers that there are no significant direct risks to the environment associated with the use of methyl bromide as a fumigant for QPS purposes.

17.3.3 Overall the Committee concludes that, taking into account the controls, the environmental benefits of the use of methyl bromide outweigh the adverse effects.

17.4 Overall evaluation: relationship of Māori to the environment

17.4.1 On reviewing the submissions received with specific relevance to the relationship of Māori to the environment, the Committee has taken into account the varying locations methyl bromide is used hence the varying levels of impact, effect and likelihood.

17.4.2 As mentioned earlier, the submission from Whareroa Marae, which is located adjacent to the port in Tauranga, expressed a number of concerns, for example, the Marae has closed in the past due to fumigation taking place hence there is more of an impact/effect than say the Napier Port which has no marae or areas of Māori significance within close proximity that the Committee is aware of.

17.4.3 In addition, the closure of marae and areas of Māori significance, such as seafood gathering areas in which, the ability to provide both Kaitiakitanga and Manaakitanga will be variable from location to location (Tauranga being a high impact location and Wellington/Napier being reduced impact locations). This variance has determined the range of impacts and effects measurements.

17.4.4 Regarding the positive opportunities methyl bromide enables in relation to border control and its effectiveness particularly in high import volume areas such as Auckland can be viewed as enhancing Kaitiakitanga.

17.4.5 Furthermore, employment opportunities for Māori in the forestry sector are significant. Port Tauranga is the largest employer of Māori in the Bay of Plenty region. Thus, the Committee considers that a ***moderate*** positive effect on the relationship of iwi/Māori to the environment and in their ongoing ability to develop economically is ***likely*** to occur from the continued availability of methyl bromide. The corresponding level of benefit is therefore assessed to be ***medium.***

17.4.6 It is the Committee's view that a ***minor*** effect on Kaitiakitanga would be ***very unlikely to*** occur. Thus the level of risk upon Kaitiakitanga is assessed as ***negligible***.

17.4.7 As indicated earlier, the Committee is requiring that fumigators notify neighbouring properties in Tauranga, including Ngāti Kuku Hapū Environmental Unit and the community of Whareroa Marae, of intended fumigation activities. The Committee asks that the Agency satisfies itself that appropriate arrangements for notification are in place and that these are reported on in the Annual Monitoring Report prepared in relation to Port Tauranga.

17.4.8 A ***moderate*** impact upon Manaakitanga, is ***highly improbable*** to occur if an appropriate

notification agreement were reached for Port Tauranga and local iwi. Thus the level of risk to Manaakitanga is assessed as ***negligible.***

17.4.9 The Committee is satisfied that, with the controls in place, and the specific notification requirement for Port Tauranga, the ***medium*** level of benefit to relationship of Māori and the environment outweighs the impacts on Kaitiakitanga and Manaakitanga.

17.5 Overall evaluation: society and communities

17.5.1 The Committee did not identify any potentially significant positive effects on society and communities over and above the level of employment, and reduction of pests in agriculture. While there may be social effects from the reduction of introduced pests which might have positive effects on society and community, the Committee was not able to assess the nature or size of such benefits.

17.5.2 As discussed in Section 12.6 above, the Committee acknowledges that there are significant concerns about the potential adverse effects on members of the public from the use of methyl bromide.

17.5.3 In this regard, the Committee considers that the following requirements will mitigate community concerns so that the level of risk is ***negligible***. These requirements are the:

- monitoring and reporting on fumigation activities;
- setting of minimum buffer zones between the fumigation site and members of the public; and
- public notification of large-scale fumigation activities.

17.5.4 Overall, the Committee considers that, with the revised controls in place, the benefits to society and communities outweigh the risk and costs.

17.6 Overall evaluation: market economy

17.6.1 The adverse effects on the market economy associated with the continued use of methyl bromide resulting from changes to port practices as a result of public concern have been assessed as being ***negligible*** with the revised management regime in place.

17.6.2 As discussed above, the Committee has addressed the effects on the community by the introduction of revised controls, including TELs, monitoring, reporting, minimum buffer zones and recapture.

17.6.3 However, the introduction of these controls will itself have an economic impact. For instance the cost of fumigating a shipping container with recapture will increase by $210 to $275 per container. The logistical costs for ports are also significant in terms of space required and in terms of time delays.

17.6.4 Nevertheless, there are significant benefits from the continuance of trade. Taking trade in logs alone, a ***major*** positive effect is ***highly likely*** to occur. Thus the level of benefit or positive effect is ***high***.

17.6.5 Overall, the Committee is satisfied that, with the revised controls in place, the benefits to the market economy outweigh the risk and costs.

18 Environmental user charges

18.1.1 The Committee considers that the application of controls to methyl bromide will provide an effective means of managing the risks associated with the substance throughout its lifecycle. However, the Committee considers it desirable that New Zealand reduces both the amount of methyl bromide used and the amount discharged into the atmosphere.

18.1.2 The Committee notes that the reduction in the use of methyl bromide and in atmospheric emissions depends on:

- the availability of alternative fumigants;
- the availability of alternative methods of treatment of commodities;
- the availability of practical and affordable methyl bromide recapture technology;
- the modification of requirements of New Zealand's trading partners; and
- the adoption of improved integrated pest management strategies.

18.1.3 The Committee notes that research is being carried out in these areas and particularly acknowledges the work that STIMBR is promoting funded by a voluntary levy on the amount of methyl bromide being used.

18.1.4 The Committee seeks to encourage further research into mechanisms for reducing use of methyl bromide and atmospheric emissions of the substance. In this regard, the Committee notes the proposal by Genera Ltd and Rentokil Pest Control that a levy should be placed on all methyl bromide used. All funds collected from this levy would be directed to an independent assessment of available recapture technology and other alternative treatment options.

18.1.5 The Committee considers that a charge on the use of methyl bromide could be a useful way of ensuring ongoing funding. Accordingly, the Committee is requesting that the Agency investigate the feasibility of such a scheme and report back to the Authority for further discussion within 12 months.

19 Decision

19.1.1 Pursuant to sections 63 and 29, the Committee has considered this application to reassess methyl bromide and formulated substances containing methyl bromide.

The Committee determines that:

19.1.2 Methyl bromide has the following hazard classifications:

Hazardous property	HSNO classification
Flammable gas	2.1.1B
Acute toxicity (oral)	6.1C
Acute toxicity (inhalation)	6.1B
Skin corrosivity	8.2C
Eye corrosivity	8.3A
Mutagenicity	6.6B
Reproductive/ developmental toxicity	6.8B
Target organ systemic toxicity	6.9A
Aquatic ecotoxicity	9.1A
Soil ecotoxicity	9.2A
Terrestrial vertebrate ecotoxicity	9.3B
Terrestrial invertebrate ecotoxicity	9.4A

19.1.3 Based on consideration and analysis of the information provided on the possible effects of methyl bromide, in accordance with the Act and the Methodology, and taking into account the application of current controls (as varied) and the additional controls, the Committee is satisfied, for the reasons set out in this decision, that the positive effects (benefits) of the substance outweigh the adverse effects (risks and costs) associated with the import and use of the substance.

19.1.4 The application for importation of methyl bromide is thus approved, with the controls listed in **Appendix C**.

19.1.5 The Committee issues a direction, by Notice in the *New Zealand Gazette*, prohibiting the further use of:

- gas containing 980 g/kg methyl bromide and 20 g/kg chloropicrin (*HSNO Approval HSR001637*); and
- gas containing 300-670 g/kg methyl bromide and 330–700 g/kg chloropicrin (*HSNO Approval HSR001638*).

19.1.6 This direction mentioned in Section 19.1.5 is to take effect from 28 days after the date of the Notice in the *New Zealand Gazette.*

19.1.7 The Committee requires a substance listed in Section 19.1.5 to be disposed of, at the owner's expense by 1 January 2011 in accordance with the controls that applied to that substance immediately prior to this approval taking effect.

19.1.8 In accordance with clause 36(2)(b), the Committee records that, in reaching its decision, it has applied the balancing tests required under section 29 and clause 26 and has relied in particular on the following criteria in the Act and the Methodology:

clause 8 – information to be relevant and appropriate;

clause 9 – equivalent of sections 5, 6 and 8;

clause 11 – characteristics of substance;

clause 12 – evaluation of assessment of risks;

clause 13 – evaluation of assessment of costs and benefits;

clause 14 – costs and benefits accruing to New Zealand;

clause 15 – regard to evidence in submissions;

clause 16 – take account of scientific basis for scientific evidence or uncertainty;

clause 21 – the decision accords with the requirements of the Act and regulations;

clause 22 – the evaluation of risks, costs and benefits – relevant considerations;

clause 24 – the use of recognised risk identification, assessment, evaluation and management techniques;

clause 25 – the evaluation of risks and taking account of degree of uncertainty;

clause 26 – evident that risks and costs are outweighed by benefits;

clause 29 – determine the materiality and significance of any uncertainty;

clause 30 – take account of the need for caution where uncertainty is not resolved;

clause 32 – establish range of uncertainty;

clause 33 – the extent to which 'risk characteristics' exist;

clause 34 – the aggregation and comparison of risks, costs and benefits; and

clause 35 – the costs and benefits of varying the default controls and inviting the applicants to comment on cost-effective application of controls.

Helen Atkins Date 29 October 2010

Chair

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

Amendment June 2011

Page 94 of the original decision (clause 12) read as follows:

12 Signage

*(1) A person who applies **methyl bromide** must ensure that signs are displayed at every point of access to the **buffer zone**.*

(1) The signs required by clause 12(1) must:

*(a) **state that fumigation is being carried out; and***
*(b) state that **methyl bromide** is being used; and*
*(c) state that **methyl bromide** is toxic to humans; and*
*(d) describe the general type of hazard associated with **methyl bromide**; and*
*(e) describe the precautions necessary to prevent unintended ignition of methyl **bromide**; and*
(f) comply with regulation 34(1), (2), and (4), and regulation 35(1), (3), and (5) of the Hazardous Substances (Identification) Regulations 2001, but as if the distances referred to in regulation 35(3) were a distance of not less than 10 metres; and
*(g) identify the **person in charge** of the **site** and the person **using methyl bromide** and provide sufficient information to enable the persons to be contacted during normal business hours; and*
*(h) state the date on which the **fumigation** commenced; and*
(i) be illuminated during the hours of darkness; and
*(j) be able to be readily seen by a person approaching the **buffer zone**, including, when applicable, persons approaching from a seaward direction.*

*(3) The signs required by clause 12(1) must be removed at the end of the **buffer zone period**.*

This was amended under section 67A of the HSNO Act so that page 94 of the decision (clause 12) now reads:

12 Fumigation warning

*(1) A person who applies **methyl bromide** must ensure that persons approaching the **buffer zone** are warned that a **methyl bromide fumigation** is taking place.*

*(1A) For those parts of a **buffer zone** that extend over land, the warning required by clause 12(1) must be provided by displaying a sign that complies with clause 12(2) at every point of access to the **buffer zone**.*

*(1B) For those parts of a **buffer zone** that extend over water, the warning required by clause 12(1) must be able to be readily seen by a person approaching the **buffer zone** from a seaward direction including during the hours of darkness.*

(2) The signs must:

*(a) **state that fumigation is being carried out; and***
*(b) state that **methyl bromide** is being used; and*
*(c) state that **methyl bromide** is toxic to humans; and*
*(d) describe the general type of hazard associated with **methyl bromide**; and*
*(e) describe the precautions necessary to prevent unintended ignition of methyl **bromide**; and*
(f) comply with regulation 34(1), (2), and (4), and regulation 35(1), (3), and (5) of the Hazardous Substances (Identification) Regulations 2001, but as if the distances referred to in regulation 35(3) were a distance of not less than 10 metres; and
*(g) identify the **person in charge** of the **site** and the person **using methyl bromide** and provide sufficient information to enable the persons to be contacted during normal business hours; and*
*(h) state the date on which the **fumigation** commenced; and*
(i) be illuminated during the hours of darkness; and
*(j) be able to be readily seen by a person approaching the **buffer zone***

*(3) A person who applies **methyl bromide** must ensure that physical warnings that are used to comply with clause 12(1) are removed at the end of the **buffer zone period**.*

Helen Atkins — Date 17 June 2011

Chair

Appendix A: Decision path

Context

This decision path describes the decision-making process for reassessments under section 63 of the Act. These reassessments are deemed to be applications are determined under section 29 of the Act.

Introduction

The purpose of the decision path is to provide the Authority with guidance so that **all relevant matters** in the Act and the Methodology have been addressed. It does not attempt to direct the weighting that the Authority may decide to make on individual aspects of an application.

In this document 'section' refers to sections of the Act, and 'clause' refers to clauses of the HSNO (Methodology) Order 1998 "(the Methodology").
The decision path has two parts –

Flowchart (a logic diagram showing the process prescribed in the Methodology and the Act to be followed in making a decision), and
Explanatory notes (discussion of each step of the process).

Of necessity the words in the boxes in the flowchart are brief, and key words are used to summarise the activity required. The explanatory notes provide a more comprehensive description of each of the numbered items in the flowchart, and describe the processes that should be followed to achieve the described outcome.

For proper interpretation of the decision path it is important to work through the flowchart in conjunction with the explanatory notes.

Figure A1: Flowchart for methyl bromide decision

Decision path for applications to reassess a hazardous substance, application made under section 63 of the Act and determined under section 29. For proper interpretation of the decision path it is important to work through the flowchart in conjunction with the explanatory notes.

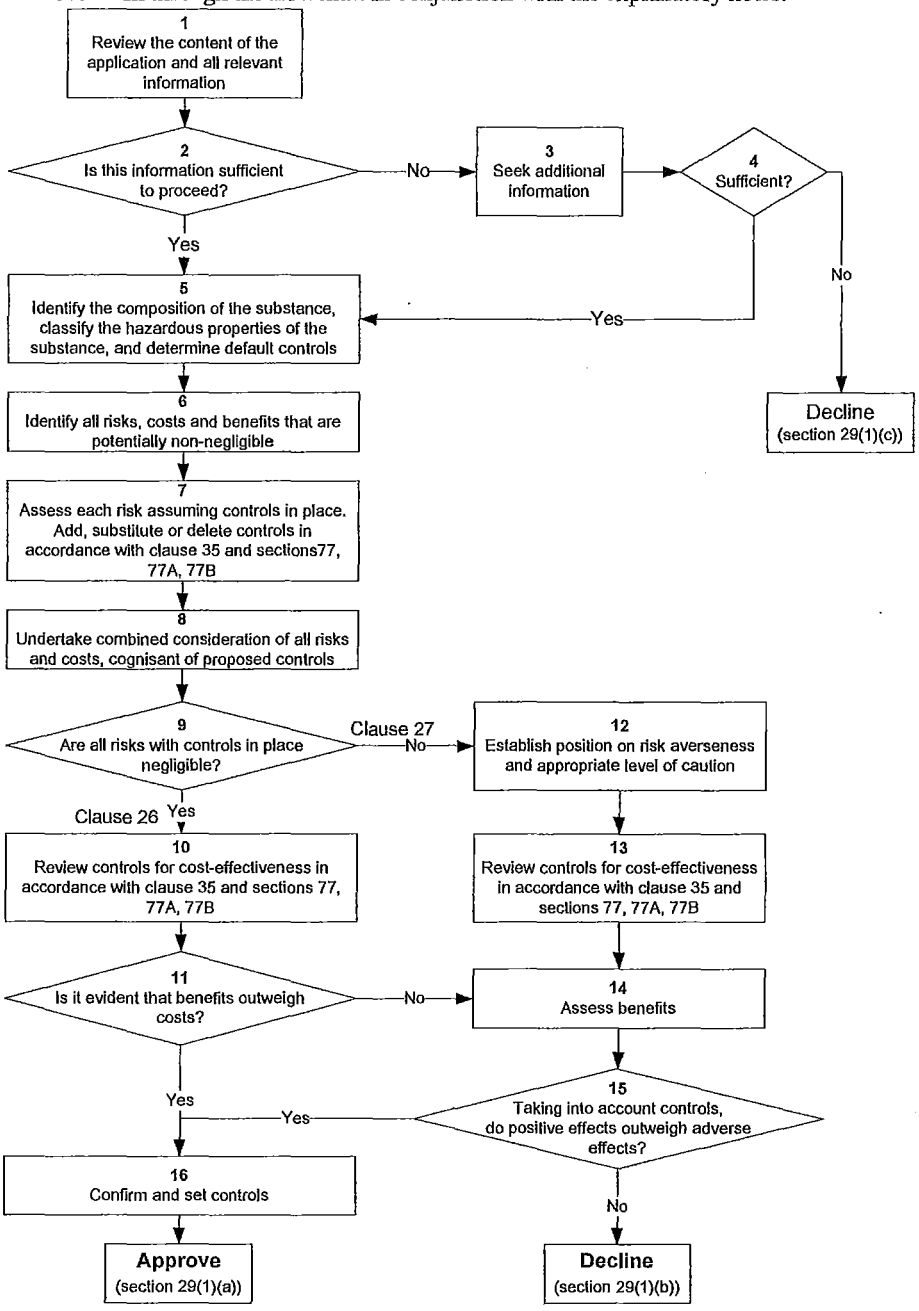


Figure A1: Explanatory notes

Item 1: **Review the content of the application and all relevant information**

Review the application, the update paper, and information received from experts and that provided in submissions (where relevant) in terms of section 28(2) of the Act and clauses 8, 15, 16 and 20 of the Methodology.

