5. WEED CONTROL CODE OF PRACTICE – HOUSING PORTFOLIO

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The purpose of this report is to inform the Council of the Housing specific issues surrounding the use of herbicide for weed control purposes and to advise a management regime for the use of herbicides in the maintenance of the common areas of Council owned housing complexes.

EXECUTIVE SUMMARY

Following representations to the Burwood/Pegasus Community Board by tenants of the Santa Cruz housing complex in November 1999, the Community Board requested that spraying of herbicides at the Santa Cruz complex be suspended, and that a report on spraying regimes within and around the complex, including the presentation of alternatives to the existing spraying regime be undertaken.

Following the presentation of a draft report in December 1999, suspension of spraying was extended to all complexes pending full investigation of all issues. The draft report concluded that segments of the population could develop adverse symptoms when exposed to low doses of herbicides, that alternative methods for weed control were available, and that a failure of the tenant notification system was evident in the case prompting the complaint.

In early 2000, the presentation of a Housing specific policy on herbicide use was withdrawn in favour of a unified corporate guideline approach. Further efforts in that direction were hampered by the different uses and requirements of the Housing, Parks and City Street Units. Interim non-herbicide weed control measures have proven both costly and ineffective around, prompting the return to the development of a guideline on herbicide use specifically for housing property assets. This guideline has been achieved through consultation with the tenants within the housing complexes.

The proposed guidelines, while differing in scope, are consistent with guidelines put forward by the Parks and City Streets Units. They feature environmental sustainability, cost effective maintenance of assets and concern for health and safety.

The proposed Property Unit - Housing complex guidelines state:

> *The Regime to control weeds in the common areas of housing complexes will minimise herbicide use in the environment, (by using direct application whenever possible) to:*
>
> 1. *Enhance the peaceful enjoyment of common area lawns and gardens by residential tenants.*
> 2. *Control noxious weeds in accordance with the Canterbury Regional Pest Management Strategy (RPMS).*
> 3. *Ensure optimal asset life and maintenance costs.*

The guidelines will be supported by contracting practices authorising the use of designated herbicides by direct application, and protocols in relation to the application and tenant notification prior to each spraying application around their complex. The policy guidelines cover the common areas of the complex. Tenants are responsible for the area directly in front of their own unit.

BACKGROUND

In November 1999, two tenants from the Santa Cruz housing complex reported adverse effects to their health from weed spraying activity performed by a contractor. The Burwood/Pegasus Community Board recommended that weed spraying with herbicides at the Santa Cruz complex be suspended, and that a report on spraying regimes within and around the complex be undertaken, including the presentation of alternatives to the current spraying regime.

A report submitted in December 1999 established the following facts:

- The herbicides used at the complex were Roundup, Grazon and Versatil.
- The complainants had been previously diagnosed with Myalgic Encephalomyelitis (ME), also known as Chronic Fatigue Syndrome.
- Some research supports a link between M.E. and exposure to herbicides.

- The contractor (Turf Technologies) did not advise residents prior to spraying, thus preventing tenants from taking action to minimise exposure. Post application notices were distributed.
- Herbicides are regulated hazardous materials and present toxicity levels to various living organisms.
- Some individuals may present adverse reactions when exposed to certain substances, including herbicides.
- Means of weed control other than herbicide spraying are used by local authorities, including organic non-toxic substances, salt water solutions and direct herbicide application methods (weedball).
- The non-chemical methods are not always cost effective in controlling weeds.

The report further concluded that:

- The complainants' symptoms were most likely exacerbated by exposure to herbicide sprayed near their homes.
- Non-toxic weed controls were available, and direct application (weedball) were being used in certain areas.
- The notification process used by the Property Unit and Turf Technologies was not working.

The report issued the following recommendations:

- That the non-spraying arrangements be maintained at the Santa Cruz complex.
- That alternative methods be investigated throughout all Council units.
- That the notification process be reviewed.

Based on the findings in the report, including potential adverse reaction to herbicides, the voluntary ban on spraying of chemical herbicides was extended to all Council housing complexes.

