BEFORE THE CHRISTCHURCH CITY COUNCIL

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| **IN THE MATTER** | of the Resource Management Act 1991 ('the RMA) |
| **AND** | |
| **IN THE MATTER** | of a private plan change request by Highfield Park Limited to rezone approximately 260ha of land adjoining Redwood from Rural 3 (Styx-Marshland) to Living G (Highfield) |
| **BETWEEN** | **HIGHFIELD PARK LIMITED** |
| | Requestor |
| **A N D** | **CHRISTCHURCH CITY COUNCIL** |
| | Local Authority |

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# EVIDENCE OF ALEXANDER WILLIAM SMITH ON BEHALF OF HIGHFIELD PARK LIMITED

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## INTRODUCTION

1 My full name is Alexander William Smith. I am a practising intensive agricultural consultant.

2 I hold the Degree of Master of Horticultural Science, in Economics, from Lincoln University. I have been involved in forensic matters, technical advice, expert advice and resource management planning, in my fields of expertise for over 40 years. I am involved in the management and production from more than 100 properties of intensive agricultural pursuits from one end of New Zealand to the other. Over the years I have held positions as a visiting lecturer at Lincoln University in the field of horticultural business management.

3 A considerable portion of my business is involved with the selection and development of sites for new businesses crops and initiatives. I am employed by some of the biggest multinationals, right down to the owner operator and part-time unit. I am currently involved in a wide range of crops including berry fruits, kiwifruit, orchards, and nuts, through to extensive vegetables, kumara, hydroponics Micro Greens and flower culture. I am also involved in risk evaluation and trialling of new products including chemicals. I am often used in a specialist capacity for insurance assessment of a wide range of damages, crop damages, frost and hail mitigation and associated fields.

4 This evidence relates to the land known as Highfield Park. The area is identified in the Application for Plan Change 67 at Appendix 2 of the Master Plan. I have visited the Highfield Park area many times over my career. I have assembled considerable information concerning this land during those visits. My most recent visits were during the second and third weeks in October 2012. These were to ensure that my knowledge of the area is up to date. I have used Google earth and other aerial photographs of the site.

5 I have read the Environment Court's Code of Conduct and agree to comply with it. My qualifications as an expert are set out above. I confirm that the issues addressed in this statement of evidence are within my area of expertise.

6 The data, information, facts and assumptions I have considered in forming my opinions are set out in the part of the evidence in which I express my opinions. I have not omitted to consider material facts known to me that might alter or detract from the opinions I have expressed.

## SCOPE OF EVIDENCE

7 In my evidence I address the following issues:

7.1 The site today

7.2 Agricultural/Horticultural cropping on PC67 land

7.3 Urban utility of PC67 land

7.4 Total stock and capacity of productive land "Protection" of land

7.5 Consideration of conflicts and reverse sensitivity issues

## EXECUTIVE SUMMARY

8 Competitive changes of the land. In the PC 67 area, horticultural and intensive agricultural farming and cropping has become largely uncompetitive. The soil itself has not changed in the last 50 years, but the ability to compete with products from out of the district has changed dramatically. Factors such as improved transport better machinery and irrigation along with a host of other changes have rendered what were considered quite productive soils some 50 years ago, uncompetitive.

9 Migration of croppers from the land. Most farming and horticultural growers have moved out of the PC 67 area over the last 40 years. These crops have been transferred to fields in the wider Canterbury Region.

10 Technical change as the driver. The main changes which have driven this migration are the results of a range of factors commonly called technical change. Essentially growers and croppers have moved to soil types which produce more reliably, with less management, less pests and disease, lower lease and servicing costs, and fewer neighbourhood problems. These along with many other factors have strongly tilted the economic advantage in favour of production from certain areas in the wider Canterbury Region.

11 Pattern for the foreseeable future. The economic advantage is now tilted so strongly in favour of sites some distance from Christchurch, that I can see no prospect of any economic technical or planning conditions changing sufficiently to attract growers back.

12 Appropriate use for PC 67. I conclude that re-zoning of PC67 land for residential development is an appropriate use of this land.

## THE SITE TODAY

13 The PC 67 land is bounded by Queen Elizabeth II Drive to the south, the Styx River to the north, residential areas of northern Christchurch to the west and Hawkins and Hills Roads in the east.