Item 2: **Is this information sufficient to proceed?**

Review the information and determine whether or not there is sufficient information available to make a decision.

The Methodology (clause 8) states that the information used by the Authority in evaluating applications shall be that which is appropriate and relevant to the application. While the Authority will consider all relevant information, its principal interest is in information which is significant to the proper consideration of the application; ie information which is "necessary and sufficient" for decision-making.

Item 3: **(if no) Seek additional information**

If there is not sufficient information then additional information may need to be sought from the applicant, the Agency or other parties/experts under section 58 of the Act (clause 23 of the Methodology).

Item 4 **Sufficient?**

When additional information has been sought, has this been provided, and is there now sufficient information available to make a decision?

If the Authority is not satisfied that it has sufficient information for consideration, then the application must be declined under section 29(1)(c).

Item 5: **(If 'yes' from item 2 or from item 4) Identify the composition of the substance, classify the hazardous properties, and determine default controls**

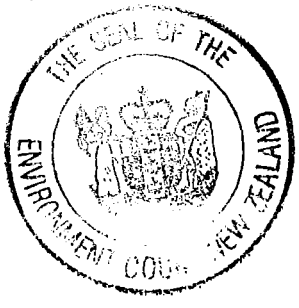
Identify the composition of the substance, and establish the hazard classifications for the identified substance.

Determine the default controls for the specified hazardous properties using the regulations "toolbox".

Item 6: **Identify all risks, costs and benefits that are potentially non-negligible**[22]

Costs and benefits are defined in the Methodology as the value of particular effects (clause 2). However, in most cases these 'values' are not certain and have a likelihood attached to them. Thus costs and risks are generally linked and may be

[22] Relevant effects are **marginal effects**, or the changes that will occur as a result of the substance being available. Financial costs associated with preparing and submitting an application are not marginal effects and are not effects of the substance(s) and are therefore not taken into account in weighing up adverse and positive effects. These latter types of costs are sometimes called 'sunk' costs since they are incurred whether or not the application is successful.



addressed together. If not, they will be addressed separately. Examples of costs that might not be obviously linked to risks are direct financial costs that cannot be considered as "sunk" costs (see footnote 1). Where such costs arise and they have a market economic effect they will be assessed in the same way as risks, but their likelihood of occurrence will be more certain (see also item 11).

Identification is a two step process that scopes the range of possible effects (risks, costs and benefits).

Step 1: Identify all possible risks and costs (adverse effects) and benefits (positive effects) associated with the approval of the substance(s), and based on the range of areas of impact described in clause 9 of the Methodology and sections 5 and 6 of the Act.[23] Consider the effects of the substance through its lifecycle (clause 11) and include the likely effects of the substance being unavailable (sections 29(1)(a)(iii) and 29(1)(b)(iii)).

Relevant costs and benefits are those that relate to New Zealand and those that would arise as a consequence of approving the application (clause 14).

Consider short-term and long-term effects.

Identify situations where risks and costs occur in one area of impact or affect one sector and benefits accrue to another area or sector; that is, situations where risks and costs do not have corresponding benefits.

Step 2: Document those risks, costs and benefits that can be readily concluded to be negligible[24], and eliminate them from further consideration.

Note that where there are costs that are not associated with risks some of them may be eliminated at this scoping stage on the basis that the financial cost represented is very small and there is no overall effect on the market economy.

Item 7: **Assess each risk assuming controls in place. Add, substitute or delete controls in accordance with clause 35 and sections 77, 77A and 77B of the Act.**

The assessment of potentially non-negligible risks and costs should be carried out in accordance with clauses 12, 13, 15, 22, 24, 25, and 29 to 32 of the Methodology. The assessment is carried out with the default controls in place.

Assess each potentially non-negligible risk and cost estimating the magnitude of the effect if it should occur and the likelihood of it occurring. Where there are non-negligible financial costs that are not associated with risks then the probability of occurrence (likelihood) may be close to 1. Relevant information provided in

[23] Effects on the natural environment, effects on human health and safety, effects on Māori culture and traditions, effects on society and community, effects on the market economy.

[24] Negligible effects are defined in the Annotated Methodology as "Risks which are of such little significance in terms of their likelihood and effect that they do not require active management and/or after the application of risk management can be justified by very small levels of benefits".

submissions should be taken into account.

The distribution of risks and costs should be considered, including geographical distribution and distribution over groups in the community, as well as distribution over time. This information should be retained with the assessed level of risk/cost.

This assessment includes consideration of how cautious the Authority will be in the face of uncertainty (section 7). Where there is uncertainty, it may be necessary to estimate scenarios for lower and upper bounds for the adverse effect as a means of identifying the range of uncertainty (clause 32). It is also important to bear in mind the materiality of the uncertainty and how significant the uncertainty is for the decision (clause 29(a)).

Consider the Authority's approach to risk (clause 33 of the Methodology) or how risk averse the Authority should be in giving weight to the residual risk, where residual risk is the risk remaining after the imposition of controls.

See ERMA New Zealand report 'Approach to Risk' for further guidance[25].

Where it is clear that residual risks are non-negligible and where appropriate controls are available, add substitute or delete controls in accordance with sections 77 and 77A of the Act to reduce the residual risk to a tolerable level. If the substance has toxic or ecotoxic properties, consider setting exposure limits under section 77B. While clause 35 is relevant here, in terms of considering the costs and benefits of changing the controls, it has more prominence in items 10 and 13

If changes are made to the controls at this stage then the approach to uncertainty and the approach to risk must be revisited.

Item 8: **Undertake combined consideration of all risks and costs, cognisant of proposed controls**

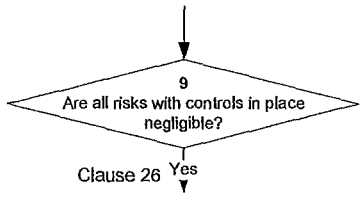
Once the risks and costs have been assessed individually, if appropriate consider all risks and costs together as a "basket" of risks/costs. This may involve combining groups of risks and costs as indicated in clause 34(a) of the Methodology where this is feasible and appropriate, or using other techniques as indicated in clause 34(b). The purpose of this step is to consider the interactions between different effects and determine whether these may change the level of individual risks.

Item 9: **Are all risks with controls in place negligible?**

Looking at individual risks in the context of the "basket" of risks, consider whether all of the residual risks are negligible.

[25] www.ermanz.govt.nz/resources/publications/pdfs/ER-OP-03-02.pdf

Item 10:



(from item 9 - if 'yes') Review controls for cost-effectiveness in accordance with clause 35 and sections 77, 77A and 77B

Where all risks are negligible the decision must be made under clause 26 of the Methodology.

Consider the practicality and cost-effectiveness of the proposed individual controls and exposure limits (clause 35). Where relevant and appropriate, add, substitute or delete controls whilst taking into account the view of the applicant, and the cost-effectiveness of the full package of controls.

Item 11: **Is it evident that benefits outweigh costs?**

Risks have already been determined to be negligible (item 9). In the unusual circumstance where there are non-negligible costs that are not associated with risks they have been assessed in item 7.

Costs are made up of two components: internal costs or those that accrue to the applicant, and external costs or those that accrue to the wider community.

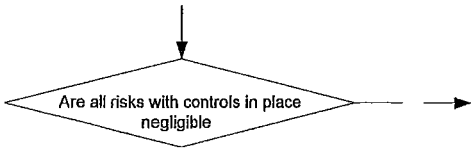
Consider whether there are any non-negligible external costs that are not associated with risks.

If there are no external non-negligible costs then external benefits outweigh external costs. The fact that the application has been submitted is deemed to demonstrate existence of internal or private net benefit, and therefore total benefits outweigh total costs[26]. As indicated above, where risks are deemed to be negligible, and the only identifiable costs resulting from approving an application are shown to accrue to the applicant, then a cost-benefit analysis will not be required. The act of an application being lodged will be deemed by the Authority to indicate that the applicant believes the benefits to be greater than the costs.

However, if this is not the case and there are external non-negligible costs then all benefits need to be assessed (via item 14).

[26] Technical guide "Risks, Costs and Benefits" page 6 - note that, where risks are negligible and the costs accrue only to the applicant, no explicit cost benefit analysis is required. In effect, the Authority takes the act of making an application as evidence that the benefits outweigh the costs". See also protocol series 1 "General Requirements for the Identification and Assessment of Risks, Costs, and Benefits".

Item 12:



(from item 9 - if 'no') Establish Authority's position on risk averseness and appropriate level of caution

Although 'risk averseness' (approach to risk, clause 33) is considered as a part of the assessment of individual risks, it is good practice to consolidate the view on this if several risks are non-negligible. This consolidation also applies to the consideration of the approach to uncertainty (section 7)

Item 13: **Review controls for cost-effectiveness in accordance with clause 35 and sections 77, 77A and 77B**

This constitutes a decision made under clause 27 of the Methodology (taken in sequence from items 9 and 12).

Consider whether any of the non-negligible risks can be reduced by varying the controls in accordance with sections 77 and 77A of the Act, or whether there are available more cost-effective controls that achieve the same level of effectiveness (section 77A(4)(b) and clause 35(a)).

Where relevant and appropriate, add, substitute or delete controls whilst taking into account the views of the applicant (clause 35(b)), and making sure that the total benefits that result from doing so continue to outweigh the total risks and costs that result.

As for item 7, if the substance has toxic or ecotoxic properties, consider exposure limits under section 77B.

Item 14: **(if 'no' from item 11 or in sequence from item 13) Assess benefits**

Assess benefits or positive effects in terms of clause 13 of the Methodology.

Since benefits are not certain, they are assessed in the same way as risks. Thus the assessment involves estimating the magnitude of the effect if it should occur and the likelihood of it occurring. This assessment also includes consideration of the Authority's approach to uncertainty or how cautious the Authority will be in the face of uncertainty (section 7). Where there is uncertainty, it may be necessary to estimate scenarios for lower and upper bounds for the positive effect.

An understanding of the distributional implications of a proposal is an important part of any consideration of costs and benefits, and the distribution of benefits should be considered in the same way as for the distribution of risks and costs.

The Authority will in particular look to identify those situations where the beneficiaries of an application are different from those who bear the costs[27]. This is important not only for reasons related to fairness but also in forming a view of just how robust any claim of an overall net benefit might be. It is much more

[27] This principle derives from Protocol Series 1, and is restated in the technical guide "Risks, Costs and Benefits".

difficult to sustain a claim of an overall net benefit if those who enjoy the benefits are different to those who will bear the costs. Thus where benefits accrue to one area or sector and risks and costs are borne by another area or sector then the Authority may choose to be more risk averse and to place a higher weight on the risks and costs.

As for risks and costs, the assessment is carried out with the default controls in place.

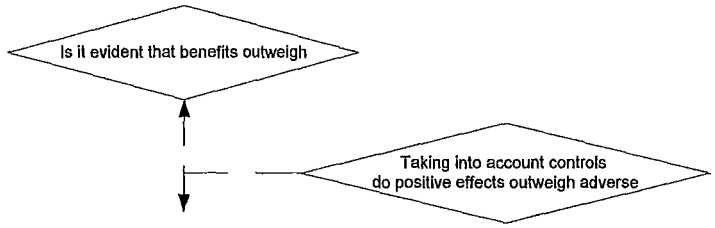
Item 15: **Taking into account controls, do positive effects outweigh adverse effects?**

In weighing up positive and adverse effects, consider clause 34 of the Methodology. Where possible combine groups of risks, costs and benefits or use other techniques such as dominant risks and ranking of risks. The weighing up process takes into account controls proposed in items 5, 7, 10 and/or 13.

Where this item is taken in sequence from items 12, 13 and 14 (i.e. risks are not negligible) it constitutes a decision made under clause 27 of the Methodology.

Where this item is taken in sequence from items 9, 10, 11 and 14 (i.e. risks are negligible, and there are external non-negligible costs) it constitutes a decision made under clause 26 of the Methodology.

Item 16:



(if 'yes' from items 11 or 15) Confirm and set controls

Controls have been considered at the earlier stages of the process (items 5, 7, 10 and/or 13). The final step in the decision-making process brings together all the proposed controls, and reviews them for overlaps, gaps and inconsistencies. Once these have been resolved the controls are confirmed.

Appendix B: Further information requests

Subsequent to the hearings, the Committee requested further information (see Table A.1), in accordance with section 58(1), from various ports, industry and fumigation companies (as listed in Table B.1) and MAFBNZ on the impacts of requiring the use of recapture technology. The Committee also requested further information from MAFBNZ on the operation of transitional facilities and the use of methyl bromide to control potato wart, a disease caused by a soil fungus which is a notifiable organism under the Biosecurity Act.

Table B.1: Further information request on recapture

With a goal of having all methyl bromide fumigations subject to recapture in 10 years, the Authority would like advice on the impact the following scenario would have:

Recapture of methyl bromide fumigations required:	**100%**	**50%***
Shipping container fumigations	2 years	1 year
Ship hold fumigations	2 years	1 year
Logs under covers	10 years	5 years

***50% of fumigations** refers to half the methyl bromide fumigations carried out by each fumigation company in a 12 month period, not necessarily half the fumigations carried out a particular location.

Thus the Committee would like information on:

Shipping container fumigation

1. How many containers that require fumigation with methyl bromide are handled?
2. The impact of requiring all shipping container fumigations to be recaptured in 2 years.
3. The impact of requiring half of shipping container fumigations to be recaptured in 1 year.
4. If this timetable is not considered practical, what would be a more feasible timetable?

Ship hold fumigation

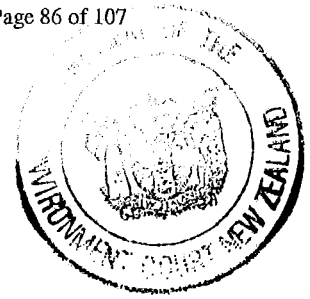
5. How many ship holds are fumigated with methyl bromide.
6. The impact of requiring all ship hold fumigations to be recaptured in 2 years
7. The impact of requiring half of ship hold fumigations to be recaptured in 1 year.
8. If this timetable is not considered practical, what would be a more feasible timetable?

Fumigating logs under covers

9. How much fumigation of logs with methyl bromide under covers is carried out?
10. The impact of requiring recapture of methyl bromide for logs under covers in 10 years.
11. The impact of requiring recapture of half of log fumigations under covers in 5 years.
12. If this timetable is not considered practical, what would be a more feasible timetable?

Disposal of carbon with adsorbed methyl bromide

13. Do you have any comments to make on the disposal of the large amounts of carbon adsorbed with methyl bromide that will be generated by the introduction of recapture technology?



Other comments on the introduction of recapture technology

The **impacts** may include (but need not be limited to) such matters as:

1. Additional costs of installing recapture technology – how long it would take to regain costs.
2. Increased costs of fumigations due to recapture.
3. Predicted increase cost to users.
4. Predicted reduction in profit margins.
5. Costs of disposing of the carbon.
6. Whether more space will be required.
7. Whether more workers will be required.

