

# **Preliminary Environmental Site Inspection**

# 1535 MAIN SOUTH ROAD ROLLESTON, CHRISTCHURCH

### **SUBMITTED TO:**

NIMBUS GROUP 22 FOSTER ST PO BOX 8394 RICCARTON Christchurch

7 February 2013

### **DISTRIBUTION**

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1 Copy – Geoscience Consulting (NZ) Ltd

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Figure 1: Site Location Plan

Figure 2: 1942 Aerial Photograph

Figure 3: 1974 Aerial Photograph

### **APPENDICES**

Appendix 1: CRC LLUR Statement

Appendix 2: Site Photographs

### 1 INTRODUCTION

Geoscience Consulting (NZ) Ltd (Geoscience) was requested by Nimbus Group to undertake a preliminary environmental site inspection (PSI) at 1535 Main South Road, Rolleston, Christchurch.

Figure 1 indicates the location of the property. Geoscience understands that the 40.6 ha site is to be subdivided and requires a preliminary site inspection to satisfy Selwyn District Council requirements

This PSI was undertaken in accordance with Ministry for the Environment (MfE) 2001, Guidelines for Reporting on Contaminated Sites<sup>1</sup>.

### 1.1 Objectives of the Assessment

The objective of this PSI was to assess the potential for contaminants to have been deposited at the site as a result of historic activities undertaken within or in the immediate vicinity of the property and report on the potential risk posed to future site users.

### 1.2 Approach

To satisfy the objectives, Geoscience undertook the following scope of work:

### 1.2.1 Review of Site Information

A number of sources were contacted for information relating to the site regarding its past and present uses and to identify any other environmental issues which may be on record. This included contacting Canterbury Regional Council (CRC) to determine if there were any records on the Listed Land Use Register (LLUR) and reviewing records held by Selwyn District Council including the property file and dangerous goods file. A review of a number of historic and current aerial photographs was also undertaken using images from NZ Aerial Mapping and Google Earth.

### 1.2.2 Site Inspection

A brief site walkover was undertaken on 24<sup>th</sup> January 2013 by Hazel Atkins of Geoscience Consulting Ltd. Objective evidence was collected through discussions with the site owner, Bruce and Michelle Coles, as well as observations of activities and conditions present at the site.

### 2 SITE DESCRIPTION

A summary of the site identification information is given in Table 1 below:

**Table 1: Summary of Site Description** 

Item Description	
Location:	1535 Main South Road, Rolleston
Legal Description: Lot 3 and Lot 4 DP74253	
Current Owner:	Bruce and Michelle Coles
Current Site Use:	Agricultural and residential
Proposed Site Use:	Living Z on Lot 3 and Rural Residential on Lot 4. The site is to be subdivided into 36 sections.
Site Area:	40.6 ha
Building Construction:	Residential building and attached double garage: weatherboard; iron roof;

Item	Description			
	concrete perimeter footings.			
	Four farm buildings/hay barns: corrugated iron.			
Grain stores.				
Old school building (used for storage): weatherboard, light iron.				
Feed/animal shelters: light iron.				
Local Authority:	Selwyn District Council			
Zoning: Lot 3 is Living Z. Lot 4 is Inner Plains				

### 2.1 Site Setting

A summary of the site's setting is given in Table 2 below:

**Table 2: Site Setting** 

Item	Description		
Topography	Site is flat		
Local Setting  The surrounding is agricultural with a residential subdivision to west.			
Surface Water Receptors	Unnamed land drains to the north of the site		
Geology <sup>2</sup>	Alluvial gravel		
Hydrogeology <sup>3</sup>	Groundwater flow is predominantly to the south east. The site is over an unconfined or semi-confined aquifer.		
Groundwater Abstractions <sup>3</sup>	There is one current groundwater abstraction located on the site: M36/0259: Coles; Main South Road; irrigation and water level observation. CRC011085: Coles; Main South Road; to take and use groundwater. There are a number of groundwater abstractions located within 150m of the site: M36/4040: N Welbeloved; Main South Road; domestic supply. M36/7763: Lowes Road Holdings Ltd; Lowes Road; domestic and stockwater irrigation.		
Discharge Consents <sup>3</sup>	There are no current discharge consents located on the site. There are a number of discharge consents located within 150 m of the site. These are for the Park Lane Estate subdivision, which is located east of the site, and are for the discharge of stormwater to land.		

### 3 SITE HISTORY

A number of sources were used to investigate the past uses of the site. The findings of these information searches have been summarised in this section.

**Table 3: Site History** 

Item	Description
Discussion with site owner	A letter received from the Coles states that they have been on the property since 1990. They originally farmed pigs but changed to sheep grazing when they realised the land was better suited to them. They occasionally grow peas, for their own consumption, and oats. Horses are

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Item	Description			
	also grazed on the site. The main use of the site is for hay making. The site historically has been used for sheep grazing.			

**Table 4: Review of Selwyn District Council Property File** 

Date	Description
10/12/1984	Building consent to install a tractor/equipment shed
16/09/1993	Application for a septic tank effluent disposal system
12/10/1994	Application for a solid fuel heater

Table 5: Summary of Canterbury Regional Council Listed Land Use Register (CRC LLUR)

Period From Period To		HAIL Activity (s)	LLUR Category	
		None	None	
-   - Additional Information		There is one report associated with the site, a audited; the site has not been awarded a LLL is by Tonkin and Taylor and is dated January desk-based ground contamination assessme Council regarding planned land zone change investigated 6 sites around the Rolleston area contaminants. No specific contaminants were	JR category. The report 2011. The report is a nt for Selwyn District s. The report a and identified possible	

Aerial photographs dating from 1942 to 2011 have been reviewed (refer to Figures 2 and 3). In summary the aerial photographs show:

**Table 6: Aerial Photographs** 

Date	Figure No.	Description
residential and farm buildings are locative site. The remainder of the site is a purposes. There are a number of feed		The site is being used for both agricultural and residential purposes. The residential and farm buildings are located in the north-eastern corner of the site. The remainder of the site is used for grazing and cropping purposes. There are a number of feeding areas which can be seen in the paddocks. The surrounding area is predominantly agricultural with associated residential buildings.
residential and farm buil 1974 3 remainder of the site is s feeding areas can no lor		The site is being used for both agricultural and residential purposes. The residential and farm buildings remain in the north-eastern corner. The remainder of the site is still used for grazing and cropping purposes. The feeding areas can no longer be seen. The surrounding area is predominantly agricultural with associated residential buildings.
2012	Google Earth	The site is predominantly agricultural with the residential property and farm buildings situated in the north-eastern corner. The surrounding area is mainly residential to the west of the site and agricultural to the north, south and east.