CONSULTATION

The Property Asset Management team, to support the development of appropriate guidelines for weed control in Housing Unit rental property common areas, undertook a consultation process with identified significant stakeholders. This consultation process was completed in July 2003.

The three main stakeholders identified are:

- Housing Unit tenants
- Housing Unit personnel
- City Care Limited - Facility Maintenance Management Contractor

Six consultation meetings were held with tenants invited from 17 housing complexes, selected from across the city. The Santa Cruz complex was included as it was a complaint from this complex that prompted the ban on herbicide use and subsequent policy review. Of the 480 tenants invited within the selected complexes, approx 120 attended the meetings. To determine how City Housing tenants feel about various aspects of chemical weed control, a brief survey was prepared which was conducted at the conclusion of each meeting. The survey questions were designed to identify the level of weed control desired, the acceptability of chemical control methods, and the level of trade-offs that may be acceptable to the tenants and the information requirements of tenants in this respect.

The survey results indicate strong support for development of a more appropriate procedure than is currently in place. The majority wish to have a higher level of weed control than is currently undertaken. A significant number (31%) of tenants surveyed, are concerned about the health effects of herbicide use, but most do not object to their use. In addition, tenants demonstrated strong support (92%) in the desire to be informed when spraying is to be carried out.

The comments made at the consultation meetings seemed to concentrate more on the tenants' concerns at having the gardens in front of their own units maintained by themselves. The tenants were assured that this policy covers the common areas of the complex and not tenant gardens. Concerns were also raised by the tenants in relation to the protocols surrounding the application of any chemicals around the complex common areas.

The following are comments taken from the tenant survey:

- *"I don't like sprays, but I know it must be done. It must be done by experienced people."*
- *"Applicators trained to properly minimise drift spray to protect residents gardens, especially units at end of wind tunnel."*
- *"Would like to have a lawn that adults and children can walk on without sharp grass and thistles."*
- *"If use Roundup – please use 2nd generation (without POEA (Polyethoxylated Alkyl Amine)). If safely applied, I am OK with herbicides being used as long as it breaks down quickly and is not harmful to the environment in any way and it is not harmful in any way to humans, animals, insects, etc."*

A copy of the survey and the results summary is attached as Appendix 2.

NEW INFORMATION

Further research to set the parameters of effective weed control guidelines for Property Unit assets has resulted in other facts that should be considered:

- Herbicides are generally classified as selective (effective in killing selected species or types of plant life) or non-selective (affecting all or most forms of plant life). The toxic hazards of herbicides to other life forms (insects, mammals, fish) vary from non-toxic to moderately toxic.
- Non-selective herbicides are inappropriate for use in spraying programs for lawn areas, as they will kill the grass as well as the weeds. A specific corollary of this fact is that the chemicals associated with the Santa Cruz complex complaint are the herbicides Grazon and Versatil, which are of the selective variety. Roundup, a non-selective herbicide, may have been used at the complex to treat areas such as footpaths, fence lines, clotheslines, hard surfaces and other areas where any plant growth is undesirable.
- There is no evidence linking the use of Roundup with the complainants' aggravated M.E. symptoms, which were reported following two occurrences of lawn care spraying in April and October 1999.
- Immune system response is a complex metabolic function that can be triggered by a number of chemical compounds or contaminants, some naturally occurring, some of synthetic origin. A case in point is the small portion of the population presenting acute toxic symptoms from exposure to peanut oil.
- While products of organic origin are generally perceived as more environmentally friendly and less toxic than synthetic products, their effectiveness for pest control is a sign of toxicity to at least some living organisms. A typical example can be found in pyrethrins, a class of naturally occurring insecticides that also present toxicity for animals. Synthetically generated pyrethroids are generally more effective on insects and less toxic to mammals than the similar naturally occurring compounds. The origin (synthetic or naturally occurring) of a substance is not a sufficient indicator of its hazard potential. Some of the most toxic substances known to man are naturally occurring (e.g. Ricin). Refer to Appendix 1 (attached) for further information on toxicological assessment.
- The environmental impact assessment of the use of a chemical should include factors other than the toxicity hazard, such as bio-accumulation potential, leaching potential, environmental persistence.
- The Biosecurity Act 1993 mandates the control of designated pests including weeds under the National and Regional Pest Management Strategies. In certain cases the use of herbicides is specifically recommended as the only effective means of control (e.g. using Grazon to control *Tradescantia Fluminesis* – Wandering Willy).