Table B.2: Parties that were sent an information request on recapture

Centreport Limited	Northport Ltd
Port Nelson Limited	Port of Napier Limited
Port of Tauranga Ltd	Port Otago Limited
Ports of Auckland Ltd	South Port New Zealand Ltd
Lyttleton Port of Christchurch	Port Marlborough NZ Ltd
Carter Holt Harvey Limited	New Zealand Forest Owners Association
New Zealand Fresh Produce Importers Association Inc	New Zealand Pine Manufacturers Association
Wood Processors Association of New Zealand	Rayonier New Zealand Ltd
Red Stag Timber Ltd	Scion Research
Zindia Ltd	Brustics Limited
C3 Limited	Horticulture New Zealand
Marlborough Forest Industry Association	Motueka Lumber Co Ltd
STIMBR	TPT Forests Limited
Westco Lagan Limited	WPI Timber, Prime Sawmill & Blue Mountain Lumber
Ecolab Limited	Genera Limited
Kwikill Environmental Services Limited	Rentokil Pest Control
Auckland Regional council	Marlborough District Council
Nelson City Council	Environment Bay of Plenty
Northland Regional council	

Appendix C: Controls

Commencement

1. These controls apply to methyl bromide.
2. Unless otherwise specified, the controls that applied to methyl bromide immediately before this approval continue in effect until the expiry of 30 April 2011. The controls set out in this Appendix take effect on 1 May 2011.

Application

1. A person must not use methyl bromide otherwise than in accordance with these controls.
2. A person may use methyl bromide for quarantine and pre-shipment purposes in accordance with Tables C1, C2 and C4.
3. A person may use methyl bromide as a soil fumigant for the management and eradication of potato wart at residential properties for quarantine purposes in accordance with Tables C1, C3 and C4.

Table C1: Controls applicable to all QPS uses of methyl bromide

<table>
<tr><td colspan="3">Hazardous Substances (Classes 1 to 5 controls) Regulations 2001</td></tr>
<tr><td>Code F1</td><td>Reg 7</td><td>General test certification requirements for hazardous substance locations</td></tr>
<tr><td>Code F2</td><td>Reg 8</td><td>Restrictions on the carriage of flammable substances on passenger service vehicles</td></tr>
<tr><td>Code F3</td><td>Reg 55</td><td>General limits on flammable substances</td></tr>
<tr><td>Code F5</td><td>Regs 58, 59</td><td>Requirements regarding hazardous atmosphere zones for class 2.1.1, 2.1.2 and 3.1 substances</td></tr>
<tr><td>Code F6</td><td>Regs 60 – 70</td><td>Requirements to prevent unintended ignition of class 2.1.1, 2.1.2 and 3.1 substances</td></tr>
<tr><td>Code F11</td><td>Reg 76</td><td>Segregation of incompatible substances</td></tr>
<tr><td>Code F12</td><td>Regs 77</td><td>Requirement to establish a hazardous substance locations if flammable substances are present</td></tr>
<tr><td>Code F14</td><td>Reg 81</td><td>Test certification requirements for facilities where class 2.1.1, 2.1.2 or 3.1 substances are present</td></tr>
<tr><td>Code F16</td><td>Reg 83</td><td>Controls on transit depots where flammable substances are present</td></tr>
<tr><td colspan="3">Hazardous substances (Classes 6, 8, and 9 controls) Regulations 2001</td></tr>
<tr><td rowspan="2">Code T1</td><td>Regs 11 – 27</td><td>Limiting exposure to toxic substances through the setting of tolerable exposure limits (TELs)</td></tr>
<tr><td>Tolerable exposure limits</td><td>The following TEL_{air} values apply to methyl bromide:
<table>
<tr><td></td><td colspan="2">TEL_{air}</td></tr>
<tr><td></td><td>ppm</td><td>mg/m^3</td></tr>
<tr><td>1 hour</td><td>1</td><td>3.9</td></tr>
<tr><td>24 hour</td><td>0.333</td><td>1.3</td></tr>
<tr><td>Chronic (annual average)</td><td>0.0013</td><td>0.005</td></tr>
</table></td></tr>
</table>

	Variation	Under s77A, the control imposed by regulation 27 is replaced by the following control: **27 Prohibition on use of methyl bromide in excess of tolerable exposure limit** A **person in charge** of a **site** and a person who **uses methyl bromide** must ensure that **methyl bromide** is **used** in a manner that does not result in a concentration of **methyl bromide**, in air at the boundary of the **buffer zone**, that exceeds the TEL_{air} values.
Code T2	Regs 29, 30	Controlling exposure in places of work through the setting of WESs.
	Workplace exposure standards	Under section 77B, the Authority adopts as a workplace exposure standard for **methyl bromide** the values specified in the document described in "Workplace Exposure Standards and Biological Exposure Indices Effective 2010" published by the Department of Labour, September 2010, ISBN 978-0-478-36002-8. Also available at www.osh.dol.govt.nz/order/catalogue/pdf/wes2010.pdf.
Code T3, E5	Regs 5, 6	Requirements for record keeping
	Variation	Under section 77A, the controls imposed by regulations 5 and 6 are replaced by additional control 2.
Code T4	Reg 7	Requirements for equipment used to handle substances
Code T5	Reg 8	Requirements for protective clothing and equipment
Code T6, E7	Reg 9	Approved handler/security requirements
	Variation	The following control 9A is in addition to the requirements imposed by regulation 9: **9A Exception to approved handler requirement for transportation of methyl bromide** (1) Regulation 9 is deemed to be complied with if— (a) in the case of **methyl bromide** being transported on land,— (i) if by rail, the person who drives the rail vehicle that is transporting the **methyl bromide** is fully trained in accordance with the approved safety system for the time being approved under section 6D of the Transport Services Licensing Act 1989; and (ii) in every other case, the person who drives, loads, and unloads the vehicle that is transporting the **methyl bromide** has a current dangerous goods endorsement on his or her driver licence; and (iii) in all cases, Land Transport Rule: Dangerous Goods 2005 (Rule 45001) is complied with; or (b) in the case of **methyl bromide** being transported by sea, one of the following is complied with: (i) Maritime Rules: Part 24A – Carriage of Cargoes – Dangerous Goods; or (ii) International Maritime Dangerous Goods Code.
Code T7	Reg 10	Restrictions on the carriage of toxic or corrosive substances on passenger service vehicles
Code E1	Regs 32 – 45	Limiting exposure to ecotoxic substances through the setting of environmental exposure limits (EELs).

	Variation	The default EELs given under regulation 32 of the Hazardous Substances (Classes 6, 8, and 9 controls) Regulations are deleted. No EELs are set for **methyl bromide** under section 77B.
Code E2	Regs 46 – 48	Restrictions on use of substances in application areas
Code E3	Reg 49	Use of substances ecotoxic to terrestrial invertebrates
Code E6	Reg 7	Requirements for equipment used to handle substances
Hazardous Substances (Disposal) Regulations 2001		
Code D2	Reg 6	Disposal requirements for flammable substances
Code D4	Reg 8	Disposal requirements for toxic and corrosive substances
Code D5	Reg 9	Disposal requirements for ecotoxic substances
Code D6	Reg 10	Disposal requirements for packages
Code D7	Regs 11, 12	Information requirements for manufacturers, importers and suppliers, and persons in charge
Code D8	Regs 13, 14	Documentation requirements for manufacturers, importers and suppliers, and persons in charge
Hazardous Substances (Personnel Qualifications) Regulations 2001		
Code AH1	Regs 4 – 6	Approved Handler requirements (including test certificate and qualification requirements)
Hazardous Substances (Tracking) Regulations 2001		
Code TR1	Regs 4(1), 5, 6	General tracking requirements
Hazardous Substances (Emergency Management) Regulations 2001		
Code EM1	Regs 6, 7, 9 – 11	Level 1 information requirements for suppliers and persons in charge
Code EM2	Reg 8(a)	Information requirements for corrosive substances
Code EM6	Reg 8(e)	Information requirements for toxic substances
Code EM7	Reg 8(f)	Information requirements for ecotoxic substances
Code EM8	Regs 12–16, 18–20	Level 2 information requirements for suppliers and persons in charge
Code EM9	Reg 17	Additional information requirements for flammable and oxidising substances and organic peroxides
Code EM10	Regs 21 – 24	Fire extinguisher requirements
Code EM11	Regs 25 – 34	Level 3 emergency management requirements: duties of person in charge, emergency response plans
Code EM13	Reg 42	Level 3 emergency management requirements: signage
Hazardous Substances (Identification) Regulations 2001		
Code I1	Regs 6, 7, 32–35, 36(1) – (7)	Identification requirements, duties of persons in charge, accessibility, comprehensibility, clarity and durability
	Variation	Under section 77A, the controls imposed by regs 34(1), (2), and (4), and regs 35(1), (3) and (5) are varied and added to by clause 12 in Table 2 and clause 6 in Table 3

Code I2	Reg 8	Priority identifiers for corrosive substances
Code I3	Reg 9	Priority identifiers for ecotoxic substances
Code I5	Reg 11	Priority identifiers for flammable substances
Code I8	Reg 14	Priority identifiers for toxic substances
Code I9	Reg 18	Secondary identifiers for all hazardous substances
Code I10	Reg 19	Secondary identifiers for corrosive substances
Code I11	Reg 20	Secondary identifiers for ecotoxic substances
Code I13	Reg 22	Secondary identifiers for flammable substances
Code I16	Reg 25	Secondary identifiers for toxic substances
Code I17	Reg 26	Use of generic names
Code I18	Reg 27	Requirements for using concentration ranges
Code I19	Regs 29 – 31	Additional information requirements, including situations where substances are in multiple packaging
Code I20	Reg 36(8)	Durability of information for class 6.1 substances
Code I21	Regs 37–39, 47–50	General documentation requirements
Code I22	Reg 40	Specific documentation requirements for corrosive substances
Code I23	Reg 41	Specific documentation requirements for ecotoxic substances
Code I25	Reg 43	Specific documentation requirements for flammable substances
Code I28	Reg 46	Specific documentation requirements for toxic substances
Code I29	Regs 51, 52	Signage requirements
Code I30	Reg 53	Advertising corrosive and toxic substances
Hazardous Substances (Compressed Gases) Regulations 2004		
Code CG		The Hazardous Substance (Compressed Gases) Regulations 2004 prescribe a number of controls relating to compressed gases and gas cylinders
Hazardous Substances (Tank Wagon and Transportable Containers) Regulations 2004		
Code TW	Variation	The requirements imposed as controls from the Hazardous Substances (Tank Wagons and Transportable Containers) Regulations 2004 are deleted
Controlled substances licence		
Licence required (1) Subject to (2) and (3), a person must not possess **methyl bromide** unless that person has a valid licence for **methyl bromide** issued pursuant to section 95B of the HSNO Act.		
(2) A person (Person A) may possess **methyl bromide** without the licence required by (1) if— (a) another person (Person B) has such a licence and is present and available immediately to Person A; or (b) Person A complies with (3).		
(3) A person transporting **methyl bromide** may possess the substance without the licence required by (1) if:		

(a)	in the case of **methyl bromide** being transported on land,—	
	(i)	by rail, the person who drives the rail vehicle that is transporting the **methyl bromide** is fully trained in accordance with the approved safety system for the time being approved under section 6D of the Transport Services Licensing Act 1989; or
	(ii)	in every other case, the person who drives, loads, and unloads the vehicle that is transporting the **methyl bromide** has a current dangerous goods endorsement on his or her driver licence; and
	(iii)	in all cases, Land Transport Rule: Dangerous Goods 2005 (Rule 45001) is complied with; or
(b)	in the case of **methyl bromide** being transported by sea, one of the following is complied with:	
	(i)	Maritime Rules: Part 24A – Carriage of Cargoes – Dangerous Goods; or
	(ii)	International Maritime Dangerous Goods Code.

Controls relating to the adverse effects of unintended ignition		
Code GN35A	Schedule 10	The controls set out in Schedule 10 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004 apply to **methyl bromide.**
Variation		Clause 1. This clause applies to **methyl bromide** as if the words "Schedule 1 provided that for the purposes of this Schedule, low flashpoint diesel (low flash domestic heating oil and alpine diesel) shall be deemed to have a flammable classification of 3.1D" was replaced by: "**methyl bromide**".

Table C2: Additional controls for the QPS (other than soil fumigation) of methyl bromide

Clause	Control description		
1.	**Restriction on fumigation** A person may only **apply methyl bromide** into an **enclosed space.**		
2.	**Collecting data**		
	(1)	A person who **uses methyl bromide** must ensure that accurate records are kept of the data specified in clauses 2(2) to 2(4) for each **application.**	
	(2)	Where **recapture technology** is used, the:	
		(a)	date and time of each **application** and recapture;
		(b)	**location** where the **methyl bromide** was **applied** and recaptured;
		(c)	amount of **methyl bromide applied** and recaptured;
		(d)	type of **enclosed space** to which the **methyl bromide** was applied;
		(e)	capacity of the **enclosed space**; and
		(f)	name of the person **using methyl bromide** and the physical address of their place of work.
	(3)	Where **recapture technology** is not used, the: -	
		(a)	date and time of each **application** and **ventilation**;
		(b)	amount of **methyl bromide applied**;
		(c)	**location** where the **methyl bromide** was **applied** and **ventilated**;
		(d)	wind speed and direction every 3 minutes at the **location** during **ventilation**;

	(e) type of **enclosed space** to which the **methyl bromide** was applied; (f) capacity of the **enclosed space**; (g) name of the person **using methyl bromide** and the physical address of their place of work; (h) for each **monitoring location**, **exposure levels**; and (i) for each **monitoring location**, the type and location of the monitoring equipment used to record the **exposure levels**. (4) For each **discharge** of **methyl bromide**, the: (a) date and time of each **discharge**; (b) approximate amount of **methyl bromide discharged**; (c) **location** where the **methyl bromide** was **discharged**; (d) approximate wind speed and direction at the **location** when the **discharge** occurred; (e) where the **discharge** occurred from; (f) the reason why the **discharge** occurred; (g) capacity of the **enclosed space**; and (h) name of the person **using methyl bromide** and the physical address of their place of work. (5) The data required to be recorded by clause 2, must be recorded every 3 minutes from the start of **ventilation** until the **exposure level** is below 0.05 ppm for at least: (a) 15 minutes, where 7 kg or more of **methyl bromide** is **applied** in a one hour period; or (b) 3 minutes where less than 7 kg of **methyl bromide** is **applied** in a one hour period.
3.	**1 hour and 24 hour exposure levels** (1) The **person in charge** of the **site** must, for each **monitoring location**, keep a record of the following information for every **ventilation**: **1 hour exposure level**; and **24 hour exposure level**. (2) The **person in charge** of the **site** must notify Department of Labour and the relevant Medical Officer of Health as soon as practicable, but within 5 working days, if either the: (a) **1 hour exposure level** exceeds the 1 hour TEL_{air} value for **methyl bromide**; or (b) **24 hour exposure level** exceeds the 24 hour TEL_{air} value for **methyl bromide**.
4.	**Record keeping** The records required by clauses 2 and 3 must be kept for not less than 7 years after the date that the **fumigations** to which they relate occurred and be available for inspection.
5.	**Annual monitoring report** (1) The **person in charge** of a **site** where more than the reporting threshold set out in clause 5(2) is applied must produce an **annual monitoring report**. (2) The reporting threshold is 500 kg or more of **methyl bromide** in one **calendar year** at a **site**. (3) **Methyl bromide** that is recaptured using **recapture technology** does not count towards the reporting threshold set out in clause 5(2). (4) The **annual monitoring report** shall contain the following information in respect of the calendar year:

	(a) the number of **fumigations** using **methyl bromide** carried out at the **site**; (b) the total amount of **methyl bromide applied** at the **site**; (c) the types of **enclosed spaces** to which **methyl bromide** has been applied; (d) the types of equipment used to carry out the monitoring of **methyl bromide**; (e) the **annual exposure level**; (f) approximate total amount of **methyl bromide discharged**; (g) number of notifications made in accordance with clause 3(2), identified by each **monitoring location**; (h) how many times the **exposure levels** exceeded the TEL_{air} value; (i) if a breach of a TEL_{air} value has occurred, an outline of what risk mitigation measures have been or are being put in place; and (j) any accidents or other issues related to non-compliance with any of the controls under this approval. (5) The **person in charge** of the **site** must provide the **annual monitoring report** to ERMA New Zealand, Department of Labour, and the relevant Medical Officer of Health by 30 June of the following year.
6.	**Minimum buffer zones** (1) The **person in charge** of a **site** must set a **buffer zone** for each **fumigation.** The **buffer zone** must be equal to or greater than the following distances:

Use	Minimum buffer zones (in metres)
Ship's hold (1000 kg or more of **methyl bromide applied** per **site** in any 24 hour period)	100
Ship's hold (less than 1000 kg **methyl bromide applied** per **site** in any 24 hour period)	50
Fumigation under **sheets**	50
Containers (total volume of 77 m^3 or more in any 60 minute period)	25
Containers (total volume of less than 77 m^3 in any 60 minute period)	10

	(2) Subject to clause 6(3), the **person in charge** of the **site** and any person who **uses methyl bromide** must ensure that **non-occupational bystanders** are not in the **buffer zone** during the **buffer zone period.** (3) Where a **buffer zone** extends over water, the **person in charge** of the **site** and any person who **uses methyl bromide** must take all practicable steps to ensure that the water is monitored and, if a **non-occupational bystander** enters the **buffer zone**, that the bystander moves out of **the buffer zone** as soon as practicable. (4) The requirement to comply with the **buffer zone** distances required by clause 6(1) does not apply to a **person in charge** of a **site** who complies with a relevant code of practice approved under section 78 of the HSNO Act. (5) The requirement to comply with the **buffer zone** distances required by clause 6(1) does not apply to a **fumigation** where **recapture technology** is used. (6) A person must not **use methyl bromide within** 25 metres of any **sensitive site.**
7.	**Site must be secured** **Fumigation** may only be carried out in a place that is secured against ready access by unauthorised persons.
8.	**Container must not be moved during fumigation**

	(1) A person must not move a **container** during **fumigation**. (2) However, a person may move a **container** during **fumigation** from a: (a) wharf to a ship that is berthed at that wharf; or (b) ship to a wharf where that ship is berthed.
9.	**Container must be gas tight** A person may not **apply methyl bromide** in a **container** unless: (a) the **container** is in good repair and capable of being securely closed; and (b) the **container** does not leak at any of the temperatures and/or pressures to which the **container** will be made subject.
10.	**Requirements for sheets** A person must not **apply methyl bromide** under **sheets** unless the **sheet** is: (a) in good repair without tears, rips or visible holes; and (b) made secure against likely weather conditions at the **site**; and (c) sealed with a border that is filled with heavy material.
11.	**Notification of intended fumigation** (1) A person who **applies methyl bromide** must notify in writing the relevant persons (specified in the table) of the intention to carry out **fumigation** at least 24 hours prior to **applying** the **methyl bromide**.