### 4 CURRENT SITE CONDITIONS

A site inspection was undertaken on the 24<sup>th</sup> January 2013 by Hazel Atkins of Geoscience Consulting Ltd. The information gathered is summarised below:

**Table 7: Current Site Conditions** 

Site Condition	Comments		
Visible signs of contamination	No visible signs of contamination were noted at the site.		
Surface water appearance	No surface water observed at the site.		
Current surrounding land use	Surrounding land use is a mix of agricultural and residential with the land to the west of the site being redeveloped as a residential subdivision.		
Condition of buildings and roadways	Buildings and roadways in good condition.		
Local sensitive environments	There are no sensitive environments.		
Visible signs of plant stress	No visible signs of plant stress were noted at the site.		
Conditions at site boundary	Stable with no signs of erosion.		
Additional Observations (if any)	Two above ground storage tanks (ASTs) were observed on the site with the pumps located directly beneath them. The location of the tanks can be seen in Figure 1. No staining was observed around the tanks. The site also has a horse trotting track of approximately 1 year old. The track comprised mainly sand with some gravel.		

### 5 POTENTIAL HAIL LIST ACTIVITIES

Activities included on the Hazardous Activities and Industries List (HAIL)<sup>4</sup> trigger the requirement for a contaminated land investigation prior to development. The two above ground storage tanks represent a HAIL activity; A17 – Storage tanks or drums for fuel, chemical or liquid waste.

### 6 CONCEPTUAL SITE MODEL

A contamination conceptual site model consists of three primary components to allow the potential for risk to be determined, these are:

- Source of contamination;
- Pathway to allow the contamination to mobilise; and
- Sensitive receptors which may be impacted by the contamination.

**Table 8: Conceptual Site Model** 

Source	Pathway	Receptor	
Above-ground Storage Tanks - hydrocarbons	Surface/groundwater Direct contact, inhalation, and ingestion.		
Risk of Contamination	Low - Medium – The above-ground storage tanks located on the site are a potential source of contamination. The tanks were in good condition with only slight rusting visible. There is no information on the LLUR of their existence.		

The above ground storage tanks are located south of the residential buildings on the site. After discussions with the client, Geoscience understands that this area is to remain as residential/agricultural land. Therefore, the area to be subdivided into residential land is considered to have a low risk of contamination due to the distance and lack of pathways which could transport the contamination onto the development site.

### 7 CONCLUSIONS

The information collected and the historic aerial photographs indicate an agricultural grazing and residential past. There is no reported evidence which suggests the presence of sheep dips, large scale pesticide application or waste disposal operations at the site.

The information reviewed indicates that the surrounding area is a mix of residential and agricultural.

The CRC LLUR found no specific listed land uses on the site. The Selwyn District Council property file has no records indicating that any potentially contaminative activity has occurred on the property.

During the site inspection, two above-ground storage tanks were observed south of the residential property. The tanks contained diesel and petrol and are used for farm machinery. The ASTs are listed on the HAIL as category A17 – Storage tanks or drums for fuel, chemicals or liquid waste. Discussions with the client about the subdivision revealed that this area is to remain agricultural/residential. Therefore, the risk to the future subdivision of the land to residential land use is considered low due to the distance and lack of pathways which could transport the contamination onto the development site.

Based on the information gathered, we conclude that the potential for soil and water contamination at the site, in its existing state, is low and is suitable for the intended residential land use.

The area that is remaining agricultural/residential will need further investigation if its land use is to be changed in the future.

### 8 RECOMMENDATIONS

No further environmental work is required on the land to be subdivided for residential end use at 1535 Main South Road, Rolleston.

Information about the ASTs should be added to the CRC LLUR, the locations are shown in Figure 1.

### 9 REFERENCES

- 1 MfE 2011: Contaminated Land Management Guidelines No.1 : Reporting on Contaminated Sites in New Zealand;
- Forsyth, P.J.; Barrell, D.J.A; Jongens, R. 2008: Sheet 16 Geology of the Christchurch Area 1:250,000. Institute of Geological and Nuclear Sciences, Lower Hutt.
- 3 ECan 2012: Environment Canterbury on-line GIS Database. <a href="http://ecan.govt.nz/services/online-services/gis-mapping/Pages/enter-gis.aspx">http://ecan.govt.nz/services/online-services/gis-mapping/Pages/enter-gis.aspx</a>
- 4 MfE Oct 2011: Ministry for the Environment Hazardous Activities and Industries List.

### 10 LIMITATIONS

i. We have prepared this report in accordance with the brief as provided. This report has been prepared for the use of our client, Nimbus Group, their professional advisers and the relevant Territorial Authorities in relation to the specified project brief described in this report. No liability is

accepted for the use of any part of the report for any other purpose or by any other person or entity.

- ii. The recommendations in this report are based on the ground conditions indicated from published sources, site inspections and subsurface investigations described in this report based on accepted normal methods of site investigations. Only a limited amount of information has been collected to meet the specific financial and technical requirements of the Client's brief and this report does not purport to completely describe all the site characteristics and properties. The nature and continuity of the ground between test locations has been inferred using experience and judgement and it must be appreciated that actual conditions could vary from the assumed model.
- iii. Subsurface conditions relevant to construction works should be assessed by contractors who can make their own interpretation of the factual data provided. They should perform any additional tests as necessary for their own purposes.
- iv. This Limitation should be read in conjunction with the IPENZ/ACENZ Standard Terms of Engagement.
- v. This report is not to be reproduced either wholly or in part without our prior written permission.

We trust that this information meets your current requirements. Please do not hesitate to contact the undersigned on 03 328 9012 if you require any further information.

