Land Capability Assessment Report

Lot 1, 207-231 Ackland Road
LETHBRIDGE

Prepared for: SIMONE & STEPHEN FOREMAN
Prepared by: Andrew Redman
DATE: 12th April 2017
Reference Number: 8250C
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1. INTRODUCTION

THE CONSULTANTS

Provincial Geotechnical Pty Ltd has been engaged to undertake a Land Capability Assessment (LCA) for a site at Lot 1, 207-231 Ackland Road, Lethbridge. The field investigation and report have been undertaken and prepared by suitably experienced staff.

Provincial Geotechnical Pty Ltd has appropriate professional indemnity insurance for this type of work. Our professional indemnity insurance certificate is available.

Andrew Redman BSc (Geology) undertook the site investigation and prepared this report.

REPORT SUMMARY

I understand that this report will accompany an application for a Septic Tank Permit to Install submitted to Golden Plains Shire Council for an onsite wastewater management system for a residence at the above address. This document provides information about the site and soil conditions. It also provides a detailed Land Capability Assessment for the site and includes a conceptual design for a suitable onsite wastewater management system, including recommendations for monitoring and management requirements. A number of options are provided for both the treatment system and Land Application Area (LAA).

In my opinion this site can sustain a conventional septic tank system with primary treated waste distribution by absorption trenches.

If preferred, effluent could also be treated to secondary level by an AWTS, single-pass sand filter or suitable EPA approved alternative and land application by subsurface irrigation or other EPA approved method.

Council and/or Referral Authorities may require secondary treatment prior to disposal as policy regardless of the results of the Land Capability Assessment.

I note that Golden Plains Shire Domestic Wastewater Management Plan recommends a 15% land usage for effluent disposal. It is my opinion that up to a 5 bedroom dwelling can be developed on this site, acknowledging that the 15% site allowance (in this case ≈680m²) is exceeded only by the potential requirement for a reserve field.
SITE OVERVIEW

The site is undeveloped and is consistent with an agricultural setting.

The site has negligible fall.

There is sufficient land available for sustainable onsite effluent management that maintains the required buffers to protect nearby surface waters and floodways.

I did not observe any sensitive environmental receptors within a 60m setback from the recommended Land Application Area envelope.

2. DESCRIPTION OF THE DEVELOPMENT

Site Address: Lot 1, 207-231 Ackland Road, Lethbridge. A Land Channel Property Report is appended and indicates the location of the site (Appendix i).

Client/Agent: Simone & Stephen Foreman

Postal Address: 14 Vaucluse Rise, Highton, Vic. 3216

Contact: Adam O’Halloran, Adam O’Halloran & Associates, 0448 896 622.

Council Area: Golden Plains Shire Council.

Zoning: Township Zone (TZ).

Proposed Allotment Size: 4,527m². Plan of Proposed Subdivision appended (Appendix ii).

Domestic Water Supply: Assume not available at site.

Anticipated Wastewater Load: Assume a residence with full water-reduction fixtures at maximum occupancy. Wastewater generation = 150 L/person/day (source Table 4 of the EPA Code of Practice 891.4).

Availability of Sewer: The area is unsewered and highly unlikely to be sewered within the next 10-20 years, due to low development density in the area and the considerable distance from existing wastewater services.

3. SITE AND SOIL ASSESSMENT

I undertook a site investigation on the 3rd April, 2017.
## SITE KEY FEATURES

Table 1 summarises the key features of the site in relation to effluent management proposed for the site.

### NOTE:
- The site experiences minor stormwater run-on.
- There is no evidence of a shallow watertable or other significant constraints, and
- The risk of effluent transport offsite is low.

### 3. SITE AND SOIL ASSESSMENT CONTINUED:

Aerial and site photographs are appended to provide recent and current site context (Appendix iii).

**Table 1: Risk Assessment of Site Characteristics**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
<th>Level of Constraint</th>
<th>Mitigation Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Buffer Distances</strong></td>
<td>All relevant buffer distances in Table 5 of the EPA Code of Practice (2016) are achievable from the proposed effluent management area.</td>
<td>Moderate</td>
<td>Locate Land Application Area appropriately.</td>
</tr>
<tr>
<td>Climate</td>
<td>Average annual rainfall 509.2mm Bannockburn (Climate Station No.087009) (Appendix iv).</td>
<td>Minor</td>
<td>NN</td>
</tr>
<tr>
<td>Drainage</td>
<td>No visible signs of surface dampness, spring activity or hydrophilic vegetation in the proposed effluent management area or surrounds.</td>
<td>Nil</td>
<td>NN</td>
</tr>
<tr>
<td>Erosion &amp; Landslip</td>
<td>No evidence of sheet or rill erosion; the erosion hazard is low. No evidence of landslip and landslip potential is low.</td>
<td>Minor</td>
<td>NN</td>
</tr>
<tr>
<td>Exposure &amp; Aspect</td>
<td>Recommended Land Application Area cleared with excellent all round aspect and has a very good sun and wind exposure.</td>
<td>Nil</td>
<td>NN</td>
</tr>
</tbody>
</table>
Table 1: Risk Assessment of Site Characteristics Continued:

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
<th>Level of Constraint</th>
<th>Mitigation Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flooding</td>
<td>The proposed effluent management area is located above the 1:100 year flood level (source WSC).</td>
<td>Minor</td>
<td>NN</td>
</tr>
<tr>
<td>Groundwater</td>
<td>No signs of shallow groundwater tables to 1.5 m depth.</td>
<td>Nil</td>
<td>NN</td>
</tr>
<tr>
<td>Imported Fill</td>
<td>Minor imported fill material on site.</td>
<td>Minor</td>
<td>NN</td>
</tr>
<tr>
<td>Available for LAA</td>
<td>Considering all the constraints and buffers, the site has ample suitable land for land application of treated effluent.</td>
<td>Nil</td>
<td>NN</td>
</tr>
<tr>
<td>Landform</td>
<td>Broad undulating hillsides and shallow disecting gullies.</td>
<td>Nil</td>
<td>NN</td>
</tr>
<tr>
<td>Rock Outcrops</td>
<td>No evidence of surface rocks or outcrops.</td>
<td>Nil</td>
<td>NN</td>
</tr>
<tr>
<td>Run-on &amp; Runoff</td>
<td>Minor stormwater run-on and minor run-off hazard.</td>
<td>Nil</td>
<td>NN</td>
</tr>
<tr>
<td>Slope</td>
<td>The proposed effluent management area has negligible fall.</td>
<td>Nil</td>
<td>NN</td>
</tr>
<tr>
<td>Surface Waters</td>
<td>Not applicable. Nearest surface water &gt;60m downslope from Land Application Area.</td>
<td>Nil</td>
<td>NN</td>
</tr>
<tr>
<td>Vegetation</td>
<td>Mixture of grasses on Land Application Area.</td>
<td>Minor</td>
<td>NN</td>
</tr>
</tbody>
</table>

*NN: Not needed
SITE ASSESSMENT RESULTS

Based on the most constraining site features the overall land capability of the site to sustainably manage all effluent onsite is satisfactory. The proposed effluent management area is located above the 1:100 flood level and by using primary treatment and absorption trench disposal there will be ample protection of surface waters and groundwater. Nevertheless, authorities may require secondary treatment and this can be achieved by the installation of a sand filter system.

SOIL KEY FEATURES

The site’s soils have been assessed for their suitability for onsite wastewater management by a combination of soil survey and desktop review of published soil survey information as outlined below.

SOIL SURVEY AND ANALYSIS

A soil survey was carried out at the site to determine suitability for application of treated effluent. Soil investigations were conducted at 3 locations in the vicinity of the building envelope in areas that may be potential Land Application Areas, as shown in the Test Site Location Plan (Aerial Photograph) (Appendix v), using a hydraulic auger to 1.5m depth. This was sufficient to adequately characterise the soils as only minor variation would be expected throughout the area of interest.

Two soil types were encountered in these investigations. Full profile descriptions are provided in the appended borelogs (Appendix vi). Samples of all discrete soil layers for each soil type were collected for subsequent laboratory analysis of pH, electrical conductivity and Emerson Aggregate Class. Table 2 describes the soil constraints in detail for each of the soils encountered.

Soils in the vicinity of the building envelope are characterised as clay loam topsoils overlying light clay, which becomes heavier with depth. The A1 horizon has a moderate structure.

Considering the physical and chemical characteristics of the subsoil in this area of the site, in my opinion effluent application via an absorption trench is a suitable and viable disposal system for this site.

Table 2 below provides an assessment of the physical and chemical characteristics of the relevant soil type.