Type of application	Relevant persons to be notified
Ship's hold	• The nearest communications centre of the New Zealand Fire Service; and • **Person in charge** of the **site**.
Sheets	• The nearest communications centre of the New Zealand Fire Service; and • **Person in charge** of the **site**.
Container	• **Person in charge** of the **site**.

(2) A person who applies **methyl bromide** must also notify the occupants of each property within 25 metres of the **site** to be **fumigated** at least 24 hours prior to **applying** the **methyl bromide**.

(3) Where a marae is adjacent to a **site** to be fumigated, the person who applies methyl bromide must make appropriate notification arrangements with local Māori;

(4) However, notification of the persons specified in clauses 11(1) and 11(2) may be less than 24 hours if the **fumigation** is urgent for a reason or reasons relating to public health or biosecurity.

(5) A person who intends to **apply** more than 100 kg of **methyl bromide** in a 24 hour period must notify the occupants of each property, including moored boats, within 100 m of the **site** at least 24 hours prior to **applying** the **methyl bromide**.

(6) At the end of the **buffer zone period** the person who applied the **methyl bromide** must notify every person required to be notified under clauses 11(1) to 11(4) that **fumigation** is complete.

(7) The requirement to notify persons under clauses 11(1) to 11(6) is met if the:

(a) **fumigation** is carried out at the **site** on a weekly basis; and

(b) the relevant persons are notified of the intention to carry out regular **fumigations** at the **site** initially and then again annually setting out:

(i) where the **fumigation** occurs;

(ii) the time at which **ventilation** normally occurs (if this can be

	specified); (iii) the expected frequency of **fumigation**; and (iv) any likely seasonal trends. (8) Clauses 11(2), (3), (5) and (6) do not apply to a **fumigation** when **recapture technology** is used.
12.	**Fumigation warning** *Clause 12 title: amended on June 2011 under section 67A.* (1) A person who applies **methyl bromide** must ensure that persons approaching the **buffer zone** are warned that a **methyl bromide fumigation** is taking place. (1A) For those parts of a **buffer zone** that extend over land, the warning required by clause 12(1) must be provided by displaying a sign that complies with clause 12(2) at every point of access to the **buffer zone.** (1B) For those parts of a **buffer zone** that extend over water, the warning required by clause 12(1) must be able to be readily seen by a person approaching the **buffer zone** from a seaward direction including during the hours of darkness. *Clause 12 (1): amended on June 2011 under section 67A.* (2) The signs must: (a) **state that fumigation is being carried out; and** (b) state that **methyl bromide** is being used; and (c) state that **methyl bromide** is toxic to humans; and (d) describe the general type of hazard associated with **methyl bromide**; and (e) describe the precautions necessary to prevent unintended ignition of methyl **bromide**; and (f) comply with regulation 34(1), (2), and (4), and regulation 35(1), (3), and (5) of the Hazardous Substances (Identification) Regulations 2001, but as if the distances referred to in regulation 35(3) were a distance of not less than 10 metres; and (g) identify the **person in charge** of the **site** and the person **using methyl bromide** and provide sufficient information to enable the persons to be contacted during normal business hours; and (h) state the date on which the **fumigation** commenced; and (i) be illuminated during the hours of darkness; and (j) be able to be readily seen by a person approaching the **buffer zone.** *Clause 12 (2): amended on June 2011 under section 67A.* (3) A person who applies **methyl bromide** must ensure that physical warnings that are used to comply with clause 12(1) are removed at the end of the **buffer zone period.** *Clause 12 (3): amended on June 2011 under section 67A.*
13.	**Requirement for recapture technology** (1) Clause 13(2) takes effect 10 years after the date of this approval. (2) A person must not **apply methyl bromide** unless **recapture technology** is used. (3) A person who **applied methyl bromide** in the preceding calendar year must provide a report to ERMA New Zealand by 30 June each year setting out that person's progress in introducing **recapture technology**.

Deleted: Signage

Deleted: ¶

Deleted: A person who applies **methyl bromide** must ensure that signs are displayed at every point of access to the **buffer zone.**

Deleted: required by clause 12(1)

Deleted: , including, when applicable, persons approaching from a seaward direction.

Deleted: The signs required by clause 12(1) must be removed at the end of the **buffer zone period.**

Table C3: Specific controls for use of methyl bromide in soil fumigation for potato wart

Clause	Specific controls for use of methyl bromide in soil fumigation for potato wart
1.	**Authorised person**

	A person must not **apply methyl bromide** to fumigate soil for potato wart unless they are an **authorised person** or a person working under the direct supervision of an **authorised person**.
2.	**Maximum application rate** A person must not **apply** more than 380 grams of **methyl bromide** per square metre of soil.
3.	**Sheets** (1) A person must only **apply methyl bromide** to soil that is covered by a **sheet.** (2) The **authorised person** who **applied** or supervised the **application** of **methyl bromide** must ensure that: (a) the **sheet** remains in place for at least 24 hours after **methyl bromide** is **applied;** and (b) where more than one **sheet** is used, adjacent **sheets** must overlap by a minimum of 50 millimetres and be securely bonded; and (c) the **sheet** is secure against likely weather conditions at the **site**; and (d) the **sheet** is sealed with a border trench that is filled with heavy material; and (e) the **sheet** is removed by slowly rolling it off the **fumigated** soil.
4.	**Notification** (1) A person who **applies methyl bromide** must notify the relevant Medical Officer of Health and the nearest communications centre of the New Zealand Fire Service in writing at least 48 hours prior to **applying methyl bromide.** (2) A person who **applies methyl bromide** must also notify the occupant of every property within 25 metres of the **site** to be **fumigated** at least 24 hours prior to **applying** the **methyl bromide.** (3) A person who **applies methyl bromide** must notify the **person in charge** of each **sensitive site** within 100 m of the **site** at least 48 hours prior to **applying** the **methyl bromide.**
5.	**Evacuation and access to site** A person who **applies methyl bromide** must ensure that no **non-occupational bystander** is at the residential property from the time that **methyl bromide** is **applied** until either: (a) 24 hours after the **sheet** is removed; or (b) following the removal of the **sheet,** the time when the concentration of **methyl bromide** measured at 30 cm above the treated soil has been less than 0.05 ppm for a period of 15 minutes.
6.	**Signage** (1) A person who applies **methyl bromide** must ensure that signs are displayed at every point of access to the area treated with **methyl bromide.** (2) The signs required by clause 6(1) must: (a) state that **fumigation** is being carried out; and (b) state that **methyl bromide** is being used; and (c) state that **methyl bromide** is toxic to humans; and (d) describe the general type of hazard associated with **methyl bromide**; and (e) describe the precautions necessary to prevent unintended ignition of methyl **bromide**; and (f) comply with regulation 34(1), (2), and (4), and regulation 35(1), (3), and (5) of the Hazardous Substances (Identification) Regulations 2001, but as if the distances referred to in regulation 35(3) were a distance of not less than 10 meters; and (g) identify the **authorised person** and provide sufficient information to enable the person to be contacted during normal business hours; and

		(h)	state the date on which the **fumigation** commenced; and
		(i)	be illuminated during the hours of darkness; and
		(j)	be able to be readily seen by a person approaching the area treated with **methyl bromide.**
	(3)	The signs required by clause 6(1) may be removed:	
		(a)	24 hours after the **sheet** is removed; or
		(b)	when the concentration of **methyl bromide** measured at 30 cm above the treated soil has been less than 0.05 ppm for a period of 15 minutes.

Table C4: Interpretation

1 hour exposure level means the average **exposure level** for each 60 minute time period from the start of **ventilation** until the end of the **buffer zone period.**
24 hour exposure level means the average **exposure level** for each 24 hour time period from the start of **ventilation** until the end of the **buffer zone period.**
Annual exposure level means the total **24 hour exposure level** recorded over a calendar year and averaged over 365 days.
Apply, applied, and **application** include injecting methyl bromide into an enclosed space.
Authorised person means a person with a relevant appointment as an authorised person under s 103 of the Biosecurity Act 1993.
Buffer zone means an area extending outward in all directions from the perimeter of each **enclosed space** being **fumigated** to the relevant distance specified in the clause 6(1) of Table 2.
Buffer zone period means the period of time starting when **methyl bromide** is first **applied** to an **enclosed space** and lasts until the data required by clause 2 of Table 2 is no longer required to be recorded.
Container means anything used to contain **methyl bromide** during **fumigation** except a: 1. ship's hold; and 2. **sheet.**
Discharge means the unintentional release of **methyl bromide** into open air.
Enclosed space means a: 1. **container**; and 2. **sheet;** and 3. ship's hold.
Exposure level means the concentration of **methyl bromide** in the air recorded at the **monitoring location.**
Fumigation means the **application** and **ventilation** of **methyl bromide** for the purpose of destruction of rodents, pests, or other plant or animal organisms or fungi.
Location means where on the **site** the **fumigation** is occurring (recorded as either New Zealand Mapping Series grid references or on a map with a resolution of at least 1:10000).

Methyl bromide means a gas containing 1000 g/kg methyl bromide.

Monitoring location means the point on land at the edge of the **buffer zone** that is in the most downwind direction from the **enclosed space** being **ventilated**.

Non-occupational bystander means any person who is not employed to work at the **site** where the **fumigation** is occurring.

Person in charge, in relation to a **site** where **fumigation** is or is intended to be carried out, means a person who is—

1. the owner, lessee, sublessee, occupier, or person in possession of the **site**, or any part of it; or
2. any other person who, at the relevant time, is in effective control or possession of the relevant part of the **site**.

Recapture technology means a system that mitigates **methyl bromide** emissions from **fumigation** enclosures such that the residual level of **methyl bromide** in the **enclosed space** is less than the Worker Exposure Standard set under section 77B.

Sensitive site means a place where members of the public are likely to be present and are unable to readily evacuate themselves, such as a school, playground, early childhood centre, prison, hospital or long-term care facility.

Sheet means a heavy duty polyethylene cover which is:

1. gas-proof;
2. water-proof; and
3. non-permeable.

Site means:

Where the methyl bromide is used:

1. an area of land which is:
   (a) comprised of a single allotment, or other legally defined parcel of land and held in a single certificate of title; or
   (b) comprised of a single allotment or legally defined parcel of land for which a separate certificate of title could be issued without further consent of the Council, being in any case the smaller of land area i) or ii); or
2. an area of land which is comprised of two or more adjoining legally defined parcels of land held together in one certificate of title in such a way that the lots cannot be dealt with separately without prior consent of the Council; or
3. an area of land which is comprised of two or more adjoining certificates of title where such titles are:
   (a) subject to a condition imposed under section 37 of the Building Act or section 240 Resource Management Act 1991; or
   (b) held together in such a way that they cannot be dealt with separately without the prior consent of the Council; and
4. in the case of land subdivided under the cross lease or company lease systems (other than strata titles), site shall mean an area of land containing:
   (a) a building or buildings for residential or business purposes with any accessory building, plus any land exclusively restricted to the users of that building; or

(b) a remaining share or shares in the fee simple creating a vacant part of the whole for future cross lease or company lease purposes; and 5. in the case of land subdivided under the Unit Titles Act 1972 (other than strata titles), site shall mean an area of land containing a principal unit or proposed unit on a unit plan together with its accessory units; (a) in the case of strata titles, site shall mean the underlying certificate of titles, immediately prior to subdivision; and (b) in the case of an activity that occupies more than one adjoining allotment, whether held in single legal title or multiple titles, for the purpose of compliance with any rules that specify a level of effect at the boundary or that specify capacities or discharge quantities, then the site shall be the total area of land occupied by that activity, and boundary shall be the boundary around that area of land. "Adjoining" (in the context of this definition) includes otherwise contiguous allotments which are straddled by a vehicle access or a legal road.
Use includes **applying, discharging**, and **ventilating methyl bromide**.
Ventilate and **Ventilation** mean the release of **methyl bromide** into the atmosphere.

Appendix D: Qualitative descriptors for risk/benefit assessment

D1 Assessing risks, costs and benefits qualitatively

This section describes how ERMA New Zealand addresses the qualitative assessment of risks, costs and benefits. Risks and benefits are assessed by estimating the magnitude and nature of the possible effects and the likelihood of their occurrence. For each effect, the combination of these two components determines the level of the risk associated with that effect, which is a two dimensional concept. Because of lack of data, risks are often presented as singular results. In reality, they are better represented by 'families' of data which link probability with different levels of outcome (magnitude).

D2 Describing the magnitude of effect

The magnitude of effect is described in terms of the element that might be affected. The qualitative descriptors for magnitude of effect are surrogate measures that should be used to gauge the end effect or the 'what if' element. Tables 1 and 2 contain generic descriptors for magnitude of adverse and beneficial effect. These descriptors are examples only, and their generic nature means that it may be difficult to use them in some particular circumstances. They are included here to illustrate how qualitative tables may be used to represent levels of adverse and beneficial effect.

The sample qualitative descriptors for effects on the market economy listed in the ERMA New Zealand technical guide to decision making[28] include representative numbers. These 'economic' descriptors were developed prior to the publication of the technical guide on identification and assessment of effects on the market economy,[29] which refines the approach that ERMA New Zealand applies to identifying and assessing economic effects. These numbers do not align well with the qualitative descriptors in the other categories (effects on the environment, effects on human health, and effects on society and communities), as they relate more to an event than an effect. In particular the numbers are unclear about how they take account of time (are they annual, or over the life of the activity) and they do not have a local, regional or national context.

ERMA New Zealand has adopted a revised set of qualitative descriptors for the magnitude of effect on the market economy, as shown below.

Table D1: Magnitude of adverse effects (risks and costs)

Descriptor	Examples of descriptions - Adverse
Minimal	Mild reversible short term adverse health effects to individuals in highly localised area

[28] ERMA New Zealand. 2004. *Decision Making: A Technical Guide to Identifying, Assessing and Evaluating Risks, Costs and Benefits*, ER-TG-05-01. Wellington: Environmental Risk Management Authority.

[29] ERMA New Zealand. 2005. *Assessment of Economic Risks, Costs and Benefits: Consideration of Impacts on the Market Economy*, ER-TG-06-01. Wellington: Environmental Risk Management Authority.