For and on behalf of Geoscience Consulting (NZ) Ltd,

**Hazel Atkins** 

Engineering/Environmental Geologist

**Dave Robotham** 

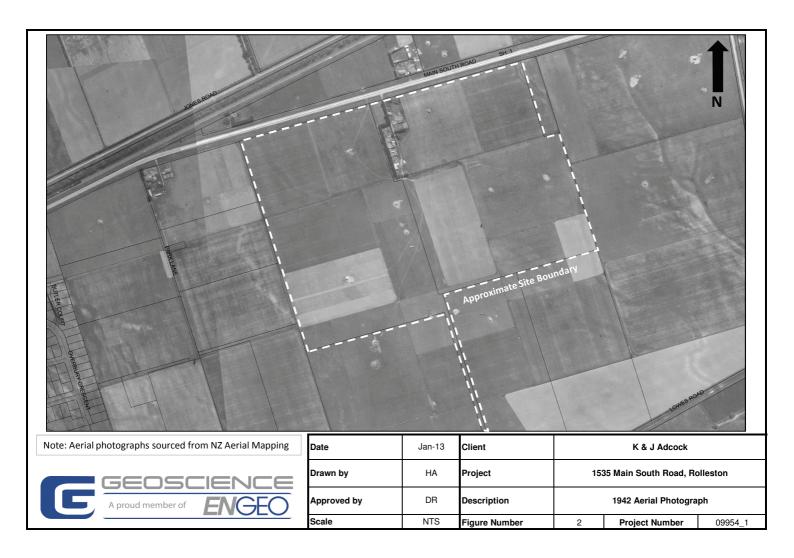
Senior Environmental Consultant

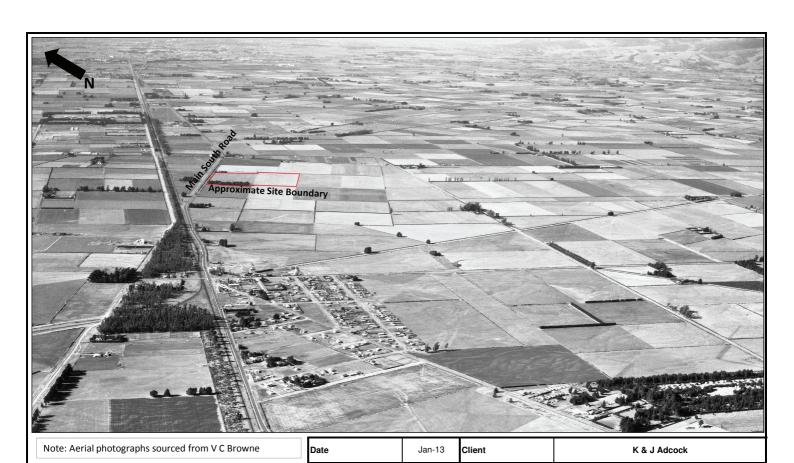


### **FIGURES**









НА

DR

NTS

Project

Description

Figure Number

Drawn by

Scale

Approved by

1535 Main South Road, Rolleston

1973 Aerial Photograph

Project Number

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# **APPENDIX 1**

**CRC LLUR Statement** 



# Statement from the Listed Land Use Register



58 Kilmore Street, PO Box 345, Christchurch

Fax: 03 365 3194

Email: ecinfo@ecan.govt.nz

or: 0800 EC INFO (0800 324 636) Website: www.ecan.govt.nz

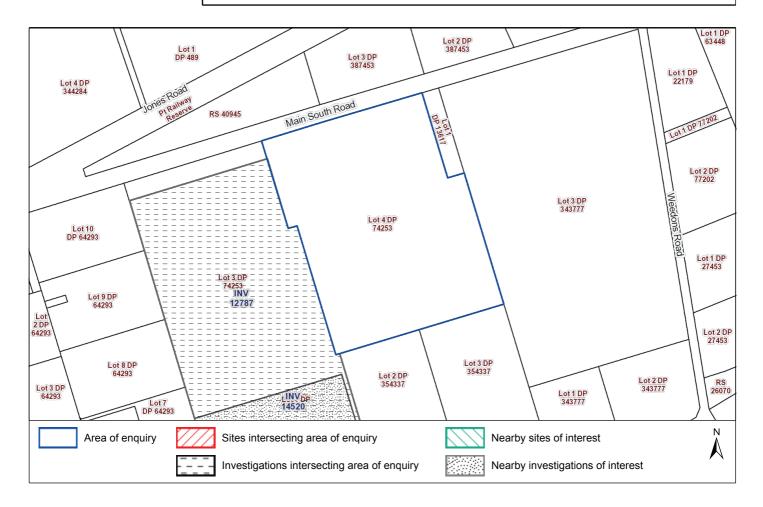
Date:

**Land Parcels:** 

14 January 2013

• Lot 4 DP 74253

Valuation No(s): 2405500700



### **Summary of sites:**

There are no sites associated with the area of enquiry.

Please note that the above table represents a summary of sites intersecting the area of enquiry within a 100m buffer.

### Information held about other investigations on the Listed Land Use Register

1 Jan 2011 INV 12787: Desk-Based Ground Contamination Assessment Plan Change 7 Area

Tonkin and Taylor Ltd

23 Nov 2012 INV 14520: GW Rolleston Ltd - Preliminary Site Investigation Report - 116 Levi Road, Rolleston

Spiire

### Summary of above Investigations

Report(s) have not yet been audited.

For further information from Environment Canterbury, contact the Contaminated Sites Officer and refer to enquiry number 14639.

Disclaimer:

The enclosed information is derived from Environment Canterbury's Listed Land Use Register and is made available to you under the Local Government Official Information and Meetings Act 1987 and Environment Canterbury's Contaminated Land Information Management Strategy (ECan 2009).

This information reflects Environment Canterbury's current understanding of this site, which is based only on the information thus far obtained by it and held on record concerning this site. It is released only as a copy of those records and is not intended to provide a full, complete or totally accurate assessment of the site. As a result, Environment Canterbury is not in a position to warrant that the information is complete or without error and accepts no liability for any inaccuracy in, or omission from, this information.

Any person receiving and using this information is bound by the provisions of the Privacy Act 1993.



# **APPENDIX 2**

Site Photographs







Photo 1: Old school house used for storage

Photo 2: Above ground diesel tank

Photo 3: Above ground petrol tank







Photo 4: Site looking south-west

Photo 5: Horse trotting track

Photo 6: Agricultural farm area



Date taken	Jan-12	Client	Nimbus Group Limited		
Taken by	НА	Project	1535 Main South Road, Rolleston		
Approved by	DR	Description	Site Photographs		
Scale	N/A	Photo No.	1 to 6	Project Number	9954

Bore or Well No: M36/0155

Well Name:

Owner: WATSON .D.



Street of Well: MAIN SOUTH RD File No:

Locality: WEEDONS Allocation Zone: Selwyn-Waimakariri

NZGM Grid Reference: M36:618-354 QAR 4

NZGM X-Y: 2461800 - 5735400

Location Description: BESIDE PUMP SHED Uses:

**ECan Monitoring:** 

Well Status: Casing Retrieved /

Abandoned

Drill Date: 18 Aug 1969 Water Level Count: 0

Well Depth: 52.10m -GL Strata Layers: 8

Initial Water Depth: -17.60m -MP Aquifer Tests: 0

**Diameter:** 203mm **Isotope Data:** 0

Yield/Drawdown Tests: 1

Measuring Point Ait: 49.21m MSD QAR 4 Highest GW Level:

GL Around Well: 0.00m -MP Lowest GW Level:

MP Description: First Reading:

Last Reading:

**Driller:** A M Bisley & Co **Calc. Min. GWL:** -19.50m -MP

**Drilling Method:** Cable Tool Last Updated: 24 Aug 1995

Casing Material: NOT LINED Last Field Check:

Pump Type: Unknown

Yield: 4 l/s Screens:

**Drawdown:** 13 m **Screen Type:** Galvanised (Nold)

Specific Capacity: 0.29 l/s/m Top GL: 43.10m

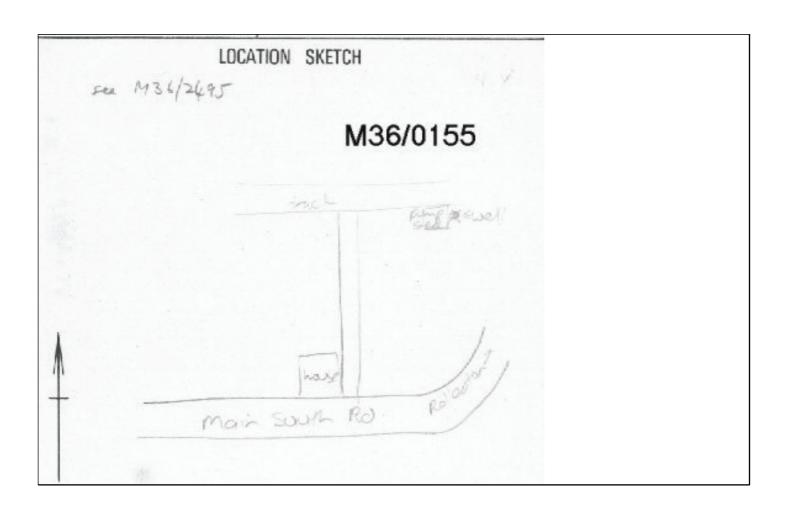
Bottom GL: 52.10m

Aquifer Type: Unknown

**Aquifer Name:** 

Date Comments

CASING PULLED OUT



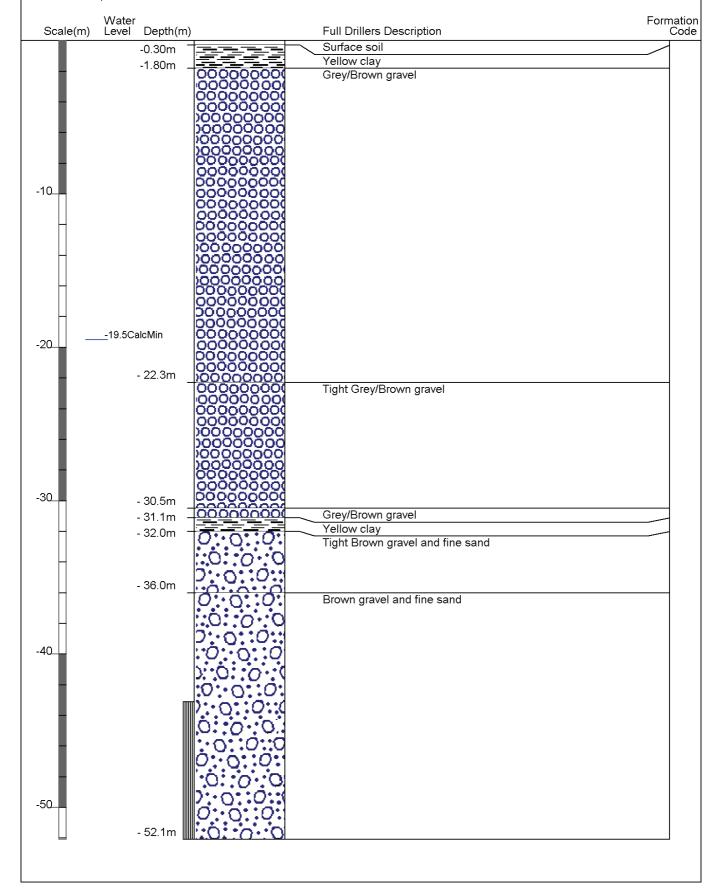
# Borelog for well M36/0155

Gridref: M36:618-354 Accuracy: 4 (1=best, 4=worst)

Ground Level Altitude : 51 +MSD Driller : A M Bisley & Co Drill Method : Cable Tool

Drill Depth : -52.09m Drill Date : 18/08/1969





Bore or Well No: M36/4040

Well Name:

Owner: WELBELOVED .N.



File No:

Street of Well: MAIN SOUTH RD

Locality: WEEDONS Allocation Zone: Selwyn-Waimakariri

NZGM Grid Reference: M36:6191-3575 QAR 4

NZGM X-Y: 2461910 - 5735750

Location Description: Uses: Domestic Supply

**ECan Monitoring:** 

Well Status: Active (exist, present)

Drill Date: 22 May 1989 Water Level Count: 0

Well Depth: 54.00m -GL Strata Layers: 7

Initial Water Depth: -19.20m -MP Aquifer Tests: 0

**Diameter:** 150mm **Isotope Data:** 0

Yield/Drawdown Tests: 0

Measuring Point Ait: 50.61m MSD QAR 3 Highest GW Level:

GL Around Well: 0.00m -MP Lowest GW Level:

MP Description: First Reading:

Last Reading:

**Driller:** McMillan Water Wells Ltd **Calc. Min. GWL:** -20.20m -MP

**Drilling Method:** Rotary/Percussion Last Updated: 14 Sep 1995

Casing Material: STEEL Last Field Check:

Pump Type: Submersible

Yield: 0 l/s Screens:

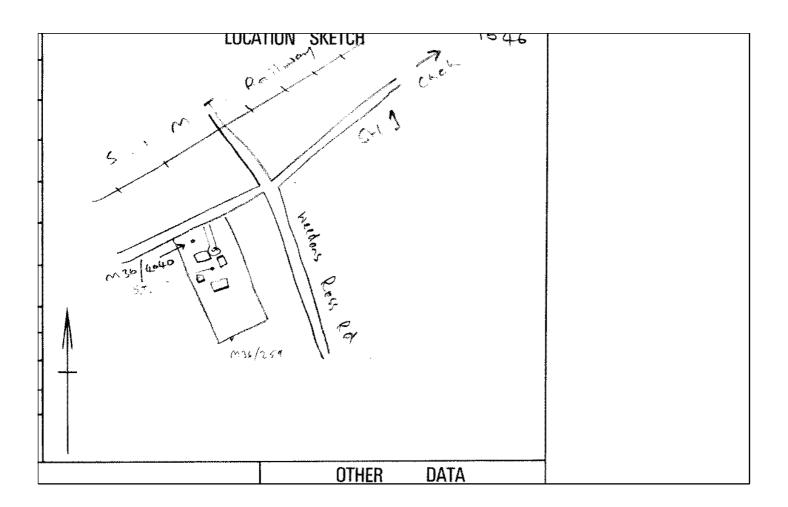
**Drawdown:** 0 m **Screen Type:** Stainless steel

Specific Capacity: Top GL: 52.00m

Bottom GL: 54.00m

Aquifer Type: Unknown

**Aquifer Name:** 



### Borelog for well M36/4040

Gridref: M36:6191-3575 Accuracy: 4 (1=best, 4=worst)