CURRENT PRACTICE

Property Unit

Presently, weed control by the contractor for the Property Unit is minimal. An organic product, Greenscape, is used when required to control weeds on footpaths, clotheslines and other areas where use of a non-selective herbicide by spraying is appropriate. The contractor has submitted that the product is only effective in a very narrow range of application conditions, resulting in higher usage requirements and substantial costs. Potential savings from using glyphosate formulations and/or Versatil for lawn and garden weed control have been estimated at $50,000 per annum. Better effectiveness would also result in more aesthetically pleasing lawn coverage with resultant improvement in amenity value for the tenants.

City Streets

City Streets guidelines states that:

Weeds shall be controlled within the legal boundary in order to:

1. *Enhance the life of City Streets assets*
2. *Maintain the visual quality of the streetscape*
3. *Minimise herbicide use in the road environment*
4. *Control noxious weeds in accordance with the Canterbury Regional Pest Management Strategy (RPMS)*

A "No spray register" is maintained by the Council, which holds the names and locations of ratepayers who have requested that no spray be applied immediately outside their properties. Those on the register accept the responsibility to control weed growth along their own frontages.

The chemicals used and specified by City Streets are Glyphosate (Roundup), Metsulfuron (Escort) and Yates Nature's Way Greenscape, a fatty acid weed killer derived from coconut oil extracts. All these substances are registered non-selective herbicides, which kill a wide range of plants.

Greenscape is used only during the summer months because it requires hot sunny conditions in order to be effective. The contractor is authorised to use either one of the alternative products if the weather on the day of spraying is not conducive to using Greenscape.

Parks Unit

The Parks Unit code of practice on hazardous substances states that:

> *The management of reserves invariably requires from time to time the use of hazardous or potentially hazardous substances, mainly (but not exclusively) in the nature of pesticides. Of paramount importance is the health and safety of the users of these substances, which can be greatly assisted by having in place an appropriate code of practice.*

The focus is thus predominantly on the safe application and use of theses hazardous chemicals, as governed by existing legislation, including the Local Government Act, the Health and Safety in Employment Act and the Resource Management Act. Public Safety is a strong policy management factor. The recommendations of the Christchurch City Council Chemical Audit are also adhered to.

The herbicides used include Roundup (Glyphosate), Simazine, Valzine, Buster (Glufosinate), Reglone and Rennovate. Several of these products are classed as residual herbicides, which have persistent action. Some are specific to broad leaf or aquatic weeds (selective herbicides). All are used in specified conditions, appropriate to the weed control aims of the unit.

OBJECTIVES

The proposed weed control guidelines/code of practice for the Property Unit is predominantly driven by addressing the needs of the tenants for peaceful enjoyment of the common areas, with minimum impact on their health and safety. This enjoyment includes a certain amount of weed control, as some weeds can have decidedly unpleasant effects for people walking barefoot on the lawn. A particular example of this is Onehunga, or prickly weed. Other weeds are objectionable only on an aesthetic basis.

The Council has a substantial investment in lawns, gardens, footpaths and other assets where weed control can enhance the life of the asset and reduce maintenance cost. In certain cases, a high percentage of weed presence in the lawn can induce higher maintenance costs from equipment wear.

Each of these areas has different requirements for weed control. Typically, gardens are not subject to intensive chemical weeding because most herbicides will have harmful effects to the established vegetation. Mechanical weeding or provision of a ground cover to prevent weed emergence are the most suitable forms of maintenance. Areas where no vegetation cover is desired can be maintained in the most cost effective way by non-selective herbicide application. The impact and visibility of over-spraying and drift on surrounding vegetation increases the likelihood of careful application. Greenscape or glyphosate formulations are both suitable when appropriate conditions prevail.