14 The main farming uses on the block are all of low intensity, with pasture predominating. The dwellings have associated gardens and amenity plantings.

15 A series of soil maps have been produced by the Soil Bureau of the DSIR over the

years. These generally show the higher soils of the block to be a Waimakariri Sandy Silt Loam. The lower soils are generally classified as Tai Tapu Clay Loam. There is a long interface between these two soil types across the area.

16 I consider that approximately 25% of the area is Waimakariri Sandy Silt Loam. Approximately 30% of the site is an interface between the Waimakariri Sandy Silt Loam and Tai Tapu Clay Loam. The remaining approximately 45% of the area is Tai Tapu Clay loam. There is a small area of peat soil (less than 1 Hectare) by the middle of the Queen Elizabeth II drive boundary.

17 The characteristics of the Waimakariri sandy silt loam are that it is a free-draining soil with the depth and water holding capacity to be considered a Class I soil under the Land Use Capability (LUC) Classification System.

18 The Tai Tapu Clay Loam is a soil with significantly impeded drainage. This impeded profile means that these soils become wet throughout during most winters and during any time when extended rainfall occurs

19 A characteristic of some of the interface soil areas is that the Waimakariri sandy silt loam exists as a veneer over a Tai Tapu Clay Loam type soil on some of this site. These interface areas also become difficult to work during most winters and for a considerable time after extended rainfall. On the other hand much of the other interface areas are a mixture of soils somewhere between the Waimakariri Sandy silt loam and the Tai Tapu Clay loam type soil.

20 From a horticultural point of view the individual areas of uniform soil types are small. It is difficult to find areas of more than a few hectares of soils which are sufficiently alike to allow common management. For growers of vegetables, fruits, many berryfruits, and broad scale agriculture, this variability is a major defect.

## SOIL TYPES IN PERSPECTIVE

21 As mentioned above, some of the soil within the PC 67 land is rated quite highly by the LUC system. However, the LUC system is in this case only a partial indicator of soil usefulness.

22 There are more than 20 factors which make a site suitable for a demanding crop. These are listed in **Appendix I**. Soil Classifications and Use Classifications are useful in a general sense for a general overview of the value of an area, zone or aggregate of such things. But when the value of an individual site is being assessed, further on-site evaluation is always needed.

23 Soil is extremely important, make no mistake. I always pick for my clients a soil which is well suited to the crops proposed or can be made so. But a site's productivity varies; for a site is a mixture of soil, location, proximity to market, proximity to labour, micro-climate and the balance of those 20+ factors which I take

into account in evaluating a site's ability to produce crops competitively for a reasonable period into the future.

24 Many of these factors vary, such as the market over time for any individual crop. As the price of a crop varies, so too may the use pattern on a site or in a district, because no use survives when the farmer is unable to make ends meet. Historically this has repeatedly happened to meat, wool, grain, milk, apples and for that matter most of our crops. The short term effect of these downturns is usually slight, but if a product is priced at low levels on the market for an extended period of time then the effect is that individuals cease production of that product and move on to ones which are seen to be likely to yield better returns. We can see this in the recent run-down of the kiwifruit industry, the rundown of the apple industry and the historical running down of the national beef herd from time to time.

25 There is also the converse. Where a crop or a product is making better than normal profits from the soil resource and the farming of that resource then it will expand in a free market system. This expansion may occur extremely rapidly. This too has been seen recently. The dairy industry has expanded extremely rapidly. New dairy farms now cover many tens of thousands of hectares. Much of this land is lowly rated, Class III and below, on the LUC system. Land which a few years ago was seen as poor producing soils being too light for dairying has now been converted successfully by the use of modern technology.

26 So land productivity in economic terms is very dependent upon the market and the competitiveness of the products which are being produced at any time in any area.

27 Similarly, soil productivity in resource management, cannot be divorced from the economic prospective. For a use to continue it must realise an economic return. A site's effectiveness in producing an economic return is a function of the 20 odd factors which I have alluded to above (see Appendix I). If an impediment, which can be practically unrelated to the soil itself (such as neighbourhood influences), is big enough to negate a person's competitive edge, then the land will not be used for intensive agriculture because it is not profitable. Furthermore, prudent persons examining the site with a view to producing intensive agricultural or horticultural crops on it will see the problem, anticipate it arriving, and will not purchase with a view to production.