Full Laboratory data results are appended (Appendix vii).
### Table 2: Risk Assessment of Soil Characteristics

<table>
<thead>
<tr>
<th>Feature</th>
<th>Assessment</th>
<th>Level of Constraint</th>
<th>Mitigation Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cation Exchange Capacity (CEC)</td>
<td>13.7 MEQ%. No evidence of restricted plant growth on site.</td>
<td>Minor</td>
<td>NN</td>
</tr>
<tr>
<td>Electrical Conductivity (ECe)</td>
<td>0.139 dS/m. No evidence of restricted plant growth on site.</td>
<td>Minor</td>
<td>NN</td>
</tr>
<tr>
<td>Emerson Aggregate Class</td>
<td>Topsoil: Not tested</td>
<td>Nil</td>
<td>NN</td>
</tr>
<tr>
<td></td>
<td>Subsoil: Class 2</td>
<td>Major</td>
<td>Apply gypsum to trench base at 1kg/m².</td>
</tr>
<tr>
<td>pH</td>
<td>6.4 No evidence of restricted plant growth on site.</td>
<td>Nil</td>
<td>NN</td>
</tr>
<tr>
<td>Rock Fragments</td>
<td>&lt;1% coarse fragments in the B1 horizon. No coarse fragments throughout the remainder of the profile.</td>
<td>Minor</td>
<td>NN</td>
</tr>
<tr>
<td>Sodicity (ESP)</td>
<td>26.9%. No evidence of restricted plant growth on site.</td>
<td>Major</td>
<td>Apply gypsum to trench base at 1kg/m².</td>
</tr>
<tr>
<td>Sodium Absorption Ratio (SAR)</td>
<td>1.17 No evidence of restricted plant growth on site.</td>
<td>Minor</td>
<td>NN</td>
</tr>
<tr>
<td>Soil Depth</td>
<td>Topsoil: 400mm to 500mm.</td>
<td>Minor</td>
<td>NN</td>
</tr>
<tr>
<td></td>
<td>Subsoil: Total soil depth 1500mm. No hardpans occur.</td>
<td>Minor</td>
<td>NN</td>
</tr>
<tr>
<td>Soil Permeability &amp; Design Loading Rates</td>
<td>Topsoil: Clay Loam; 10mm/day Design Loading Rate (DLR) for absorption trenches (Code, 2016).</td>
<td>Minor</td>
<td>NN</td>
</tr>
<tr>
<td></td>
<td>Subsoil: Light Clay; 5mm/day DLR for absorption trenches (Code of Practice, 2016).</td>
<td>Minor</td>
<td>NN</td>
</tr>
<tr>
<td>Soil Texture &amp; Structure</td>
<td>Topsoil (&lt;500mm): Clay Loam (Category 4b)</td>
<td>Minor</td>
<td>NN</td>
</tr>
<tr>
<td></td>
<td>Subsoil (&gt;1500mm): Light clay (Category 5b) in accordance with AS/NZS/NZS 1547:2012</td>
<td>Minor</td>
<td>NN</td>
</tr>
<tr>
<td>Watertable Depth</td>
<td>Groundwater not encountered. Deepest borehole terminated at 1.5m.</td>
<td>Minor</td>
<td>NN</td>
</tr>
</tbody>
</table>

NN: Not needed
OVERALL LAND CAPABILITY RATING

For the soil in the proposed land application area (Light Clay), no features present a moderate or major constraint that cannot be mitigated.

Based on the results of the site and soil assessment tabled above and provided in the Appendices, the overall land capability of the proposed effluent management area is not constrained.

4. WASTEWATER MANAGEMENT SYSTEM

The following sections provide an overview of a suitable onsite wastewater management system, with sizing and design considerations and justification for its selection. Detailed design for the system should be undertaken at the time of the building application and submitted to Council.

4.1 Land Application

A range of possible land application systems have been considered, such as absorption trenches, evapotranspiration/absorption (ETA) beds, surface and subsurface irrigation, and sand mounds.

The system of conventional absorption trenches for primary treated waste may be used.

Should the client prefer to secondary treat the effluent, disposal via shallow subsurface irrigation is an alternative recommended method.

4.2 Sizing the Disposal System

ABSORPTION TRENCHES: Primary Treated Effluent

To determine the necessary size of the Land Application Area, preliminary water and nutrient balance modeling has been considered.
**ABSORPTION TRENCHES: Primary Treated Effluent Continued:**

The formula for sizing is expressed as follows:

The formula for sizing the length and area of trench and the required using the nominated area method using daily flow rate of for example 750L/day and a Design Loading Rate of 5mm/day can be expressed as:

\[ L = \frac{Q}{(DLR \times W)} \]

- \( L \) = Length of require trench (m)
- \( Q \) = daily flow (L/day)
- \( DLR \) = Design Loading Rate (m/day)
- \( W \) = Width of trench

\[ L = \frac{750}{(5 \times 1)} \]
\[ = 150m \]

Calculate trench basal area required:

\[ A = L \times W \]
\[ = 150 \times 1 \]
\[ = 150m^2 \]

The nominated area method is used to calculate the area required to balance all inputs and outputs, without the need for wet weather storage. As a result of these considerations the following table of trench lengths are recommended for the relevant number of bedrooms proposed to achieve zero wet weather storage.