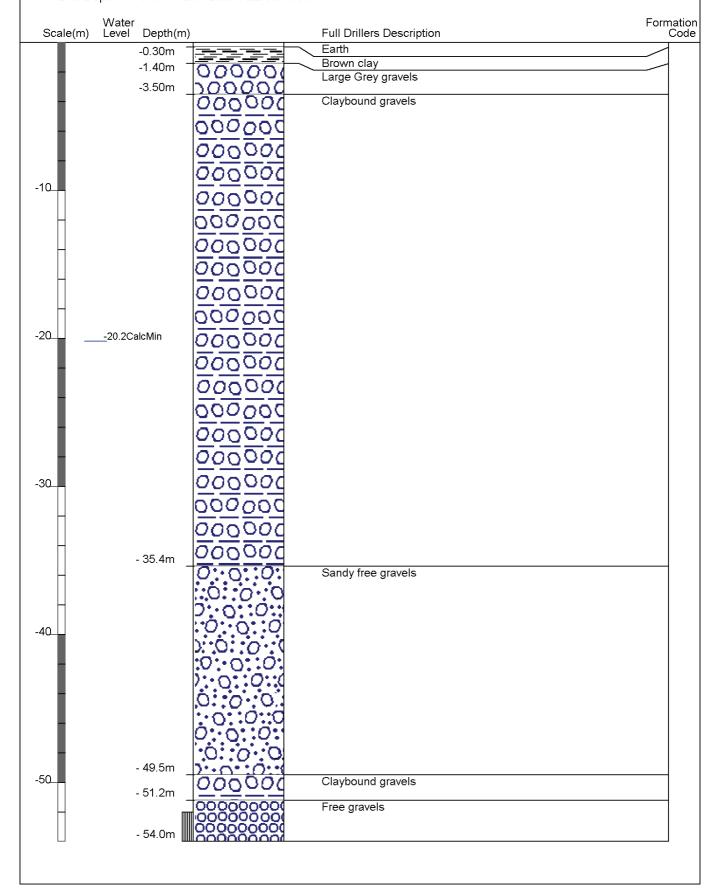
Ground Level Altitude : 50.61 +MSD

Driller : McMillan Water Wells Ltd

Drill Method : Rotary/Percussion

Drill Depth : -54m Drill Date : 22/05/1989





Bore or Well No: M36/0259

Well Name:

Owner: Mr & Mrs B C & M A Coles



Street of Well: MAIN SOUTH RD File No: CO6C/00415

Locality: ROLLESTON Allocation Zone: Selwyn-Waimakariri

NZGM Grid Reference: M36:61915-35646 QAR 2

NZGM X-Y: 2461915 - 5735646

Location Description: SEE M36/2495 Uses: Irrigation

**ECan Monitoring:** Water Level Observation

Well Status: Active (exist, present)

Drill Date: 09 May 1973 Water Level Count: 130

Well Depth: 61.60m -GL Strata Layers: 16

Initial Water Depth: -15.65m -MP Aquifer Tests: 0

**Diameter:** 200mm **Isotope Data:** 0

Yield/Drawdown Tests: 1

Measuring Point Ait: 51.06m MSD QAR 2 Highest GW Level: 9.90m below MP

GL Around Well: -0.20m -MP Lowest GW Level: 19.80m below MP

MP Description: ToC First Reading: 23 Sep 1974

Last Reading: 12 May 2008

**Driller:** McMillan Water Wells Ltd **Calc. Min. GWL:** -19.52m -MP

Drilling Method: Cable Tool Last Updated: 12 May 2008

Casing Material: STEEL Last Field Check: 12 May 2008

Pump Type: Unknown

Yield: 13 l/s

Specific Capacity: 0.65 l/s/m Top GL: 51.60m

Bottom GL: 56.10m

Screens:

Aquifer Type: Unknown Screen Type: Galvanised (Nold)

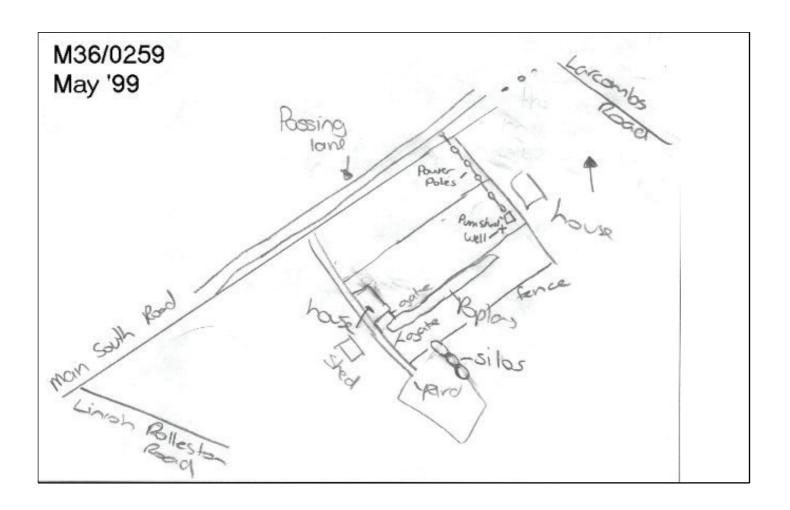
Aquifer Name: Linwood Gravel Top GL: 58.60m

Bottom GL: 61.60m

Date Comments

NCCB 218/S83A 23. M36W 155/6.

10 May 2011 First WL reading set as ISWL



Borelog for well M36/0259
Gridref: M36:61915-35646 Accuracy: 2 (1=high, 5=low)
Ground Level Altitude: 50 +MSD

: McMillan Water Wells Ltd

Drill Method : Cable Tool



Wa Scale(m) Lev	el Depth(m	n)	Full Drillers Description	Forma C
	-0.30m		Earth	$\overline{}$
	-1.80m	<del>                                     </del>	Clay	
			Well sorted sandy gravel	
		::0:::0•::0		
		D::0::0::		
	-7.00m	:0:0:0:0		
HWL		000000	Slightly claybound gravel	
-9.70				
<u> </u>		000000		
	- 11.6m	QOOQQA		1
H I		0::0::0:	Sandy gravel	
	- 15.2m	2.0.0.		1
ΗΙ		100000d	Claybound gravel	
	- 17.4m			1
$H \perp$		0::0::0:	Sandy gravel	
∩ I I       •	3Cald <b>19</b> ir5m	المنحضينيا		
-19.60		1000000	Slightly claybound gravel	
LWL		000000		
		000000		
•		000000		
		000000		
	- 29.3m			۱,
0	- 29.9m		Well sorted gravel	
		1000000	Slightly claybound gravel	
Н	- 32.6m	202200		1
	- 34.1m	70: o::0:□	Dirty sandy gravel	I
Н	- 04.1111	100-00d	Well sorted gravel, some clay	<u>'</u>
		1000000	Tron contact graver, contact cay	
П		1000000		
Ц		12-2222		
_		10000000		
0		IZOZZZGZ		
		loooood		
		loooo=a		
		logoogg		
		00=000		
		10 <i>0</i> 00000		
		0=000d		
		1000000		
0	- 50.3m	1000=0d		
- 1	22.2111	<del>  </del>	Brown gravel, sandy, some clay	
Н	ſ		<u> </u>	
	- 53.9m			1
Н	55.5111	00000000	Well sorted gravel, Water-bearing	
			The second grand, that would	
П	- 56.7m <sup>l</sup>		N. II.	
Ц	50.0		Yellow sandy clay	
	- 58.8m	00-00	Clightly olaybayad grayal atain-d	I
0			Slightly claybound gravel, stained	
	- 61.6m			
_				