Lawn maintenance is a more complex situation, as the eradication of all weeds in lawns would require an intensive spraying programme, leading to a high usage of selective herbicides. This high usage increases the likelihood of negative side effects from exposure to drift and over spraying, which are more likely to occur because they do not produce visible side effects. The recognised environmentally sensitive approach is referred to as Integrated Pest Management (IPM), and relies on establishing a healthy lawn that is better capable of resisting weed invasion. This is achieved by a combination of feeding (fertilising without herbicidal additives), watering (irrigation) and cutting the lawn to a longer length to achieve a dense and deep root structure.

Under Integrated Pest Management, the presence of innocuous weeds at low level is deemed quite acceptable, and reflects the biodiversity of an ecosystem. Where noxious weeds are present, the use of herbicides by direct application (weedball) is acceptable, as it minimises the overall use of herbicide and ensures delivery only where required. The herbicide used should be non-selective, to discourage negligent application. Again, Greenscape or glyphosate formulations would be suitable for this use. The same method may be used to contain the spread of innocuous weeds. Under these guidelines, noxious weeds include those defined under the Regional Pest Management Strategy and weeds preventing the peaceful enjoyment of the environment, such as prickly weeds (Onehunga).

The absence of drift contamination through direct application and low dermal toxicity of both products would not require that a formal notification be issued.

Only in cases where innocuous weeds have established a significant position (more than 20% of coverage) should a spraying programme be considered. Such a programme should be carried out only after obtaining the approval of potentially affected residents, and should be followed up by corrective measures to ensure that IPM is effective on the property. Should unanimous approval of tenants not be obtained, the decision to implement a spraying program will be deferred. A communication plan including a strict final notification stating the proposed date and time, type of herbicide, and area of application will be part of any approved spraying programme.

Given the objectives for the guidelines, the following statement is proposed to articulate the guidelines:

Weeds shall be controlled within legal boundary of commercial and residential units in order to:

1. *Enhance the peaceful enjoyment of common area lawns and gardens by residential tenants*
2. *Minimise herbicide use in the environment, by using direct application whenever possible*
3. *Control noxious weeds in accordance with the Canterbury Regional Pest Management Strategy (RPMS)*
4. *Ensure optimal asset life and maintenance costs*

RECOMMENDED HERBICIDES

The selection of herbicides for application should be directed by the assessment of their health and environmental hazards. While information provided by the manufacturer should be the principal source, corroboration of toxicological and environmental impact assessment should be sought from independent sources.

The most suitable products will be those that are highly effective, present low toxicity (fish, birds, mammals), are non-residual and biodegradable, and will not readily leach into streams and rivers. The following products are claimed to present those characteristics, and should be approved for use:

Glyphosate: Glyphosate products are broad-spectrum, non-selective herbicides, which are active on most species of green plants. In addition to glyphosate, the formulations include water and a surfactant system. The surfactant system enables the products to adhere to the surface of leaves so the active ingredient can penetrate. When the products are applied to green leaves or stems, the active ingredient moves throughout the plant so the entire plant dies. The roots or rhizomes are destroyed so the plant cannot regenerate. Glyphosate binds tightly to most types of soil so it is not available for uptake by roots of nearby plants. It works by disrupting a plant enzyme involved in the production of amino acids that are essential to plant growth. The enzyme, EPSP synthase, is not present in humans or animals, contributing to the low risk to human health from the use of glyphosate according to label directions. Third parties largely acknowledge the manufacturers' claims. Objections principally surround the toxicity of the surfactant system, in particular the Polyethoxylated Alkyl Amine (POEA) used in basic Roundup formulations, and the overuse of this particular herbicide with Genetically Engineered (GE) resistant crops – the plants and practices are objectionable, not the herbicide. Second generation glyphosate products not containing POEA are recognised as environmentally safe.

