

PRELIMINARY SITE INVESTIGATION (PSI)

Prepared by: Simon Hedley
B P&R Mgmt; M Applied Sc (Hons)

HISTORICAL LAND USE – POTENTIAL LAND CONTAMINATION

AGRICHEMICAL USE

Environment Canterbury Regional Council (ECan) has requested consideration of historical land uses and the potential for the proposed Quarry extension site (the Site) to be deemed a “contaminated site” as a result of historical land uses, including the use of the Site for the manufacture of ready-lawn grass products.

The Site comprises a portion of two (2) properties. The portion of the property previously owned by Mr & Mrs Stock has been used for grazing, both horses and sheep, for the past 50 – 60 years. There is no evidence of historical land uses that would lead to a suspicion of land contamination. Neither is there any evidence of irrigation.

The portion of the property previously owned by Mr & Mrs Higgs appears to have been similarly used for grazing, both sheep and horses, until the land was leased to Ready Lawn in late 2014. There is no evidence of historical land uses that would lead to a suspicion of land contamination. Neither is there any evidence of irrigation. Ready Lawn Ltd has provided a list of agrichemicals used on the Site since 2014, complete with the Material Safety Data Sheets (MSDS).

A comprehensive review of the MSDS for the agrichemicals used on the Site by Ready Lawn has not identified any agrichemicals that would trigger a definition of the Site as a Contaminated Site.

FINDING

A comprehensive assessment of historical and contemporary aerial imagery, combined with a comprehensive review of the agrichemicals used on the Ready Lawn area of the Site over the past 5-years has confirmed that the proposed Quarry extension is not deemed a “contaminated site”.

Prior to late 2014 the Site was used for grazing, primarily sheep.

AERIAL IMAGERY

Aerial imagery from both Google Earth Pro and Can GIS have been analysed. From the earliest aerial image available, dated 1955-1959 (Figure 1), until the aerial image dated 29th December 2014, the Site appears to have been used for grazing. During this period, the imagery is consistent and



Figure 1: 1955 – 1959 (ECan GIS)