	Highly localised and contained environmental impact, affecting a few (less than ten) individuals members of communities of flora or fauna, no discernible ecosystem impact Local/regional short-term adverse economic effects on small organisations (businesses, individuals), temporary job losses No social disruption
Minor	Mild reversible short term adverse health effects to identified and isolated groups Localised and contained reversible environmental impact, some local plant or animal communities temporarily damaged, no discernible ecosystem impact or species damage Regional adverse economic effects on small organisations (businesses, individuals) lasting less than six months, temporary job losses Potential social disruption (community placed on alert)
Moderate	Minor irreversible health effects to individuals and/or reversible medium term adverse health effects to larger (but surrounding) community (requiring hospitalisation) Measurable long term damage to local plant and animal communities, but no obvious spread beyond defined boundaries, medium term individual ecosystem damage, no species damage Medium term (one to five years) regional adverse economic effects with some national implications, medium term job losses Some social disruption (e.g. people delayed)
Major	Significant irreversible adverse health effects affecting individuals and requiring hospitalisation and/or reversible adverse health effects reaching beyond the immediate community Long term/irreversible damage to localised ecosystem but no species loss Measurable adverse effect on GDP, some long-term (more than five years) job losses Social disruption to surrounding community, including some evacuations
Massive	Significant irreversible adverse health effects reaching beyond the immediate community and/or deaths Extensive irreversible ecosystem damage, including species loss Significant on-going adverse effect on GDP, long-term job losses on a national basis Major social disruption with entire surrounding area evacuated and impacts on wider community

Table D2: Magnitude of positive effects (benefits)

Descriptor	Examples of descriptions - Positive
Minimal	Mild short-term positive health effects to individuals in highly localised area Highly localised and contained environmental impact, affecting a few (less than 10) individuals members of communities of flora or fauna, no discernible ecosystem impact Local/regional short-term positive economic effects on small organisations (businesses, individuals), temporary job creation No social effect
Minor	Mild short-term positive health effects to identified and isolated groups

	Localised and contained positive environmental impact, no discernible ecosystem impact Regional positive economic effects on small organisations (businesses, individuals) lasting less than six months, temporary job creation Minor localised community benefit
Moderate	Minor health benefits to individuals and/or medium term health impacts on larger (but surrounding) community and health status groups Measurable benefit to localised plant and animal communities expected to pertain to medium term Medium term (one to five years) regional positive economic effects with some national implications, medium term job creation Local community and some individuals beyond immediate community receive social benefit.
Major	Significant positive health effects to localised community and specific groups in wider community Long-term benefit to localised ecosystem(s) Measurable positive effect on GDP, some long-term (more than five years) job creation Substantial social benefit to surrounding community, and individuals in wider community.
Massive	Significant long term positive health effects to the wider community Long-term, wide spread benefits to species and/or ecosystems Significant on-going effect positive on GDP, long-term job creation on a national basis Major social benefit affecting wider community

D3 Determining the likelihood of the end effect

Likelihood in this context applies to the composite likelihood of the end effect, and not either to the initiating event, or any one of the intermediary events. It includes:

- the concept of an initiating event (triggering the hazard), and
- the exposure pathway that links the source (hazard) and the area of impact (public health, environment, economy, or community).

Thus, the likelihood is not the likelihood of an organism escaping, or the frequency of accidents for trucks containing hazardous substances, but the likelihood of the specified adverse effect[30] resulting from that initiating event. It will be a combination of the likelihood of the initiating event and several intermediary likelihoods[31]. The best way to determine the likelihood is to specify and analyse the complete pathway from source to impact.

Likelihood may be expressed as a frequency or a probability. While frequency is often expressed as a number of events within a given time period, it may also be expressed as the

[30] The specified effect refers to scenarios established in order to establish the representative risk, and may be as specific as x people suffering adverse health effects, or y% of a bird population being adversely affected. The risks included in the analysis may be those related to a single scenario, or may be defined as a combination of several scenarios.

[31] Qualitative event tree analysis may be a useful way of ensuring that all aspects are included.

number of events per head of (exposed) population. As a probability, the likelihood is dimensionless and refers to the number of events of interest divided by the total number of events (range 0–1).

Table D3: Likelihood

Descriptor	Description
Highly improbable	Almost certainly not occurring but cannot be totally ruled out
Very unlikely	Considered only to occur in very unusual circumstances
Unlikely (occasional)	Could occur, but is not expected to occur under normal operating conditions
Likely	A good chance that it may occur under normal operating conditions
Highly likely	Almost certain, or expected to occur if all conditions met

D4 Using magnitude and likelihood to construct risk

Using the magnitude and likelihood tables a matrix representing a level of risk can be constructed (Table D4).

Table D4: Level of risk

	Magnitude of effect				
Likelihood	**Minimal**	**Minor**	**Moderate**	**Major**	**Massive**
Highly improbable	A	A	A	B	B
Very unlikely	A	A	B	B	C
Unlikely	A	B	B	C	C
Likely	B	B	C	C	D
Highly likely	B	C	C	D	D

The level of risk/benefit can be assigned as follows in Table D5.

Table D5: Assignment of level of risk/benefit

A	Negligible
B	Low
C	Medium
D	High

Appendix E: Abbreviations and acronyms

ACVM Act	Agricultural Compounds and Veterinary Medicines Act 1996
CSL	controlled substance licence
CUE	critical use exemption
DOL	Department of Labour
EELS	environmental exposure limits
HSNO Act	Hazardous Substances and New Organisms Act 1996
ISO	International Organization for Standardization
LOAEL	lowest observable adverse effect level
MAFBNZ	Ministry of Agriculture and Forestry (MAF) Biosecurity New Zealand
NOAEL	no-observed adverse effect level
NZFPIA	New Zealand Fresh Produce Importer Association
OEHHA	Office of the Environmental Health Hazard Assessment
PEL	permissable exposure limit
PIDs	photoionisation detectors
PMANZ	Pest Management Association of New Zealand
QPS	quarantine on pre-shipment
RMA	Resource Management Act 1991
RPE	respiratory protective equipment
STIMBR	Stakeholders in Methyl Bromide Reduction
TEL	tolerable exposure level
UV	ultra violet
WES	workplace exposure standard

TAB 4

Decision No. W 008 /2005

ORIGINAL

IN THE MATTER	of the Resource Management Act 1991
AND	
IN THE MATTER	of appeals pursuant to Cl 14 of the First Schedule to the Act
BETWEEN	FOREWORLD DEVELOPMENTS LTD, BAYSIDE VILLAS LTD and ROGERS ROAD DEVELOPMENTS LTD (RMA 101/03, ENV W031/04, ENV W032/04, ENV W164/04) M KILKENNY (ENV W029/04) ROGERS ROAD DEVELOPMENTS LTD (ENV W030/04) FOREWORLD DEVELOPMENTS LTD and BAYSIDE VILLAS LTD (ENV W125/04) Appellants
AND	THE NAPIER CITY COUNCIL Respondent

BEFORE THE ENVIRONMENT COURT

Environment Judge C J Thompson

Environment Commissioner J D Rowan

Environment Commissioner M P Oliver

HEARING at Napier on 26 and 27 January 2005

COUNSEL/APPEARANCES:

A K Petersen for all appellants

M B Lawson and H I Kyle for the Napier City Council

V J Rive for Transit New Zealand – s274 party in W030/04, W031/04, W032/04 and W164/04

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

DECISION

Introduction

[1] The City of Napier Proposed District Plan was notified in November 2000. Many submissions and further submissions were received, and hearings on those began in February 2002. Decisions have been released in groups: those relevant to these appeals were released in January 2003, December 2003, June 2004 and September 2004. All but one of these appeals relate to land and resource issues at Bay View, a small, now semi-rural, settlement north of Napier City.

[2] Bay View has two rather distinct parts. There is a coastal strip between the shoreline and SH2, bisected close to the shoreline by the Napier–Gisborne railway. The other straddles SH2, with a small residential and commercial village to the west of the highway. The total population of the Bay View area was of the order of 1755 at the 2001 census, and its infrastructure is typical of a small *county* settlement, which is what it was before the local body amalgamations of 1989, when it came under the jurisdiction of Napier City. It has a satisfactory reticulated water supply. With the exception of the highway though, its roads are generally sealed but high-crowned with stormwater drainage provided, if at all, by ditches and natural soakage. With the exception of stage one of a sewage scheme servicing (mostly) the village to the west of the highway, wastewater disposal is by way of septic tanks, meaning that residential lot sizes are necessarily large.

[3] Under the Operative Bay View Subdistrict Plan, parts of Bay View were zoned *Deferred Residential*:- ie deferred pending the availability of adequate infrastructure. It is fair to say that that zoning appears to have given rise to expectations that were not fulfilled and probably will not be for some time, if at all.

The Appellants' Positions

[4] Mr Petersen does not have a personal interest in all of the pieces of land in respect of which he seeks various forms of relief in these appeals. The owners of those pieces of land appear to have been content to lend their names to the appeals and to allow Mr Petersen to conduct them as their agents. That may have consequences for them in the event that the appeals prove to be without substance. Mr Petersen describes himself as a *Property Development Consultant* and he certainly does have a very thorough knowledge of the recent history of planning in the area. We have to say that we have come to the view though that his

knowledge may not be matched by wisdom and discernment in being able to choose between issues worth pursuing on appeal, and those having no relevant merit. In general terms, he described his *biggest point* as a criticism of the Council treating all parts of Bay View similarly in terms of servicing requirements. In Mr Petersen's view the servicing issues for the coastal strip are different from those for the inland areas.

Jurisdiction

[5] In respect of all of these appeals Mr Lawson raised the point that what appeared to be now sought as relief was significantly in excess of, or different from, what had been sought in the original submissions. He therefore submitted that the Court should not entertain the applications for that relief.

[6] Mr Petersen's positions seemed to have moved through a number of permutations in the various evidence-in-chief and rebuttal briefs he had lodged with the Court. We had found it all but impossible, pre-hearing, to know just what relief it was he was actually now seeking. We therefore adjourned the hearing to give him an opportunity to refine the relief into *single page* format for each appeal. He did that, and it seemed apparent enough that Mr Lawson was substantially right. Accordingly we confined Mr Petersen to the relief sought in the original submissions. We should add though that had we allowed him to pursue all of what he was eventually seeking, the end result would not have improved for him. His positions were fundamentally flawed.

Appeals or issues withdrawn at the hearing

[7] During the course of the hearing, Mr Petersen withdrew appeal W164/04 altogether. This had sought a declaration that the Council had removed the Deferred Residential Zones at Bay View (as they appeared in the Operative Plan) without an adequate s32 analysis. It also sought, effectively, orders reinstating that zoning in the Proposed Plan. Mr Petersen accepted that both before and since notification and hearing of submissions there had in fact been a significant number of reports amounting, in the aggregate, to a thorough analysis of all the relevant issues.

[8] He also withdrew, during the hearing, the part of appeal W101/03 relating to the wording of the Rule about communal wastewater treatment systems. He accepted that on a

proper reading of the Council's decisions, the relief he had originally sought had been obtained.

[9] In respect of appeal W125/04 he accepted that, on a proper reading of s112 of the Resource Management Amendment Act 2003, the Council had been correct in specifying a 15 working day period for lodging appeals. He accepted that he had been well out of time in lodging the appeal and he did not pursue his application for a waiver. He acknowledged that the appeal was therefore invalid. Formally, it is struck out.

Appeal W101/03 – names of zones

[10] We can deal first with the remaining relief sought in appeal W101/03. That sought the amendment of names given to zones in the Bay View area by the Proposed Plan. Specifically, it sought that *Rural Settlement* be named *Rural Residential* and that the present *Rural Residential* be renamed *Countryside Living*. When asked, Mr Petersen was unable to indicate how using the names he prefers would in any degree better promote the sustainable management of natural and physical resources. We therefore do not embark on it at all. This is not an issue that can possibly justify the expenditure of public money brought about by the lodging and bringing to hearing of an appeal before this Court.

Appeals W029/04, 030/04, 031/04 and 032/04 – rezoning of Bay View land

[11] Appeal W030/04 sought the rezoning of land in the coastal strip of Bay View, known as the Rogers Road land, from *Rural Settlement* to *Residential*. Appeals W029/04 and W031/04 sought the rezoning of land at Sheehan Street (close to the village area of Bay View) from *Rural Residential* to *Rural Settlement*.

[12] Appeal W032/04 also sought a rezoning from *Rural Residential* to *Rural Settlement* in respect of a block of land at Buchanan Street, on the west side of SH2, south of the main village.

[13] We should add that Mr Petersen's amended or further relief, which we held was outside jurisdiction, was to add a deferral of the full range of permitted, controlled etc activities for the Residential or Rural Settlement zones by way of an express Deferred zoning or by way of a zone Overlay (which effectively came to the same thing).

The real complaint

[14] It became quite apparent that behind all of this was the question of providing the necessary infrastructure to give Bay View (and in Mr Petersen's view, particularly the coastal strip) something close to, if not full, suburban standards in roading, stormwater and particularly wastewater management. When and if that occurs, the pieces of land the subject of the appeals can be considered for development to their full potential for residential purposes. At p50 of the Transcript of hearing, the following passage records an exchange between Mr Petersen and the Court:

> Q. Mr Petersen, is it too simplistic or perhaps too blunt to suggest that if the Council's decisions had been otherwise and there was by now, or at least within reasonable view, a reticulated sewage system through Bay View, or at least the coastal part of Bay View, then the planning issues would take care of themselves and we wouldn't need to be here?---
> A. That's probably reasonably close to the mark, yes.
> Q. So really at the core of all of this we can't get away from the fact that your real issue with the Council is its failure to, or its deferral of, getting on with the sewage system?---
> A. That's a fairly fundamental issue, Sir.
> Q. I think you have agreed with Mr Lawson that decisions about spending that sort of money are decisions that are outside the Resource Management Act and the things that we have jurisdiction over?---
> A. I agree with that, Sir.

In some respects, little more need be said, but it may be more helpful if we do expand on the somewhat on our reasons for holding that these appeals are fundamentally flawed.

[15] It is bad resource management practice and contrary to the purpose of the Resource Management Act – to promote the sustainable management of natural and physical resources; to zone land for an activity when the infrastructure necessary to allow that activity to occur without adverse effects on the environment does not exist, and there is no commitment to provide it. In *McIntyre v Tasman District Council* (W 83/94) the Court said:

> We agree with Mr Robinson that in this case the extension of services such as the sewage system and roading should be carried out in a co-ordinated progression. We hold that if developments proceed on an ad hoc basis they cannot be sustainably managed by the Council – an aspect which is not commensurate with section 5 of the Act.

There are similar comments in decisions such as *Prospectus Nominees v Queenstown-Lakes District Council* (C 74/97), *Bell v Central Otago District Council* (C 4/97) and confirmation that the approach is correct in the High Court decision of *Coleman v Tasman District* Council [1999] NZRMA 39.

[16] The Council is not prepared to commit to the provision of sewage infrastructure for the whole of Bay View. The present proposal to service Bay View has progressed as far as what is known as Stage 1. The Council was able to secure the use of a disused diesel fuel pipeline which originally took fuel from Napier City to the Whirinaki Power Station. The portion of that between Bay View and the northern end of the City's sewage reticulation at West Shore has been slip-lined and connected. That line has sufficient capacity to service Stage 1 but is not adequate to service the coastal strip or the area outside the main village.

[17] The Council has undertaken, and commissioned a very large number of strategic and infrastructure studies. There has been an Urban Growth Strategy and an Essential Services Report, to name only two, and they have been reviewed and updated over time. After much analysis and costings, the Council has decided that it cannot justify the capital cost of full sewage reticulation, which originally was proposed to service 470 existing properties, with provision for some 300 more in the future. Stages 2 and 3 of that original proposal have been deferred indefinitely. The Council has undertaken to reconsider that position if and when circumstances change. One part of the *circumstances* is the willingness of the local community to pay the substantial connection fees which would be necessary for the scheme to proceed. But in the meantime, the Council has decided that it will spend its available funds on developing infrastructure to service other areas of residential land around Napier City.

[18] Similarly, the Council decided that it had other priorities which took precedence over providing a higher standard of roading for the residential portions of Bay View.

[19] Mr Petersen disputes the accuracy and validity of the costings, and does not agree with the priorities the Council has settled upon. But as he acknowledges, decisions about priorities for spending on infrastructure are matters for the Council to decide. The Council's annual plan sets committed expenditure and the Long Term Council Community Plan gives indicative expenditure for a period of up to three years and the future. Those sorts of policy decisions are ones for which the Council may be politically accountable, but neither they nor costing calculations are decisions which we have any power to investigate or to rule upon.