# **Appendix C**

# **Communications**

- Enable and Orion confirmation letters





05 February 2013.

SDM.12/4B

e2 Environmental Ltd., PO Box 31159, CHRISTCHURCH 8444.

Attention: Mr Peter Harte.

Dear Peter,

POSSIBLE SUBDIVISION: COLES SUBDIVISION, ROLLESTON.

In reply to your email of 30 January 2013, we confirm that our electrical network in the area has sufficient capacity available at present to supply the proposed load to the lots shown on your Preliminary Drawing No. 11034-03-103 Revision P1.

The electrical reticulation for the subdivision would be in terms of Orion's Connections and Extensions policy applicable at the time of subdivision. The proposed subdivision would need to provide a cable easement in gross to Orion from the NE corner of the development to SH1.

Yours sincerely,

Shaun McConnell.

Project Manager - Property.

DDI: (03) 363 9747.

Email: shaun.mcconnell@oriongroup.co.nz.

MCIL





14<sup>th</sup> January 2013

Robin Schulz Nimbus Group P O Box 8394 Christchurch 8440

Dear Robin,

### **UFB Fibre delivery to Coles Fields, Rolleston**

In response to your email of the 24<sup>th</sup> December requesting confirmation from Enable of fibre delivery in to the Coles fields subdivision in Rolleston, I am pleased to be able to confirm the following.

Enable is committed to the delivery of an Enable fibre network into the above subdivision subject to agreement of:

- 1. The Northwestern part of the subdivision (via Park Lane) is the feeder route therefore this would be the area of the Coles fields requiring development and servicing first.
- 2. Pricing from Enable is included in the attached proposal

I trust that the above confirmation allows you to continue the planning and consenting of this area of Rolleston. Please let me know if you require any other information

I look forward to working with you on this project.

Yours sincerely

Rob Armstrong

**Business Development Manager** 

**Annexure Seven: Site Contamination Preliminary Site Assessment** 



# **Preliminary Environmental Site Inspection**

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Figure 2: 1942 Aerial Photograph

Figure 3: 1974 Aerial Photograph

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Appendix 2: Site Photographs

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To satisfy the objectives, Geoscience undertook the following scope of work:

### 1.2.1 Review of Site Information

A number of sources were contacted for information relating to the site regarding its past and present uses and to identify any other environmental issues which may be on record. This included contacting Canterbury Regional Council (CRC) to determine if there were any records on the Listed Land Use Register (LLUR) and reviewing records held by Selwyn District Council including the property file and dangerous goods file. A review of a number of historic and current aerial photographs was also undertaken using images from NZ Aerial Mapping and Google Earth.

### 1.2.2 Site Inspection

A brief site walkover was undertaken on 24<sup>th</sup> January 2013 by Hazel Atkins of Geoscience Consulting Ltd. Objective evidence was collected through discussions with the site owner, Bruce and Michelle Coles, as well as observations of activities and conditions present at the site.

### 2 SITE DESCRIPTION

A summary of the site identification information is given in Table 1 below:

**Table 1: Summary of Site Description** 

Item Description		
Location:	1535 Main South Road, Rolleston	
Legal Description:	Lot 3 and Lot 4 DP74253	
Current Owner:	Bruce and Michelle Coles	
Current Site Use: Agricultural and residential		
Proposed Site Use:	Living Z on Lot 3 and Rural Residential on Lot 4. The site is to be subdivided into 36 sections.	
Site Area: 40.6 ha		
Building Construction:	Residential building and attached double garage: weatherboard; iron roof;	

Item	Description	
concrete perimeter footings.		
Four farm buildings/hay barns: corrugated iron.		
Grain stores.		
Old school building (used for storage): weatherboard, light iron.		
Feed/animal shelters: light iron.		
Local Authority:	Selwyn District Council	
Zoning:	Lot 3 is Living Z. Lot 4 is Inner Plains	

### 2.1 Site Setting

A summary of the site's setting is given in Table 2 below:

**Table 2: Site Setting** 

Item	Description	
Topography	Site is flat	
Local Setting	The surrounding is agricultural with a residential subdivision to the south west.	
Surface Water Receptors	Unnamed land drains to the north of the site	
Geology <sup>2</sup>	Alluvial gravel	
Hydrogeology <sup>3</sup>	Groundwater flow is predominantly to the south east. The site is over an unconfined or semi-confined aquifer.	
Groundwater Abstractions <sup>3</sup>	There is one current groundwater abstraction located on the site: M36/0259: Coles; Main South Road; irrigation and water level observation. CRC011085: Coles; Main South Road; to take and use groundwater. There are a number of groundwater abstractions located within 150m of the site: M36/4040: N Welbeloved; Main South Road; domestic supply. M36/7763: Lowes Road Holdings Ltd; Lowes Road; domestic and stockwater irrigation.	
Discharge Consents <sup>3</sup> There are no current discharge consents located on the site. There are a number of discharge consents located within 150 m These are for the Park Lane Estate subdivision, which is located site, and are for the discharge of stormwater to land.		

### 3 SITE HISTORY

A number of sources were used to investigate the past uses of the site. The findings of these information searches have been summarised in this section.

**Table 3: Site History** 

Item	Description	
Discussion with site owner	A letter received from the Coles states that they have been on the property since 1990. They originally farmed pigs but changed to sheep grazing when they realised the land was better suited to them. They occasionally grow peas, for their own consumption, and oats. Horses are	

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Item	Description	
	also grazed on the site. The main use of the site is for hay making. The site historically has been used for sheep grazing.	