Yates Nature's Way Greenscape: A coconut fatty acid extract, which kills weeds by contact. The fatty acid destroys the waxy cuticle of the broadleaf or grassy weed. The tissue then dries ups. Greenscape is broad-spectrum and applied as a foliar contact herbicide; it will provide effective destruction of most green plant vegetation. It is not systemic and has no residual activity in the soil. It does not affect the root system, and may require re-application to control certain types of weeds. It works best under hot and sunny conditions, and may not be effective in cool and wet conditions. The manufacturer's claims are undisputed, but not corroborated. While less cost-effective than glyphosate, Greenscape or similar fatty acid products should be the less objectionable first choice when it can be used effectively. Should the weed targets or meteorological conditions impede effective use, the contractor should use glyphosate.

Herbicides currently used by other units may be acceptable under specific conditions, but do not present all the desirable characteristics for unqualified use. Metsulfuron, for instance, has high leaching potential and residual activity in soil. Grazon has been demonstrated to leach into water supplies. Similar considerations apply to other products.

CONCLUSION

The use of registered herbicides such as Greenscape or glyphosate formulations has proven necessary to effectively maintain assets throughout the city. Other herbicides are used as conditions warrant. The proposed policy addresses the major concerns raised by the 1999 report through approved use of pesticides not linked to harmful toxicological effects (including to ME sufferers) and implementing application conditions that minimise exposure.

Seeking approval addresses the failure to properly notify when exposure risks are increased by the necessity to resort to spraying. The proposed policy also results in cost effective control of weeds on the subject properties. It should be noted that the restrictions placed on spraying programmes might reduce the estimated $50,000 amount of savings supported by the contractor. The overall social and environmental benefits from a sensible approach to the use of hazardous chemicals justify this approach.

The proposed Property Unit – Housing complex policy guidelines state:

> *The Regime to control weeds in the common areas of housing complexes will minimise herbicide use in the environment, (by using direct application whenever possible) to:*
> 1. *Enhance the peaceful enjoyment of common area lawns and gardens by residential tenants.*
> 2. *Control noxious weeds in accordance with the Canterbury Regional Pest Management Strategy (RPMS).*
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The guidelines will be supported by contracting practices authorising the use of designated herbicides by direct application, and protocols in relation to the application and tenant notification prior to each spraying application around their complex.

NATURAL + PEOPLE + ECONOMIC STEP ASSESSMENT

#	CONDITION:	Meets condition ✓✓0×	HOW IT HELPS MEET CONDITION:
	The Natural Step		
N1	**Reduce non-renewable resource use**	✓✓0×	
N2	**Eliminate emission of harmful substances**	✓✓0×	
N3	**Protect and restore biodiversity and ecosystems**	✓	Controls noxious weeds while allowing natural biodiversity to prevail.
N4	**People needs met fairly and efficiently**	*NA*	*NA - See People Step + Economic Step*
	The People Step		
P1	**Basic needs met**	✓	Peaceful enjoyment of property
P2	**Full potential developed**	✓✓0×	
P3	**Social capital enhanced**	✓✓0×	
P4	**Culture and identity protected**	✓✓0×	
P5	**Governance and participatory democracy strengthened**	✓✓0×	Approval process supports informed consent.
	The Economic Step		
E1	**Effective and efficient use of all resources**	✓✓0×	Effectiveness and desirability balanced
E2	**Job rich local economy**	✓✓0×	
E3	**Financial sustainability**	✓✓0×	Savings to the maintenance programme

Recommendation:

1. That the policy guidelines for weed control for the Council Housing Portfolio be adopted as follows:

   The Regime to control weeds in the common areas of housing complexes will minimise herbicide use in the environment, (by using direct application whenever possible) to:

   1. *Enhance the peaceful enjoyment of common area lawns and gardens by residential tenants.*
   2. *Control noxious weeds in accordance with the Canterbury Regional Pest Management Strategy (RPMS).*
   3. *Ensure optimal asset life and maintenance costs.*

2. That management protocols be developed and implemented to support the policy guidelines.