[20] It does not answer the point to say, as Mr Petersen does, that if there is some form of deferred zoning, issues about the provision of infrastructure for more intensive levels of development can be considered as part of any necessary resource consent application. If there

is a deferred zoning, by whatever name, and no intention on the part of the Council to provide infrastructure within the life of the Plan, the problems identified in *McIntyre v Tasman District Council* immediately emerge. Unmeetable expectations are raised and the Council is put under pressure to spend money it has decided, as a matter of managing the City in an integrated fashion, to commit elsewhere. That is the antithesis of the function of integrated management of resources imposed on territorial authorities by the RMA. Mr Petersen wants, in essence, a return to the contents of the existing Plan and its provisions for the deferred zoning of parts of the settlement. The short answer to that wish is that time has moved on, and the lessons of giving land deferred zoning when there can be no commitment to providing the necessary infrastructure have been learnt. Deferred zoning has the distinct potential to pre-empt analysis that is still to be done. It is to be borne in mind also that there are more issues than just infrastructure to be considered before more intensive zoning might be appropriate. For instance, issues of coastal erosion, or flooding hazard (depending on the exact locality) might be relevant considerations in achieving the Council's responsibilities for integrated management.

Transit's position

[21] Transit's concern was about the potential for unintegrated development to place SH2 under capacity and access pressure. That is a valid concern, for all the reasons we have discussed.

Result

[22] There is no burden of proof in reference appeals, in the sense that the provisions of the Proposed Plan under scrutiny are not presumed to be correct, with the appellant being required to displace that presumption. But in our judgement, nothing that Mr Petersen put forward was an improvement, in terms of the purpose of the legislation, over what is in the Proposed Plan. Indeed what he suggested was demonstrably inferior and would lead to poor outcomes in terms of sustainable management.

[23] To summarise, the end result is as follows:

- Appeal W164/04 is withdrawn.
- Appeal RMA101/03 is withdrawn as to the relief relating to Rule about communal wastewater systems, and the balance of the relief sought is dismissed.
- Appeal W125/04 is struck out as being lodged out of time.

- Appeals W029/04, 030/04, 031/04 and 032/04 are dismissed.

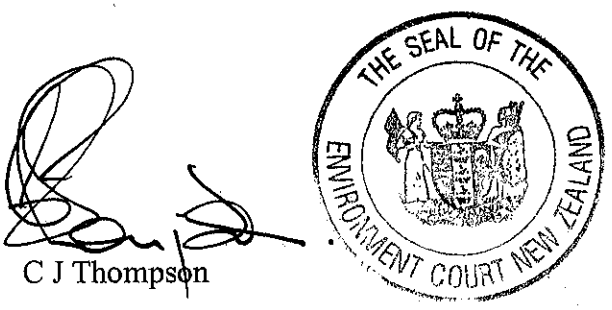
The relevant decisions of the Council are confirmed accordingly.

Costs

[24] Any application for costs should be lodged and served within 15 working days from the release of this decision, and any response lodged and served within a further 10 working days.

DATED at Wellington this 2nd day of February 2005

For the Court



C J Thompson

Environment Judge

Decision No. C 174 /2001

IN THE MATTER of the Resource Management Act 1991 ("**the Act**")

AND

IN THE MATTER of a reference pursuant to Clause 14 of the First Schedule to the Act

BETWEEN **B E GUTHRIE**

(RMA 968/99)

Referrer

AND **DUNEDIN CITY COUNCIL**

Respondent

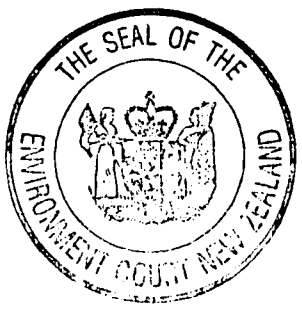
BEFORE THE ENVIRONMENT COURT

Environment Judge J A Smith presiding
Environment Commissioner I G C Kerr
Environment Commissioner R S Tasker

HEARING at DUNEDIN on the 7th and 8th days of June 2001

APPEARANCES

Mr A More for referrer
Mr M Garbett for respondent



DECISION

Introduction

[1] This reference relates to zoning of land contained in Certificate of Title 11A/183 (**the site**) which was zoned Rural in the notified Dunedin City Plan. Dr B E Guthrie (the site owner) made a submission to the plan seeking to rezone the land from Rural to Residential. That submission was rejected by the Council, which confirmed its zoning as Rural. The site owner filed a reference against that decision seeking that the Rural and Residential zoning boundary line be co-located with the Landscape Protection Area line and that the site be rezoned from Rural to Residential 1.

Site Description

[2] The land subject to this reference is located at 45 Irvine Road, The Cove, Otago Peninsula, and has an area of 2.0716 hectares. The site is rectangular in shape and includes steep slopes on both the northern and southern ends of the property. It is bordered on the Irvine Road side by Residential 1 zoned land. The remaining surrounding land is zoned as Rural. The subject site is hatched and marked as "A" on Annexure A.

[3] The site was zoned Rural A in the Transitional District Plan (Dunedin Section) and is zoned Rural in the Proposed Plan. It currently has one residential unit on the site, for which a Certificate of Compliance was issued in 1995.

Relevant Provisions of the Resource Management Act

[4] In preparing the Proposed District Plan, the council and now the Environment Court under section 290 of the Resource Management Act (**the Act**) must consider a range of matters. The following matters are of particular relevance to this reference.

[5] Part II of the RMA establishes the purpose and principles of the Act. Of particular importance to this reference are the following sections:

- Section 5(1) which states that the purpose of the Act is to "*promote the sustainable management of natural and physical resources*".

- Section 5(2) which states that:

"... *sustainable management means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well being and for their health and safety while –*

...

(c) Avoiding, remedying, or mitigating any adverse effects of activities on the environment."

- Section 7(c) which requires that particular regard be given to the *"maintenance and enhancement of amenity values"*.

- Section 7(f) which requires that particular regard be given to the *"maintenance and enhancement of the quality of the environment"*.

- Section 31 of the Act which identifies the functions of territorial authorities in relation to the purpose of the Act. These functions include:

"*(a) The establishment, implementation, and review of objectives, policies, and methods to achieve integrated management of the effects of the use, development, or protection of land and associated natural and physical resources of the district:*

(b) The control of any actual or potential effects of the use, development, or protection of land, including for the purpose of the avoidance or mitigation of natural hazards ...

(c) The control of subdivision of land."

- Section 32(1) of the Act, which requires that before a Council includes a provision in its plan, it must:

"*(a) Have regard to –*

(i) The extent (if any) to which any such objective, policy, rule, or other method is necessary in achieving the purpose of this Act; and

(ii) Other means in addition to or in place of such objective, policy, rule, or other method which, under this Act or any other enactment, may be used in achieving the purpose of this Act, including the provision of information, services, or incentives, and the levying of charges (including rates); and

(iii) *The reasons for and against adopting the proposed objective, policy, rule, or other method and the principal alternative means available, or of taking no action where this Act does not require otherwise; and*

(b) *Carry out an evaluation, which that person is satisfied is appropriate to the circumstances, of the likely benefits and costs of the principal alternative means including, in the case of any rule or other method, the extent to which it is likely to be effective in achieving the objective or policy and the likely implementation and compliance costs; and*

(c) *Be satisfied that any such objective, policy, rule, or other method (or any combination thereof) –*

(i) *Is necessary in achieving the purpose of this Act; and*

(ii) *Is the most appropriate means of exercising the function; having regard to its efficiency and effectiveness relative to other means.*"

- Section 72 of the Act which states that:

"*The purpose of the preparation, implementation and administration of district plans is to assist territorial authorities to carry out their functions in order to achieve the purpose of this Act.*"

- Section 74 of the Act which states in subsection (1) that:

"*A territorial authority shall prepare and change its district plan in accordance with its functions under section 31, the provisions of Part II, its duty under section 32, and any regulations.*"

- Section 75 of the Act which states that:

"*(1) A district plan shall make provision for such of the matters set out in Part II of the Second Schedule as are appropriate to the circumstances of the district, and shall state –*

(a) The significant resource management issues of the district; and

(b) The objectives sought to be achieved by the plan; and

(c) The policies in regard to the issues and objectives, and an explanation of those policies; and

(d) *The methods being or to be used to implement the policies, including any rules; and*

(e) *The principal reasons for adopting the objectives, policies, and methods of implementation set out in the plan ...*"

- Section 76(1) of the Act which states that:

"*A territorial authority may, for the purpose of –*

(a) Carrying out its functions under this Act; and

(b) Achieving the objectives and policies of the plan, -

include in its district plan rules which prohibit, regulate, or allow activities."

- Part II of the Second Schedule includes the following as matters related to districts:

"*(1) Any matter relating to the management of the use, development, or protection of land and any associated natural and physical resources for which the territorial authority has responsibility under this Act, including the control of –*

(a) Any actual or potential effects of any use of land described in section 9(4)(a) to (e), including –

(i) For the purpose of the avoidance or mitigation of natural hazards; ..."

Relevant Issues, Objectives and Policies in the Proposed District Plan

Sustainability Section

[6] The sustainability section of the proposed plan identifies the over-arching resource management issues for Dunedin and sets out the approach used for addressing them. The objectives and policies of this section provide the framework for the other sections, which in turn break the matters identified in the sustainability section down into more specific issues.

[7] Apart from the Kirkland[1] reference, there are no references which affect the issues, objectives and policies of the sustainability section.

[1] ***Kirkland v Dunedin City Council*** – AP 194/00, 15 November 2000, decision of the Court of Appeal released 29 August 2001 CA121/01 after this hearing but prior to delivery of decision.

Issue 4.1.1	Objective 4.2.1	Policy 4.3.1
The residents of Dunedin seek to retain and enhance the existing character and amenity of the City and surrounding areas.	Enhance the amenity values of Dunedin. **Explanation** ... These include: • spaciousness and separation of activities in the rural area.. • urban and rural landscapes • natural and recreation areas...	Maintain and enhance amenity values.
Issue 4.1.2	**Objective 4.2.2**	**Policy 4.3.2**
The level of infrastructural service that is appropriate to an area reflects the density and intensity of development anticipated in that area in the future.	Ensure that the level of infrastructural services provided is appropriate to the potential density and intensity of development and amenity values of the area.	Avoid developments which will result in the unsustainable expansion of infrastructure services.
	Objective 4.2.3	**Policy 4.3.5**
	Sustainably manage infrastructure.	Require the provision of infrastructure services at an appropriate standard.
Issue 4.1.4	**Objective 4.2.5**	**Policy 4.3.7**
The use and development of the natural and physical resources of the City has the potential to cause adverse effects, not all of which are readily apparent.	Provide a comprehensive planning framework to manage the effects of use and development of resources.	Use zoning to provide for uses and developments which are compatible within identified areas.
		Policy 4.3.8
		Avoid the indiscriminate mixing of incompatible uses and developments.
		Policy 4.3.9
		Require consideration of those uses and developments which: (a) Could give rise to adverse effects. (b) Give rise to effects that cannot be identified or are not sufficiently understood at the time of preparing or changing the District Plan.
		Policy 4.3.10
		Adopt an holistic approach in assessing the effects of the use and development of natural and physical resources.

Rural Section

[8] Apart from the Kirkland reference, there are no references which affect the issues, objectives and policies of the sustainability section.

Issue 6.1.1	Objective 6.2.1	Policy 6.3.2
Certain activities have the potential to adversely affect the amenities of the Rural zone. **Explanation:** The rural area has a number of qualities which contribute to the amenity values of the area. These qualities include openness, quietness, outlook and privacy. The effects of some activities have the potential to detract from the amenity of the rural area. These issues of concern include the density of residential development and subdivision, noise, vehicle movements, visual impact, lighting, odour and inadequate disposal of effluent...	Maintain and enhance the amenity values of the rural area. **Explanation:** ... The values of most importance are: • Openness, character and spaciousness, with a low incidence of buildings • A clear visual distinction between urban, rural residential and rural areas...	Protect the rural amenity by controlling the adverse effects of activities. **Explanation:** The amenity values associated with the rural area of Dunedin are characterised by the rural outlook, spaciousness, privacy and quietness. There is a low incidence of residential and other activities normally associated with urban Dunedin. ... The retention of this amenity so close to the City centre is an essential element of Dunedin's character. This environment is very sensitive to both the one-off and cumulative effects of residential and other urban activities. The impact is on both the immediate vicinity of the development and the wider erosion of the rural amenity. ... This separation not only enhances the immediate environment of those who live in the zone, but preserves the character and amenity of rural Dunedin for those who living in the urban areas that rely on the countryside as an attractive backdrop to the City ...
		Policy 6.3.7
		Minimise the adverse effects of buildings and structures on the rural environment. **Explanation:** Buildings can have an adverse effect in terms of their effect on the openness of the rural environment, effluent disposal and visual effects. Standards are designed to avoid, remedy or mitigate these potential adverse effects.
Issue 6.1.4	**Objective 6.2.2**	**Policy 6.3.7**
The expansion of urban activities can compromise the sustainability of rural areas. **Explanation:** Within Dunedin there is a clear distinction between rural and urban areas, both in terms of the activities that take place within each, and the sharpness of boundaries between them. It is important to retain the	Maintain and enhance the ability of the rural resources to meet the needs of future generations. **Explanation:** Council is required to sustainably manage the natural and physical resources of the rural area to provide for the needs of future generations. ... In order to maintain and enhance the ability of rural	As above.

amenity of each area and to recognise the nature of the activities that take place in each. Where activities associated with urban areas expand onto adjoining rural land, the sustainability of that land can be compromised directly by the physical occupation of the rural land by urban activities, and also indirectly through increasing land values placing pressure on the future use of the rural land.	resources to meet the needs of present and future generations, it will be necessary to ensure that those sites used solely for residential uses do not spread into the rural areas of the City.	

Hazards and Hazardous Substances Section

[9] Apart from the Kirkland reference, there are no references which affect the issues, objectives and policies of the hazards and hazardous substances section.

Issue 17.1.1	**Objective 17.2.1**	**Policy 17.3.2**
The City's geology and topography are such that natural hazards may occur. **Explanation:** Hazard susceptibility varies across the City. The effects of hazards vary depending on where they occur, how many people could be affected and on the type of hazard. The significant natural hazards affecting or likely to affect the City are ... land instability ...	Ensure the effects on the environment of natural and technological hazards are avoided, remedied or mitigated. **Explanation:** The Council has an obligation under the Act to control the effects of the use, development or protection of land including avoiding or mitigating the effects of natural hazards. Buildings, structures and people need to be protected from hazards. The Council must ensure it is able to respond adequately to the threat and effects of hazards within the City. This includes ... ensuring any proposed subdivision, land use activities or development will not cause or be affected by hazards. In assessing the effects of hazards, attention will be given to the acceptable level of risk and any potential adverse effects. ...	Control building and the removal of established vegetation from sites or from areas which have been identified as being, or likely to be, prone to erosion, falling debris, subsidence or slippage. **Explanation:** Land movement affects significant areas of the City and, in many instances, stabilisation would be difficult. Intensive development of such areas is undesirable ...
Issue 17.1.5	**Objective 17.2.1**	**Policy 17.3.2**
Effective management needs to be implemented to avoid, remedy or mitigate the effects of hazards.	As above.	As above.

Subdivision Activity Section

[10] The entire subdivision activity section is subject to a number of references, including that of the NZ Institute of Surveyors.

Issue 18.1.3	Objective 18.2.2	Policy 18.3.6
Some land has physical limitations which may be worsened by inappropriate subdivision. **Explanation** In some cases land is unsuitable for conventional subdivision and development ...	Ensure that the physical limitations of land and water are taken into account at the time of the subdivision activity. **Explanation** The design of a subdivision shall take into account the physical limitations of an area, including areas of instability, ...	Refuse consent to the subdivision of unsuitable land. **Explanation** Notwithstanding section 106 of the Act, should the Council be of the opinion that the land is unsuitable for subsequent use because of natural and/or technological hazards, the subdivision will be refused.

Residential Section

Issue 8.1.4	Objective 8.2.4	Policy 8.3.4
New residential development beyond the urban/rural fence can have a detrimental effect on the sustainability of the urban service infrastructure. **Explanation** New residential developments can place new and increased demands on existing urban service infrastructure. These demands have the potential to lead to upgrading or extensions to existing services in an inefficient manner. This poses a monetary cost, and a reduction in the quality of service. ... Development and land use activities need to be managed to ensure the long term sustainability of the urban service infrastructure.	Ensure that the existing urban service infrastructure servicing residential areas is sustained for the use of future generations. **Explanation** The urban service infrastructure of residential areas is a significant physical resource which contributes to the efficient and effective functioning of communities. It is imperative that this resource be sustained for future generations in a manner that is affordable. To ensure that the quality of the urban service infrastructure is sustained, it is essential to avoid all unnecessary upgradings or extensions.	Ensure that the density of new development does not exceed the design capacity of the urban service infrastructure. **Explanation** Much of the City's urban service infrastructure has been designed to meet a population density of 35 persons per gross hectare throughout the City. Future development...must not be allowed to develop at a density which would require a major urban service infrastructure upgrade to cope with increased densities. The physical urban service infrastructural resource must be managed in a way and at a rate which sustains that resource for future generations. ...