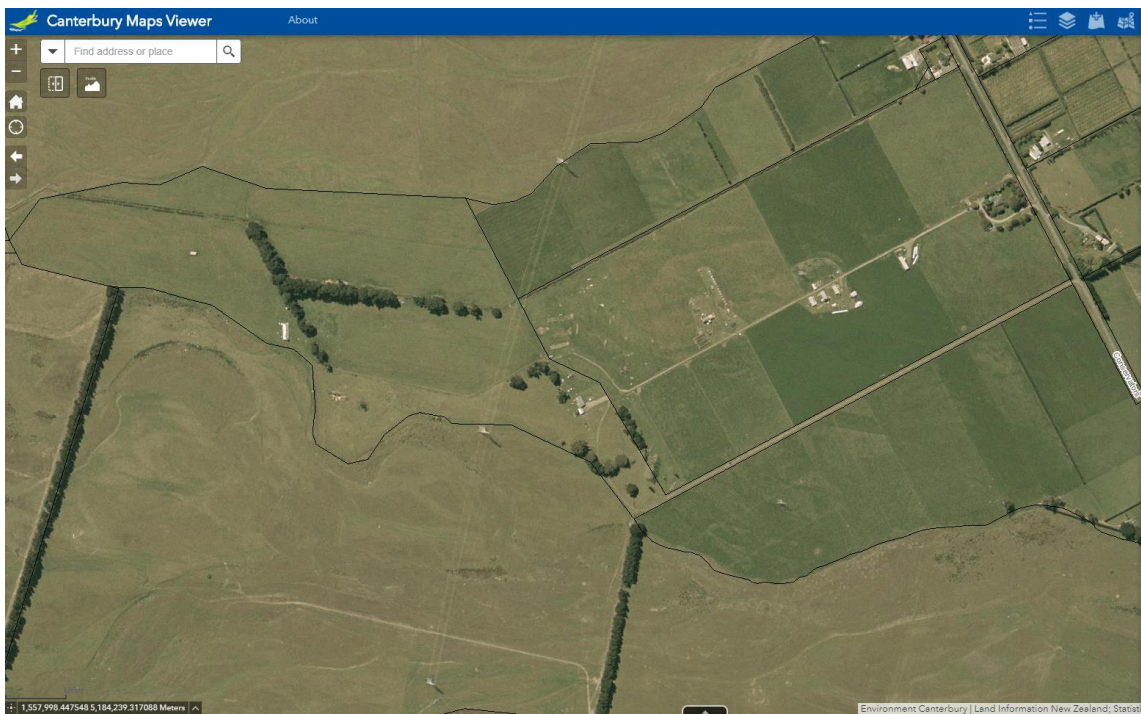


Figure 2: 2004 – 2010 (ECan GIS)



Figure 3: 21st January 2005 (Google Earth Pro)



Figure 4: 26th April 2012 (Google Earth Pro) Land use - grazing



Figure 5: 29th December 2014 (Google Earth Pro)

First recorded aerial imagery of Ready Lawn operations



Figure 6: 25th August 2018 (Google Earth Pro) Includes exit=sting SOL Quarry

READ LAWN LTD – AGRICHEMICALS

The following Table details the agrichemicals used by Ready Lawn on the Site. There is no record of any agrichemical usage prior to Ready Lawn operations on the Site, which commenced in late 2014.

Product	Use	Toxicity	Persistence	Bioaccumulative
Agritone	Herbicide	<ul style="list-style-type: none"> Acute toxicant Target organ toxicant Eye corrosive Aquatic toxicant Soil toxicant Terrestrial vertebrate toxicant 	<p>In soil, MCPA is degraded to 4-chloro-2-methylphenol, followed by ring hydroxylation and ring opening. DT50 <7days after initial 'lag phase'. Duration of residual activity in soil c.3-4 months, following an application rate of 3kg/ha.</p> <ul style="list-style-type: none"> Persistence – Low DT50 – less than 7 days 	No
Ignite	Contact Herbicide (Grass)	<ul style="list-style-type: none"> Acute toxicant Aquatic toxicant 	NIL	No
Kamba	Herbicide	<ul style="list-style-type: none"> Acute toxicant Skin irritant Eye irritant Target organ irritant Aquatic toxicant Soil toxicant Terrestrial vertebrate toxicant Terrestrial invertebrate toxicant 	<p>In the soil, dicamba microbially degrades, the principal metabolite being 3,6-dichlorosalicylic acid. Under conditions amenable to rapid metabolism. DT50 <14 days. Koc = 249-2930 depending on the soil.</p> <ul style="list-style-type: none"> Low DT50 – less than 14 days 	No
Primo Maxx	Plant Growth Regulator	<ul style="list-style-type: none"> Aquatic toxicant 	The information presented here relates to the active	

			ingredient, trinexapac-ethyl. In soil, the ester undergoes rapid degradation, DT50 <1 day. The acid has Kd values 1.5-16, Koc 140-600. Further metabolism is rapid, DT50 typically 2-5 weeks. Within 4-8 weeks, 50% is mineralised to CO ₂ . Hydrolytically stable under normal environmental conditions. Kow logP = 1.60 (pH 5.3; 25°C) <ul style="list-style-type: none"> • Low • DT50 = 2 – 5 weeks 	
Quantum	Herbicide	<ul style="list-style-type: none"> • Aquatic toxicant • Soil toxicant 	<ul style="list-style-type: none"> • Low • DT50 – less than 50 days 	No
Glysohate (Roundup)	Herbicide	<ul style="list-style-type: none"> • Aquatic toxicant 	Glyphosate is strongly absorbed by soil and therefore becomes practically immobile. Microbial degradation is the major cause of loss from soil with liberation of carbon dioxide. <ul style="list-style-type: none"> • Low • DT50 – 47 days 	No
TAG	Residual Herbicide		<ul style="list-style-type: none"> • Low • DT50 – less than 50 days 	No



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