28 It follows, therefore, that in some situations, whilst the land is apparently quite valuable on its own, site and nearby factors can influence it to the point where it is unlikely to be purchased by a prudent extensive horticulturist or a prudent agriculturist for in-soil productive uses. That is so on this Highfield area.

## AGRICULTURAL / HORTICULTURAL CROPPING ON PC 67 LAND

### Departure of Intensive Cropping

29 Cropping started decreasing in the vicinity of PC 67 as early as the 1960s. By the mid 1990s this land had increasingly returned to generally low intensity pasture, pipfruit and summer crops. Intensive cropping farmers had lost interest in using the area and were moving into the more suitable often lighter (shallower) soils of Southbridge, Mid-Canterbury, Darfield and north of the Waimakariri.

30 This trend is also highly noticeable over the balance of the heavy soils of the Marshland District also. Each time that Air NZ flies me past this site I am again awed by the speed and completeness of this land use change in the subject area and district.

31 Large numbers of growers have ceased operating in the district. Growers by the names of Crozier, Duncan, Smith, Moore, Malcolm, McDonald, McFadden, Mundy, Pilkington and Trott come readily to mind. Many others have also moved on. They have gone (those still farming) to better sites from a total resource input / output, or profit point of view. They know that efficiency factors are more in their favour on their new sites.

32 In the 1960's the Marshlands/Redwood area was more than 90% occupied by producers of fruits and vegetables for predominantly the Christchurch Markets. A survey carried out by me then for MAF's annual statistics publication showed that annual crop occupancy levels of almost 100 % were being achieved as a result of some double cropping.

33 Today less than 10% of the Highfield area is used for such crops. This also counts any double cropping. All the commercial apples have been removed apart from a 1 hectare residual stand by Hawkins Road. The remaining intensive crops include greenhouse cropping and very specialist cropping such as lettuce and currant berry culture.

34 Since February 2011 at least one more family involved in intensive cropping has shifted operations out of the area.

35 Over the last 40 years or so, the use of the site has changed because the land is no longer competitive in cropping uses.

36 Technical improvement is one of the set of factors which has brought about this migration by cropping farmers. Farmers are now enabled to grow better crops from soils which in the past were rightly considered to be poorer. The better growth in turn means greater yields of marketable produce.

37 Today the lighter soils of Nelson, Southbridge, Mid-Canterbury, Darfield and north of

the Waimakariri River (among others) are much more attractive as vegetable production propositions than the heavy soils of the Marshlands/ Redwood/Styx districts. This change in preference is a result of subtle changes in economic parameters. For example, transport has become relatively cheaper. Irrigation has become more efficient.

38 Some of the main reasons why commercial growers find these distant areas financially more attractive are as follows:

- They do not lose crops is a result of flood or in-soil excessive wetness.
- Autumn winter and spring growth rates are higher, top packouts are achieved even in wet years.
- Some modern varieties are bred to grow better in coarser soils.
- Farmers are able to obtain much bigger areas of a single soil type. This makes soil management, irrigation management and the management of other important inputs easier with more efficient outcomes.
- Soil borne pests and diseases are rarely encountered compared with the levels on the soils of this area and nearby. Examples are, among many others, Potato Cyst Nematode, Violet Root Rot and *Verticillium sp.* All cause losses in this area and/or other sites nearby.
- Leases and property servicing costs are lower.
- The increased cost of transport is considerably outweighed by much greater reliability of production.

39 For these reasons, among others, distant areas have the economic advantage. The growers and cropping farmers of yore have gone away.

40 I have carefully considered the likelihood of factors changing sufficiently for soil-based horticulturists and intensive agriculturists to be attracted back onto the PC 67 land. The balance lies so clearly with sites some distance from Christchurch that I can see no prospect of any technical or planning conditions changing sufficiently for growers to move back. The present use pattern is likely to remain for the foreseeable future.

41 It would require considerable further, and currently unforeseen, technical and efficiency changes for this land to become as sought after as it was in the period to 1950 for cropping by horticulturalists.