Other Relevant District Plan Provisions

[11] Rule 6.5.2 (Permitted Activities) of the Rural zone of the proposed district plan states that:

> "*The following activities are permitted activities provided that they comply with the conditions in Rule 6.5.3:*
>
> ..
>
> *(iii) Residential Activity at a density of one residential unit per site provided that the minimum area of the site is not less than 15 ha.*"

[12] Rule 8.71 (Permitted Activities) of the Residential 1 zone of the proposed district plan states that:

> "*The following activities are permitted activities provided that they comply with the relevant conditions in Rule 8.7.2 of the Residential 1 Zone:*
>
> *(i) Residential Activity at a density of not less than 500m² of site area per residential unit provided that a single residential unit may be erected on an existing site of any size.*
>
> ..."

Issues for decision

[13] The issues before the Court as refined during the hearing process are:

(a) What is the appropriate zone for this land?
(b) It is acknowledged that the amenity of the site is relevant to its categorisation within the zone and the identification and relevance of those amenity features is a key issue.
(c) Whether land stability issues are a key issue to determining zoning, and if so, what impact this has upon appropriate zoning.

[14] On studying these issues it can be seen that none of the policies, objectives and rules of the plan themselves were under scrutiny before this Court. It was accepted that the issue was which of the available zones most properly accommodated the site. It was accepted by both parties that the Court in considering such a reference commences with a "*clean sheet of paper*". There is no presumption in favour of any one zoning. In particular its inclusion in the Rural zone at this stage does not amount to a presumption that Rural zoning should continue unless good cause for an alternative is discovered.

[15] We do not understand there to be any dispute with the quotation from the decision of Sangam Investments Limited v The Franklin District Council[2]:

> "*On a reference of provisions of a planning instrument, no party has a formal onus of proof, there is no presumption that the respondent's policy is necessarily appropriate or correct, and the proceedings are more in the nature of an enquiry into the merits in accordance with the statutory objectives and existing provisions of policy statements and plans.*" [Leith v Auckland City Council [1995] NZRMA 400, 408; North Shore City

[2] Environment Court A 115/97, 8 October 1997.

Council v Auckland Regional Council [1997] NZRMA 59, 69; endorsed on appeal: Green and McCahill Properties v Auckland Regional Council (18 August 1997, Salmon J, HC Auckland HC 4/97 P8).]

Zoning is a method which may be used in a district plan for promoting sustainable management of natural and physical resources [Batchelor v Tauranga District Council (1992) 1 NZRMA 266, 269; 1A ELRNZ 100, 108 (not reversed on appeal): 2 NZRMA 137; 1A ELRNZ 221]. Where a district plan uses zoning as a method of implementing objectives and policies, the zoning is given effect by district rules. A rule in a proposed plan has to be necessary in achieving the purpose of the Act, being the sustainable management of natural and physical resources (as those terms are defined); it has to assist the territorial authority to carry out its functions of control of actual and potential effects of the use, development or protection of land in order to achieve the purpose of the Act; it has to be the most appropriate means of exercising that function; and it has to have a purpose of achieving the objectives and policies of the plan [Nugent Consultants v Auckland City Council [1996] NZRMA 481, 484; 2 ELRNZ 254, 257].

The Court also said, later[3]*:*

> *"Nothing in this decision should be taken to question the provisions of the proposed regional policy statement or the urban growth strategy of the proposed district plan – they are not challenged by this appeal. Nor should this decision be taken as an indication that the boundary between Residential zoning in Pukekohe and the Rural zoning surrounding it is generally vulnerable. The only issue which we have considered is whether the subject block should be rezoned Residential instead of Rural. This does not raise questions of high principle, but a practical approach to a detail of the Residential – Rural interface."*

[16] With respect we consider that statement is entirely apposite to the situation before this Court. The land in question is accessed through, and has one boundary along, the Residential 1 zone. It is also connected on three boundaries to land which is zoned Rural. Servicing of the site is no longer an issue and the evidence advanced before us related to the two critical issues of the amenity of the site and land stability.

[3] Supra at page 12.

Jurisdiction of the Court

[17] It is accepted by the parties to this case that the most restrictive provisions sought and available to the Court in this case is the adoption of the Rural zoning as utilised by the district council. The relevant rules, which have already been cited, would make any further residential activity on the site non-complying. The current residence residents would have existing use rights under section 10 of the Act but any further development would require consent as a non-complying activity. The Residential 1 zoning on the other hand is the most liberal provision that the Court could impose, which would permit residential development on the site as of right. It would also permit subdivision of the site as a restricted discretionary activity down to a theoretical 500 m^2 per site, provided a number of other requirements could be satisfied. We were told that there is a reference against the subdivision provisions seeking greater liberalisation of the controlled activities and a relaxation of some of the performance standards.

[18] Both parties accepted that there is a continuum between these positions which relevantly includes the potential to zone the property as Residential 6 and fix some appropriate standards as to section size and other matters. This has been used in several other cases subject to reference and consists of a number of disparate areas with different requirements, whose needs have been reflected by special provision within Residential 6 zones. If this site was to be included in the Residential 6 zone it would require the inclusion of an explanatory statement and performance standards in relation to the particular area. In evidence this was criticised as being a spot zoning and inappropriate.

[19] A zoning more restrictive than Residential 6 zoning but less restrictive than Rural zoning would be the categorisation of the site as Rural/Residential. This was not sought by any of the parties, although some of the rules would fit the site. In particular the minimum site area of two hectares appears to include this site which would make the existing activity complying. The major difficulty is that the Rural/Residential zone is provided for larger areas completely encapsulated within Rural zones and does not constitute a single site as would be the case here.

[20] It was accepted by the parties that the overall test for the Court is under section 5 of the Act, namely:- to enable parties to undertake activities while avoiding, remedying or mitigating adverse effects. Accordingly, the appropriate zone is that which has the most liberal provisions while adequately avoiding, remedying or mitigating adverse effects. It was accepted by both parties that the use of the word "*necessary*" in s.32 relates to that which is

expedient or desirable. Mr More for the referrer distills from the case law the following propositions:

(a) The Council has to establish that the zoning is necessary (in the sense of desirable or expedient) in achieving the purpose of the Act;
(b) It has to assist the Council to carry out its functions under s.31;
(c) It has to be the most appropriate means of exercising that function (i.e. it meets the section 32 test);
(d) It has to have the purpose of achieving the objectives and policies of the plan.

[21] We do not understand those matters to be contested by the Council and we agree that it represents a clear path for the Court in this case.

[22] Before proceeding to consider those various elements, we need to deal with the two particular issues raised by the parties in this case, namely land stability and amenity values.

Land Stability

[23] It was the basic contention of the Council that it was necessary to zone this land Rural in order to ensure that adverse effects on potential purchasers or residents of the site were avoided. This was to be achieved by not providing for permitted or controlled development on the site which could allow the issue of land stability to be overlooked.

[24] All parties accepted that there was a land stability issue on certain portions of the site. After cross-examination of the expert witnesses, we are satisfied that there was agreement between those experts as to the area of concern. We attach to this decision Annexure B a copy of a photograph montage showing the area to the rear of the current residence which is subject to instability, springs (and previous slips). All parties agreed that that land generally (although not in all circumstances) is unsuitable for development. We also understood the evidence of all parties to agree that the provision of accessways and other services through that area should be avoided or carefully considered before being undertaken.

[25] There is a further area of land to the front of the existing home which was created by spreading of spoil by machinery from the house site and driveway onto the area along the western boundary and further into the site. We were told that the fill depth was around 1 to 1.5 metres and that construction directly upon that without further testing would be inadvisable. Again the experts did not appear to disagree. Further we understood the experts to accept that resolution was relatively simple, by designing special foundations,

taking steps to properly test the subsoil or stripping away or recompacting that subsoil. The issues did not appear to be instability but merely engineering issues which will require further investigation before a home could be safely constructed. We are satisfied that this is in a different category to the unstable area identified to the rear of the existing home.

[26] Mr G J Ryan, a Consulting Geologist called by the referrer, indicated that at least 60% of the site was suitable for development. Mr I G Walsh, a Geotechnical Engineering Consultant called by the referrer, and Mr R K Macleod, Civil Engineer called for the City Council did not dispute that evidence. Having taken a site visit we agree that the majority of the site appears to be physically available for development. On the basis that no services or access would impinge upon the area identified as unstable to the rear of the existing home, access to the south part of the site would either have to be along or near the eastern boundary, or alternatively from Highcliff Road.

[27] Putting aside other issues we therefore conclude that the majority of the site is available for development. The area identified on the map as having stability problems should not be available for development, services or access. The area to the north-eastern side of the site which has fill on it will require further engineering investigation or specific design.

The rules on development contained in the zones

[28] On this basis the concern of the Council is that there could be uncontrolled development on the site if it was zoned Residential 1. In essence the concern of the Council in relation to stability issues is that, depending on the zone in which the property is included, different rules apply to development within that zone. We have cited the relevant objectives, policies and rules and we note that the hazards policies and objectives do not suggest zoning as a method of controlling land stability issues. Methods of implementation at 17.4 in the district plan include 17.4.1 Hazards Register, 17.4.2 Hazardous Substances Register, 17.4.3 Land and Project Information Memoranda, 17.4.4 Site Investigations: 17.5 and following deal with various other steps not relevant with the rules under 17.5 dealing only with hazardous substances.

[29] The most relevant of the methods in the current situation is the Hazards Register, (17.4.1), and the Land and Project Information Memoranda (17.4.3). We have sighted the Hazards Register and it presents overlays of the planning maps for the city with areas of hazards marked upon it noted within the Register.

[30] The second relevant method is the Land and Project Information Memoranda (LIMs and PIMs). LIMs are available on request at a cost from the council and tend to be utilised at the time of land purchase. We were advised that Council records indicate that of the 6-7,000 property transactions per year in the Dunedin City area, there are approximately 200 LIMs obtained. We find that figure surprisingly low. The witnesses were unable to comment whether the relevant information was obtained by another method. What happens is that upon enquiry of the Council an enquirer would be referred not only to the planning maps but to the Hazards Register.

[31] At the time an application is made for building consent, the PIM will demonstrate issues relating to land instability. The method indicates "*the council encourages applicants to apply for project information memoranda in advance of building consent and resource consent applications*".

[32] We have concluded that those methods seek to identify hazard issues, either in terms of a LIM by notification to potential purchasers or a PIM at the time an application is made for building consent (or was otherwise applied for). While the issues 17.1.1, 17.1.2, 17.1.5, objective 17.2.1 and policy 17.3.2 all recognise land stability as an issue requiring some control over building (particularly policy 17.3.2), the mechanism utilised appears to be at the Land and Project Information Memoranda stage.

[33] More particularly, land stability concerns appear to be directly recognised and catered for in terms of the **subdivision** rules of the plan, for example issue 18.1.3 where the explanation specifically discusses physical limitations such as instability. Objective 18.2.2 requires the physical limitations of land and water to be taken into account at the time of subdivision activity. Objective 18.2.6 discusses adverse effects and appropriate measures to avoid, remedy or mitigate those adverse effects. Policy 18.3.6 provides:

> *Refuse consent to the subdivision of unsuitable land*
>
> ***Explanation***
>
> *Notwithstanding section 106 of the Act, should the Council be of the opinion that the land is unsuitable for subsequent use because of natural and/or technological hazards, the subdivision will be refused.*

[34] On this basis the rules provide for all subdivision that complies with the rule requirements for that zone to be considered as restricted discretionary activities. 18.5.1 provides (rule 1):

Subdivision applications in the Rural Zone, where the application complies with Rules 18.5.3 ... and each resulting allotment is 15 ha or greater"

[35] Rule 2:

... Rural/Residential Zone ... 2 ha or greater"

[36] Rule 3:

Subdivision applications in Residential Zones where the application complies with Rules ... and each resulting allotment complies with the minimum area and frontage required by the conditions attaching to permitted activities for the zone in which the activity is located"

[37] Rule 18.5.2 provides that *Any application for subdivision that does not meet the requirements of rule 18.5.1 should be considered as a non-complying subdivision activity.*

[38] The effect of these rules is that if this land is zoned Rural, then any subdivision becomes non-complying, because the area of land is significantly less than 15 hectares. On the other hand, if the land is zoned Residential, then subdivision will be a restricted discretionary activity provided that the conditions attaching to the permitted activity for that zone are complied with. Depending on which particular Residential zone the property is placed in, this could vary down to 500 m^2 in Residential 1.

[39] However we did not understand the witnesses for the Council to suggest that there was any significant advantage to the Council in considering an application as non-complying as opposed to restricted discretionary. The status of residential subdivision is the subject of other references to this Court, which sought to liberalise the provisions and make the activity a controlled activity. It was conceded however that there was a similar reference in respect of the subdivision rules as they applied to the Rural zone and that in terms of the references both zones might have similar treatment. For the referrer their position is quite simply that if the site is treated as non-complying to achieve control over subdivision issues, they will not be able to obtain a consent in practical terms. The referrers view is that the hazard issues are properly addressed as a part of the subdivision of the site and whatever its status as either a controlled or discretionary activity, s.106 would mean that consent can be refused where the council is not satisfied that the instability issues can properly be overcome.

Development stability

[40] A more particular and direct concern of the Council is that if this site was zoned Residential 1, that would:

(a) indicate to members of the public that they could subdivide this site down to 500 square metres per lot;

(b) mean that the issues relating to instability could be avoided by merely building multi-unit residential accommodation on the site without obtaining a subdivision. This can be done as a permitted activity in the Residential 1 zone down to 500 square metres per site.

[41] It was the referrer's position that any such application for subdivision would still be subject to scrutiny on the basis of instability under the Building Act and in terms of the Project Information Memoranda identified in the methods under the Hazards section of the plan. We agree.

[42] The plan envisages that land stability aspects of the Subdivision Activity requirements of Chapter 18 hazards will be identified and controlled through the LIM and PIM process. In particular under section 36 the Council must consider issues of stability. It can properly refuse building consent even if the application otherwise complies with the plan. Having regard to the various chapters, we have come to the conclusion the scheme of the plan is clear. Whatever the views of the Council or the Court as to the preference to have controls contained within the plan, it is clear that there is no control directly contained within the plan over multi-unit residential development provided there is a minimum site of 500 square metres. As already indicated this reference does not seek to modify the policies, objectives or rules of the plan, and therefore we must conclude that that potential outcome is one which is dealt with in terms of the plan by reliance on the provisions of the Building Act and the Council's Hazard Register, LIM and PIM process.

[43] Having heard from the witnesses and seen the Hazard Register we are satisfied that this site has already been identified by the Council as having instability issues. Accordingly we must conclude that the prospect of development occurring inappropriately on this site is remote in practical terms and not possible in terms of the provisions of the various Acts which bear upon development on this site.

[44] We recognise the concern of the Council that people buying this property might believe it is available for multi-unit development. We note however that the plan generally zones

many areas Residential 1 which contain areas of land instability. Numerous examples were shown to the Court in the Hazard Register. It could not be said that by having that zoning there would be a legitimate expectation of subdivision or multi-unit residential development down to the minimum lot size. The concern of the Council is in respect of those persons who might not undertake searches of title, LIMs or PIMs. We have concluded that the Council has quite properly sought to include this information in terms of the Hazard Register and other steps as outlined in Chapter 17. If potential purchasers fail to undertake the most rudimentary of investigations into their site they can hardly suggest that the Council is in any way at fault in misrepresenting provisions of the proposed plan to them.

[45] We conclude that any party that has not undertaken those most rudimentary investigatory steps is most unlikely to have a specialised knowledge of the rules of the plan. If they did it would be clear that notwithstanding zoning requirements, hazards can and do arise on various properties throughout the Dunedin area. They would also be aware from the provisions of the plan that instability is an issue throughout the Dunedin area and in particular on the Otago Peninsula.

[46] Having said that, we accept that this is not a site which is suitable for development down to 500 square metre lots and that there are areas of the land which are unsuitable for development altogether. We have concluded that in the event that the land is otherwise appropriate for zoning as Residential, the land stability issue in itself does not constitute a basis for its zoning as Rural. The zoning of the site as Rural on the basis of instability is to seek a collateral purpose of changing the permitted activities on the site to avoid potential for multi-unit development. This is not an objective, policy or method as set out in the zoning rules.

Amenity Values

[47] The second major issue before this Court was the amenity values that relate to this site in the context of the appropriate zone which best categorises this site.