**Table 4: Review of Selwyn District Council Property File** 

Date	Description
10/12/1984	Building consent to install a tractor/equipment shed
16/09/1993	Application for a septic tank effluent disposal system
12/10/1994	Application for a solid fuel heater

Table 5: Summary of Canterbury Regional Council Listed Land Use Register (CRC LLUR)

Period From Period To		HAIL Activity (s)	LLUR Category
		None	None
Additional Information		There is one report associated with the site, a audited; the site has not been awarded a LLL is by Tonkin and Taylor and is dated January desk-based ground contamination assessme Council regarding planned land zone change investigated 6 sites around the Rolleston area contaminants. No specific contaminants were	JR category. The report 2011. The report is a nt for Selwyn District s. The report a and identified possible

Aerial photographs dating from 1942 to 2011 have been reviewed (refer to Figures 2 and 3). In summary the aerial photographs show:

**Table 6: Aerial Photographs** 

Date	Figure No.	Description	
1942	2	The site is being used for both agricultural and residential purposes. The residential and farm buildings are located in the north-eastern corner of the site. The remainder of the site is used for grazing and cropping purposes. There are a number of feeding areas which can be seen in the paddocks. The surrounding area is predominantly agricultural with associated residential buildings.	
1974	3	The site is being used for both agricultural and residential purposes. The residential and farm buildings remain in the north-eastern corner. The remainder of the site is still used for grazing and cropping purposes. The feeding areas can no longer be seen. The surrounding area is predominantly agricultural with associated residential buildings.	
2012	Google Earth	The site is predominantly agricultural with the residential property and farm buildings situated in the north-eastern corner. The surrounding area is mainly residential to the west of the site and agricultural to the north, south and east.	

### 4 CURRENT SITE CONDITIONS

A site inspection was undertaken on the 24<sup>th</sup> January 2013 by Hazel Atkins of Geoscience Consulting Ltd. The information gathered is summarised below:

**Table 7: Current Site Conditions** 

Site Condition	Comments	
Visible signs of contamination	No visible signs of contamination were noted at the site.	
Surface water appearance	No surface water observed at the site.	
Current surrounding land use	Surrounding land use is a mix of agricultural and residential with the land to the west of the site being redeveloped as a residential subdivision.	
Condition of buildings and roadways	Buildings and roadways in good condition.	
Local sensitive environments	There are no sensitive environments.	
Visible signs of plant stress	No visible signs of plant stress were noted at the site.	
Conditions at site boundary	Stable with no signs of erosion.	
Additional Observations (if any)	Two above ground storage tanks (ASTs) were observed on the site with the pumps located directly beneath them. The location of the tanks can be seen in Figure 1. No staining was observed around the tanks. The site also has a horse trotting track of approximately 1 year old. The track comprised mainly sand with some gravel.	

### 5 POTENTIAL HAIL LIST ACTIVITIES

Activities included on the Hazardous Activities and Industries List (HAIL)<sup>4</sup> trigger the requirement for a contaminated land investigation prior to development. The two above ground storage tanks represent a HAIL activity; A17 – Storage tanks or drums for fuel, chemical or liquid waste.

### 6 CONCEPTUAL SITE MODEL

A contamination conceptual site model consists of three primary components to allow the potential for risk to be determined, these are:

- Source of contamination;
- Pathway to allow the contamination to mobilise; and
- Sensitive receptors which may be impacted by the contamination.

**Table 8: Conceptual Site Model** 

Source	Pathway	Receptor
Above-ground Storage Tanks - hydrocarbons	Surface/groundwater Direct contact, inhalation, and ingestion.	Current/Future residents, future site workers and development contractors.
Risk of Contamination	Low - Medium – The above-ground storage tanks located on the site are a potential source of contamination. The tanks were in good condition with only slight rusting visible. There is no information on the LLUR of their existence.	

The above ground storage tanks are located south of the residential buildings on the site. After discussions with the client, Geoscience understands that this area is to remain as residential/agricultural land. Therefore, the area to be subdivided into residential land is considered to have a low risk of contamination due to the distance and lack of pathways which could transport the contamination onto the development site.

### 7 CONCLUSIONS

The information collected and the historic aerial photographs indicate an agricultural grazing and residential past. There is no reported evidence which suggests the presence of sheep dips, large scale pesticide application or waste disposal operations at the site.

The information reviewed indicates that the surrounding area is a mix of residential and agricultural.

The CRC LLUR found no specific listed land uses on the site. The Selwyn District Council property file has no records indicating that any potentially contaminative activity has occurred on the property.

During the site inspection, two above-ground storage tanks were observed south of the residential property. The tanks contained diesel and petrol and are used for farm machinery. The ASTs are listed on the HAIL as category A17 – Storage tanks or drums for fuel, chemicals or liquid waste. Discussions with the client about the subdivision revealed that this area is to remain agricultural/residential. Therefore, the risk to the future subdivision of the land to residential land use is considered low due to the distance and lack of pathways which could transport the contamination onto the development site.

Based on the information gathered, we conclude that the potential for soil and water contamination at the site, in its existing state, is low and is suitable for the intended residential land use.

The area that is remaining agricultural/residential will need further investigation if its land use is to be changed in the future.

### 8 RECOMMENDATIONS

No further environmental work is required on the land to be subdivided for residential end use at 1535 Main South Road, Rolleston.

Information about the ASTs should be added to the CRC LLUR, the locations are shown in Figure 1.

### 9 REFERENCES

- 1 MfE 2011: Contaminated Land Management Guidelines No.1 : Reporting on Contaminated Sites in New Zealand;
- Forsyth, P.J.; Barrell, D.J.A; Jongens, R. 2008: Sheet 16 Geology of the Christchurch Area 1:250,000. Institute of Geological and Nuclear Sciences, Lower Hutt.
- 3 ECan 2012: Environment Canterbury on-line GIS Database. <a href="http://ecan.govt.nz/services/online-services/gis-mapping/Pages/enter-gis.aspx">http://ecan.govt.nz/services/online-services/gis-mapping/Pages/enter-gis.aspx</a>
- 4 MfE Oct 2011: Ministry for the Environment Hazardous Activities and Industries List.

### 10 LIMITATIONS

i. We have prepared this report in accordance with the brief as provided. This report has been prepared for the use of our client, Nimbus Group, their professional advisers and the relevant Territorial Authorities in relation to the specified project brief described in this report. No liability is

accepted for the use of any part of the report for any other purpose or by any other person or entity.

- ii. The recommendations in this report are based on the ground conditions indicated from published sources, site inspections and subsurface investigations described in this report based on accepted normal methods of site investigations. Only a limited amount of information has been collected to meet the specific financial and technical requirements of the Client's brief and this report does not purport to completely describe all the site characteristics and properties. The nature and continuity of the ground between test locations has been inferred using experience and judgement and it must be appreciated that actual conditions could vary from the assumed model.
- iii. Subsurface conditions relevant to construction works should be assessed by contractors who can make their own interpretation of the factual data provided. They should perform any additional tests as necessary for their own purposes.
- iv. This Limitation should be read in conjunction with the IPENZ/ACENZ Standard Terms of Engagement.
- v. This report is not to be reproduced either wholly or in part without our prior written permission.