42 There is no sign of changes which would tilt the advantage back to the PC 67 area. On the balance of probability the necessary changes are unlikely in the foreseeable future.

## URBAN UTILITY OF THE PC 67 LAND

43 The features which originally attracted cropping farmers and horticulturists to the PC 67 land remain present today. The good water holding capacity, fertility and ability to develop trees and a wide range of other plant subjects with minimal irrigation remains. The physical ability to grow upright substantial plants also remains along with other attractive attributes of the soils. Urban landscape and amenity soil needs are not subject to the same economic criteria as when crops are produced. The soils present have the capacity to provide a very wide range of landscaping and amenity uses. A wide range of plants will therefore be able to thrive and contribute to pleasant looking and useful subdivisions. From a horticultural perspective, the soils are certainly fit for urban use and development.

## TOTAL STOCK AND CAPACITY OF PRODUCTIVE LAND

### Stock of productive soils

44 I am aware of an opinion among a few individuals, which is that our national stock of soils is finite and is decreasing. This is not true in a production sense because technology over time has enabled us to bring what were lower grade soils into higher grades. This is now acknowledged by Soil Scientists who have shown us how to make considerable improvements with soil types such as Wakanui and Templeton. It is also acknowledged by soil scientists and in Landcare's Horticultural Versatility and Potential Versatility Indices. In these Indices improvements in LUC type ratings are formally noted should certain actions be carried out. For example, in some Wakanui and Kaiapoi soils, drainage lifts the versatility.

45 It is also apparent, not just in theory, but in the field. For example, on certain of our lighter soil types, such as the Lismore series, and in some of the lighter Waimakariri and Eyre series, in recent years there have been considerable improvements in versatility as a result of changes and improvements in irrigation technology.

46 As noted earlier, improvements in irrigation have also lead to the bringing in of Lismore, Eyre and other lighter type soils for dairying and cropping. This increases the productivity of those soils many fold. These soils until recently were considered to be completely unsuitable. Modern technology enables farmers to sustainably develop and farm this land.

47 This is what happened too on the lighter soils of the Lower Waitaki River system. These areas are viewable from Highway No. 1 on both sides of the Waitaki River. There, that which was originally rabbit country in many areas is now high producing dairy land.

48 Horticulture too, has developed with the aid of precise irrigation out onto land which in the past was rated as Classes III and IV through thinness. Today many of our crops are being grown on these soils (not just grapes) and in this respect the

versatile cropping areas are increasing.

## Productivity of land

49 In addition, productivity through horticultural cropping as a whole along with agricultural cropping is increasing. Certainly with my intensive crops, output per farmer head is rising with time. The output per hectare is also rising. This trend has been evident for over 100 years now and means that the potential productivity of our land and our stock of versatile soils is increasing. In this respect our soil stock is not bounded and not finite.

50 In 1977 a grower expected to get 10.5kgs of tomatoes from a square metre in a glasshouse each year. In 2000 we expected to do at least 40kgs from the same metre. Today the figure is 55 kg/square Metre. An increase of over 5 times. This increase is in a period of only 35 years. However, it is not just tomatoes, peppers, cucumbers, potatoes. It is every crop which I am involved with, (with the exception of those crops with an artificial quality requirement, such as apples and grapes), where productivity in a physical sense has increased. Improvements in technology continue to occur. If I had said 40 years ago that within my working life tomato, capsicum, cucumber and other such crops could be made to yield at five times the existing performance I would have generally been dismissed as a crank.

51 Yet this increase in performance is exactly what has happened. These yield increases show no sign of stopping. Except where artificial quality constraints are present or artificial restrictions are placed upon performance.

52 There is a wide range of technical improvements to agricultural and horticultural practices that I can see occurring on the foreseeable future. Much of this technology will benefit growers on large light even tracts of land to a greater extent than the PC 67 area.

53 Our cropping soils will continue to yield sustainable crops in sustainable rotations at an increasing rate. This rate of increase is more than sufficient for our future needs.

## "PROTECTION" OF LAND

54 Section 5 of the Resource Management Act 1991 states:

(1) *"The purpose of this Act is to promote the sustainable management of natural and physical resources, .....*

*(2) in this Act, sustainable management means managing the use, development and protection of natural and physical resources in 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;*

*(a) sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonable foreseeable needs of future generations, and .....*".