[48] Mr A P Henderson, a policy planner for the City Council, stated the position in this way:

> "*The site is surrounded on three sides by rural land, and in my opinion the amenity of the site is clearly rural in nature, exhibiting similar characteristics with much of the open slopes of the Otago Peninsula.*"

[49] It is however implicit in the approach of Mr Henderson and submissions for the Council that the land is currently zoned Rural in the proposed plan and the referrer is seeking to change that zoning to Residential. It was accepted by both the witness and counsel that there is no assumption that the land is being changed from Rural and we must start from a supposition that there is no zoning on the site at the current time.

[50] The two elements bearing on the visual issues identified by all the witnesses were outlook from the site, in other words the context of the site as it relates to the sites surrounding it, and the inlook to the site, or how others relate to this particular site.

Outlook

[51] The site itself is on the slopes of the Otago Peninsula with a northerly aspect. The land slopes more steeply both above and below this particular site. When we visited the site we were satisfied that people on site are automatically orientated to the northerly aspect which has extensive views over the Otago harbour. To the north west are extensive views over Dunedin City, including central Dunedin itself. Immediately opposite the site to the north is the Ravensdown Fertiliser works and the railway, both of which could be heard at the time of our visit. To the east are extensive harbour views including the Mt Cargill area on the other side of the harbour which gives a mixed residential, mountain and bush outlook. Close to the site the residential properties to the east are clearly visible with a two-storey home situated in the natural line of sight from this property. It is clear that the site is adjacent to a residential area. Immediately below the site the rural land is not visible, partly because of the contour of the land which slopes steeply away beyond the boundary of this property, and partly because of vegetation. There appears to be a connection down to the harbour and the residences just above Portobello Road below the site. The area to the west and above the site is generally screened by vegetation and it is difficult to ascertain what activities are conducted immediately beyond the site.

[52] On the southern boundary of the property it is not immediately obvious what occurs on the lot immediately behind the site but we were able to hear heavy trucks, particularly travelling on Highcliff Road. Also:

(a) there were no pastoral grazing animals visible, such as sheep or cows;
(b) there was no sign of any other agricultural activity;
(c) the vegetative cover including trees was consistent with both woodlots or an agricultural activity.

[53] We have concluded that the visual relationship of the site, as viewed from within is to the residential area and to Dunedin City. Because of the views from this site and its visual connection with both residential areas below it and those on the opposite side of the harbour including the Ravensdown Works, we cannot describe the outlook from the site as Rural.

Inlook

[54] It was suggested to us that the site in question is one which has a rural aspect. We cannot agree. The extent of the site is readily visible, and it is dominated by the residence which has been constructed there. It effectively bisects the property and is situated in the middle of the site dominating the horizontal in that position. Photographic evidence produced to us showed the extensive residential area immediately below the house which in our view appears to constitute part of that "*mosaic*". The site visit did clarify that the wider mosaic is substantially more residential than might appear from looking at the planning maps. Our visit to Highcliff Road immediately above the site indicated that there were several properties situated to the east of the site along the road which appeared to be Rural/Residential in nature. In our observation the homes were built close to the road, were of residential size and construction and did not appear to have associated with them any agricultural activity. From the paddock immediately above the site there is a more open view. However looking immediately to the west from that point one sees that there is a residential area several hundred metres away which has houses on what appear to be 500 to 600 square metre sized sections.

[55] Even on the northern side of Highcliff Road on land which on the plan is zoned Rural, there appear to be residential type homes constructed recently. Immediately beyond that view the outlook is dominated by a view of the Macandrew Bay area which is residential. Accordingly when looking at this site from Highcliff Road the predominant impression is one of being in or near the residential area and what might be described as the transitional zone between the city and the country. It is not possible from Highcliff Road to view the subject site in any event and we doubt that with the current vegetation being retained any homes constructed on the Guthrie site would be readily visible from Highcliff Road. We were not able to see the site clearly from any other point in the area and do not understand that there is a direct inlook into the site from close by, either above or below the site.

[56] The core issues in determining amenity value in our view are:

(a) The area's proximity to residential areas, including those on Highcliff Road;
(b) The natural extension of the existing residential area;

(c) The access through a residential area;

(d) The existing residential home on it;

(e) The predominant amenity on the site itself which is not agricultural.

Consideration

[57] We have concluded that this is not an appropriate site for Rural zoning. It appears that this site could either be classified as Rural/Residential which would legitimise the existing property, or as Residential. We accept the submissions of both parties that Rural/Residential is not designed to act as a transitional or buffer zone between Residential and Rural areas, but essentially it is used for collateral purposes, i.e. section size. Both parties agreed it is not appropriate in this case.

[58] Accordingly we cannot conclude that it is necessary in the sense of desirable or expedient, to zone the site as either Rural or Rural/Residential. The issue then is as to the appropriate Residential zone.

[59] The referrer's position was that it sought for the purposes of this hearing Residential 6 zone. There was evidence given by the Council and submissions made on their behalf indicating that Residential 6 was not an appropriate zone for this site. The essential contention was that the Residential 6 zone was designed to address particular amenity issues within the Dunedin City. It was intended to address larger land areas. Effectively Residential 6 would achieve a spot zone situation in respect of this reference which is undesirable.

[60] We recognise those concerns but have concluded that none of the Rural zones are appropriate. We must then address which of the available zones (remembering that we are not addressing policies, objectives or rules) is most appropriate for this site. Mr Henderson for the Council accepted that a Residential 6 zoning was preferable over a Residential 1 zoning and those are essentially the choices that the Court now has before it.

[61] We have concluded that control over density above that specified in the Residential 1 zone is desirable. We recognise the transitional nature of this site between the Residential and the Rural zones. We accept that there should be some control over lot sizes for development in the area and that the plan should contain some special reference to the instability issues in relation to this site. Having considered the various categories, we have concluded that Residential 6 recognises the special status of different areas around Dunedin and that this property could be included in a relatively straightforward manner.

[62] Although six Residential 6 areas are listed in the plan, several other extensions have been provided already by virtue of consent memoranda to this Court. Several have now been incorporated in the plan by determinations of the Court. In some of those cases Residential 1 zoning was sought by the referrer and Residential 6 zoning has instead been incorporated in the plan. The Court has previously agreed with that process and believe it is also appropriate in this case.

[63] Several amendments to the Residential 6 zone have to be made. Firstly the reference to the number of special areas in line 1 needs to be deleted, i.e. "*6*" needs to be removed. A new bulletpoint needs to be added to include what the parties have referred to as the "***Cove Extension***". There also needs to be an explanation of the cove extension. The wording suggested to us by Mr D R Anderson and which we adopt, is:

> ***"Cove Extension***
> ***This covers a small extension to the east of the existing residential development at the Cove. The area has service connections available and is better suited to low density residential development than the adjoining Residential 1 zone. Not all of the site is suited to unrestricted intensive residential development. Development for some parts of the site would involve extensive drainage works and possibly other land improvement measures to address the potential for shallow seated slope instability.***"

[64] No particular evidence was given to us as to section sizes. Evidence by the referrer's experts indicated that more than five allotments could probably be accommodated on the site with little extra work. However it was agreed by all that five allotments is a suitably conservative approach which could be accommodated readily. There is likely to be a variability in size. Some of the allotments on the northern portion of the land can easily be accommodated on smaller lots because of the uncomplicated nature of those sites. On the other hand, there are other sites towards the rear of the property which will probably need to incorporate the unstable areas, either in their Certificates of Title or in those of the existing residence, to ensure protection. Overall we accept a minimum site size of 2,000 m^2 is an appropriate figure provided there is a cap on the total number of allotments that can be developed of 5. We do not understand it to be the intention that the lots will be developed at the minimum size and indicate that we consider that the area of approximately two hectares can properly accommodate five allotments but should not be subject to further subdivision.

[65] These considerations as to density can be accommodated under Rule 8.12.1 which should have added a new subparagraph:

> ***Cove extension at a density of not less than 2,000m^2 of site area per residential unit. There will be a maximum number of 5 allotments with no more than one dwelling per allotment***" (i.e. additional 4).

[66] These provisions are generally consistent with others in the Residential 6 zone and in particular reflect quite closely provisions which apply to Braeside where instability is recognised.

[67] In terms of the conclusions reached and section 293(1) of the Act we direct the Council to amend the proposed plan in accordance with this decision. Leave is reserved for further directions as to wording if necessary.

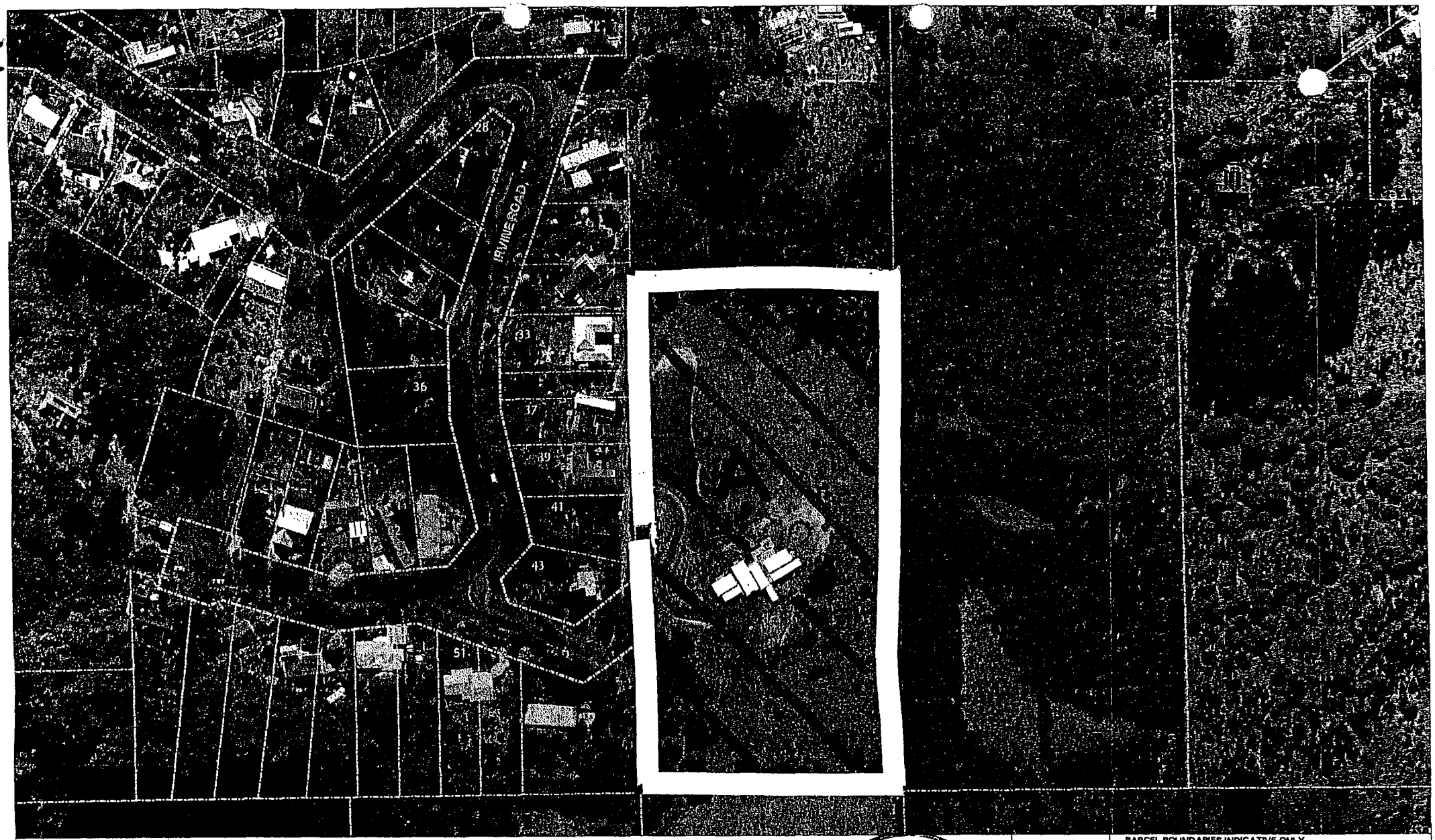
Costs

[68] Costs on references are normally not an issue. Neither party raised the question of costs in relation to this reference and accordingly we make no order as to costs.

DATED at CHRISTCHURCH this 5th day **October** 2001

J A Smith
Environment Judge

ANNEXURE A



Photographic Property Map

Selected Extent

Date: 15/3/2001 User: ?

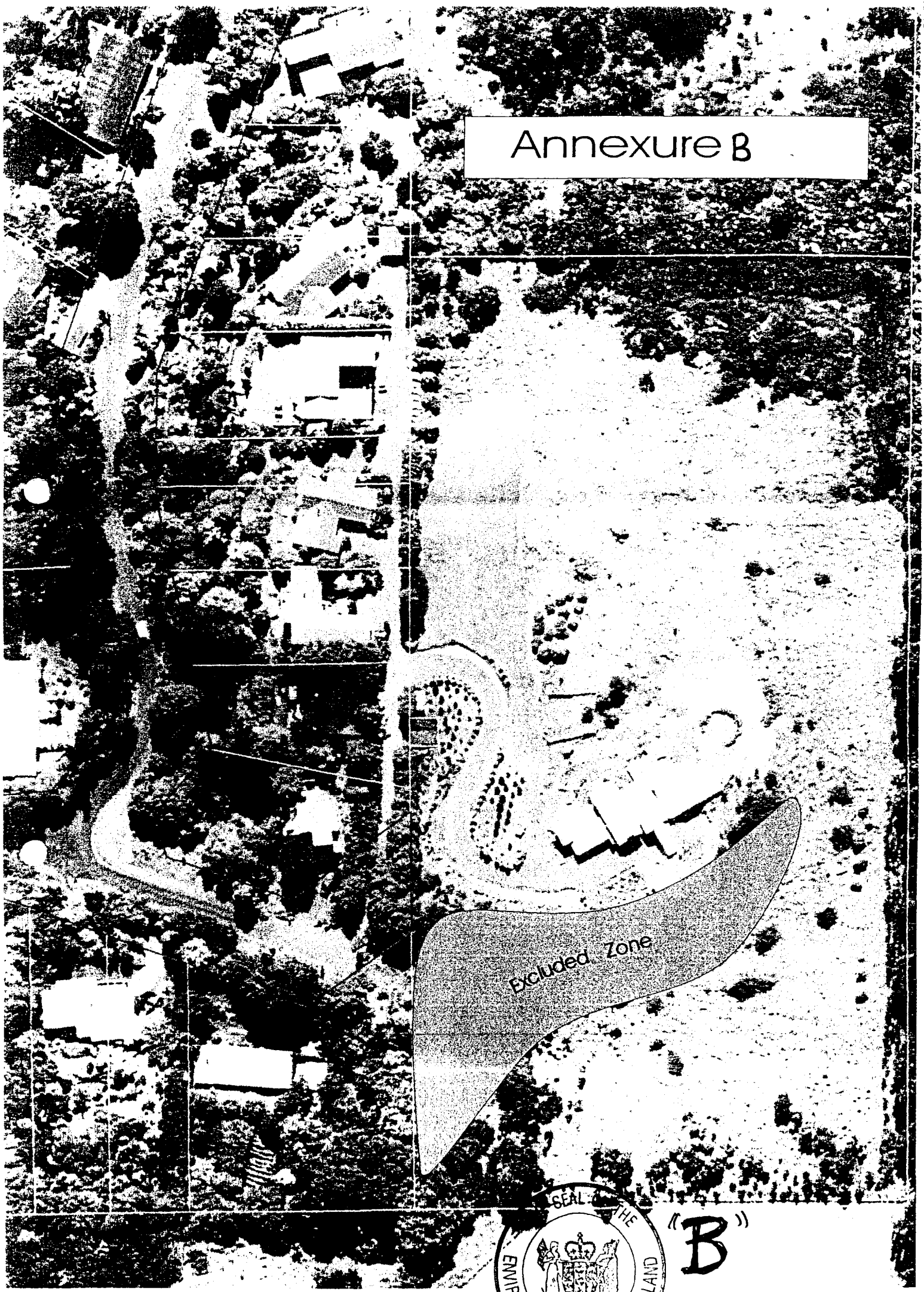
THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

N

1 : 2000

PARCEL BOUNDARIES INDICATIVE ONLY
This map is for illustration purposes only and is not necessarily accurate to surveying, engineering or ortho-photographic standards. While every effort has been made to ensure correctness and timeliness of the information presented, Dunedin City Council assumes no responsibility for errors or omissions.

Annexure B



SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

"B"