We trust that this information meets your current requirements. Please do not hesitate to contact the undersigned on 03 328 9012 if you require any further information.

For and on behalf of Geoscience Consulting (NZ) Ltd,

**Hazel Atkins** 

Engineering/Environmental Geologist

**Dave Robotham** 

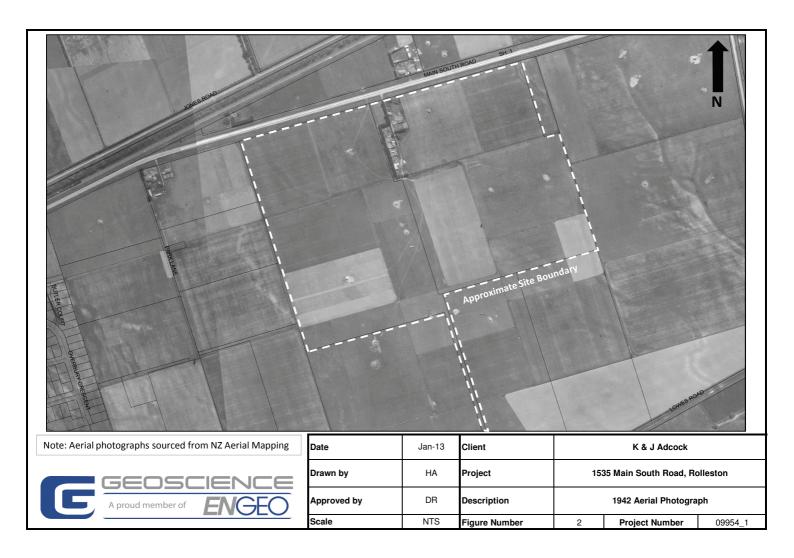
Senior Environmental Consultant

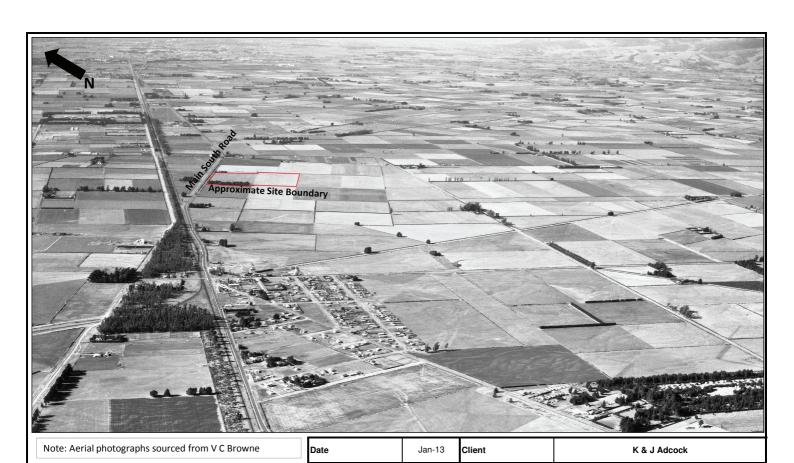


### **FIGURES**









НА

DR

NTS

Project

Description

Figure Number

Drawn by

Scale

Approved by

1535 Main South Road, Rolleston

1973 Aerial Photograph

Project Number

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# **APPENDIX 1**

**CRC LLUR Statement** 



# Statement from the Listed Land Use Register



58 Kilmore Street, PO Box 345, Christchurch

Fax: 03 365 3194

Email: ecinfo@ecan.govt.nz

or: 0800 EC INFO (0800 324 636) Website: www.ecan.govt.nz

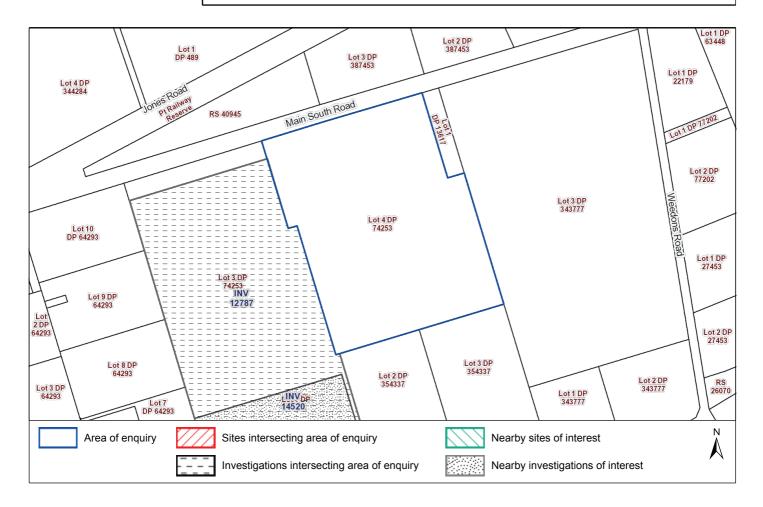
Date:

**Land Parcels:** 

14 January 2013

• Lot 4 DP 74253

Valuation No(s): 2405500700



### **Summary of sites:**

There are no sites associated with the area of enquiry.

Please note that the above table represents a summary of sites intersecting the area of enquiry within a 100m buffer.

### Information held about other investigations on the Listed Land Use Register

1 Jan 2011 INV 12787: Desk-Based Ground Contamination Assessment Plan Change 7 Area

Tonkin and Taylor Ltd

23 Nov 2012 INV 14520: GW Rolleston Ltd - Preliminary Site Investigation Report - 116 Levi Road, Rolleston

Spiire

### Summary of above Investigations

Report(s) have not yet been audited.

For further information from Environment Canterbury, contact the Contaminated Sites Officer and refer to enquiry number 14639.

Disclaimer:

The enclosed information is derived from Environment Canterbury's Listed Land Use Register and is made available to you under the Local Government Official Information and Meetings Act 1987 and Environment Canterbury's Contaminated Land Information Management Strategy (ECan 2009).

This information reflects Environment Canterbury's current understanding of this site, which is based only on the information thus far obtained by it and held on record concerning this site. It is released only as a copy of those records and is not intended to provide a full, complete or totally accurate assessment of the site. As a result, Environment Canterbury is not in a position to warrant that the information is complete or without error and accepts no liability for any inaccuracy in, or omission from, this information.

Any person receiving and using this information is bound by the provisions of the Privacy Act 1993.



# **APPENDIX 2**

Site Photographs







Photo 1: Old school house used for storage

Photo 2: Above ground diesel tank

Photo 3: Above ground petrol tank







Photo 4: Site looking south-west

Photo 5: Horse trotting track

Photo 6: Agricultural farm area



Date taken	Jan-12	Client	Nimbus Group Limited		
Taken by	НА	Project	1535 Main South Road, Rolleston		
Approved by	DR	Description	Site Photographs		
Scale	N/A	Photo No.	1 to 6	Project Number	9954