55 Nowhere in the RMA is there a requirement to specifically preserve land of a high actual or potential value for food production. Under the RMA, land quality and its potential are part of the series of factors which should be considered in measuring whether or not a change of use of such land should be allowed.

56 In my opinion, the land in question does not require protection. It has no particular or unusual attributes which are worthy of protection.

57 In my experience, rules-based "protection" of land for agricultural and horticultural uses simply has not worked. Some of the early jobs I did were to provide cost-benefit advice to existing growers in the PC 67 area and the land thereabouts concerning where it was best to farm. Many growers carried out their own cost-benefit analyses.

58 The outcome, as has been noted above, is that from 1967 through to 1991, under the Town & Country Planning Act, there was an exodus of growers from the area. There has been no significant return under the Resource Management Act, in fact the exodus continued.

59 As noted earlier in this evidence the horticulturist in me can find no set of technical reasons which would encourage horticulturists and intensive agriculturists to return to farming the PC 67 area. I make this statement using present knowledge and predicted technological improvements which can be readily foreseen.

60 The economist in me can see no set of economic indicators which would signal enough change the economy to encourage the horticulturists and intensive agriculturists to return to farming the PC 67 area.

61 In these terms, "protection" of the land for intensive agricultural and horticultural uses is invalid. This is because in the foreseeable future a vast majority of crop farmers and producers will not desire to return.

## CONSIDERATION OF POTENTIAL CONFLICTS AND REVERSE SENSITIVITY ISSUES

62 I have walked along all of the roads of this subdivision recently and examined the area. I was considering conflicts potential conflicts and reverse sensitivity issues.

63 If this development is carried out as described by the application it will have a very well defined boundary. This arises because:-

- The proposed development has Christchurch City on the western boundary. (There is also the land reserved for the Northern arterial motorway to the immediate west of the Highfield land.).

- The northern boundary is the Styx river, and associated space reserve,
- At the north-east there is a distance of approximately 150 m of reserve boundary between the Styx River and Hawkins Road.
- In the east Highfield's boundary is adjacent to Hawkins Road, and Hills Road.
- The southern boundary extends from where Hills Road joins Queen Elizabeth II drive westward to the city boundary and the reserve for the northern motorway.

64 All these boundaries are physical protectors between urban and agricultural uses. The edge of the development therefore presents a logical, well-defined and readily defendable planning boundary and land use buffer.

65 I have further carefully considered uses nearby across the general area which might be affected by new houses being established on the Highfield land. I find that all identifiable sources of strong odours, noises, spray drift, and or other rural activities potentially capable of such conflict are located at such a distance from the boundaries that almost no risk of such conflict exists. The area about the proposed development is dominated by pasture based livestock farming, and occasional crops of cereals and vegetables also exist. I can find no nearby piggeries, battery chicken houses, stock fattening pads or other high risk uses which might elicit complaints.

66 I consider that this development is likely to reduce conflict at the rural/urban interface when compared with the present situation. At the moment significant areas of residential land abut livestock farming.

## CONCLUSION

67 The re-zoning of PC67 land for residential development is more appropriate than rural use of this land. Not re-zoning the PC76 land would be wasteful and inefficient. This block of land is no longer competitive for agricultural and horticultural use and has no features of sufficient importance to require preservation.

Alexander Smith
November 9 2012

## APPENDIX I

The factors which are taken into account in recommending or otherwise a particular site for a particular crop are as follows:

Soil texture
Soil structure
Soil water holding capacity
Soil organic matter stability
Site's slope
Site's drainage
Temperature of the site
Aspect of the site
Storm water movements
Flood plain matters
Wind exposure
Shelter planted
Availability of irrigation water
Transport, both ease and distance
Effect of the use on the neighbours
Effect of the neighbours on the use
Access from the road
Proximity to airport
Proximity to port
Supply of labour
Quality of that labour
Previous cropping history
Relevant contamination
Sunlight hours
Electricity supply
District Scheme
Regional Scheme
Economic and resale factors

This list demonstrates the real relevance of the soil on its own. Obviously one can have an extremely good soil which would be disqualified for a farming use by one or several of the factors above.