Minimum trench area required for absorption.

<table>
<thead>
<tr>
<th>Number of Bedrooms</th>
<th>Number of Occupants</th>
<th>Total Daily Wastewater Flow</th>
<th>Trench Basal Area Size</th>
<th>Required LAA Size*</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>3</td>
<td>450</td>
<td>90m^2</td>
<td>540m^2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>600</td>
<td>120m^2</td>
<td>690m^2</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>750</td>
<td>150m^2</td>
<td>800m^2</td>
</tr>
<tr>
<td>5</td>
<td>6</td>
<td>900</td>
<td>180m^2</td>
<td>940m^2</td>
</tr>
<tr>
<td>6</td>
<td>7</td>
<td>1050</td>
<td>210m^2</td>
<td>1100m^2</td>
</tr>
</tbody>
</table>

*Notes: The above table provides the total envelope size based on a 3m buffer on all 4 sides of the Land Application Area.

It also adopts a 3m spacing between trenches to allow a reserve field to be configured within the envelope should it be required.
4.3 Siting and Configuration of the Land Application Area

Considering the allotment’s size there is considerable space for location of the effluent disposal envelope on the site.

Due to the lack of sensitive environmental receptors on and adjacent to this site, the waste water disposal envelope can be placed within a large part of the site.

Whilst there is ample area for application of effluent, it is important that buffer distances be adhered to. It is important to note that buffers are measured as the overland flow path for run-off water from the effluent disposal area.

I can confirm a specific Land Application Area on a site plan at a further date if required.

4.4 Disposal System Description

Disposal design can be adopted from Absorption/Transpiration System designs within AS/NZS 1547:2012.

If irrigation of secondary treated waste is proposed the design should also be sourced from AS/NZ 1547:2012.

4.5 Buffer Distances

Buffer distances from Land Application Areas are required to help prevent human contact, maintain public amenity and protect sensitive environments. Council generally adopts the following nominal buffers, described in EPA Code of Practice 891.4 July 2016:

- 20 metres upslope from potable or non-potable groundwater bores;
- 100 metres upslope from watercourses in a potable water supply catchment.
- 6 metres if area up-gradient and 3 metres if area down-gradient of property boundaries, swimming pools and buildings.
- 60 metres upslope from surface waters (non potable)
4.5 Buffer Distances Continued

All nominal buffers are achievable.

Stormwater run-on is not expected to be a concern for the proposed disposal area, due to the landform of the site and its relatively gentle slopes. However, upslope diversion berms or drains may be constructed if this is deemed to be necessary during installation of the system or in the future. Stormwater from roofs and other impervious surfaces must not be disposed of into the wastewater treatment system or onto the effluent management system.

5. MONITORING, OPERATION AND MAINTENANCE

Maintenance is to be carried out in accordance with the certificate of approval and Council’s permit conditions. The system proposed above will only function adequately if appropriately maintained.

To ensure the land application system functions adequately, residents must:

• Regularly harvest (mow) vegetation within the Land Application Area and remove this to maximise uptake of water and nutrients.

• Not erect any structures over the Land Application Area.

• Minimise vehicle access to the Land Application Area to prevent compaction.

• Ensure that the Land Application Area is kept level by filling any depressions with good quality topsoil (not clay).

• Good water conservation is an important aspect in the overall management of onsite systems. It will be important for the ongoing performance of both the treatment and application system that they are not overloaded hydraulically. AAA rated plumbing is recommended for all future water fixtures.

6. STORMWATER MANAGEMENT

As mentioned above, stormwater run off is not expected to be a concern in this case. However, the construction and maintenance of diversion drains would provide precaution against the flow of surface water on to the Land Application Area. Roof stormwater must not be disposed in the Land Application Area.
7. CONCLUSIONS

As a result of my investigation I am of the opinion that a sustainable onsite wastewater management system can be built to meet the needs of a new residence on the allotment.

Specifically, I recommend the following as a minimum requirement:

- Primary treatment of wastewater.

- Location of the Land Application Area as per the recommendations contained in this report.

- Land application of wastewater into an absorption trench area relevant to the number of bedrooms proposed. Trenches up to 30 metres long and 1 metre wide with 3 metre spacings are recommended.

- Application of gypsum to trench base at 1kg/m².

- Installation of water saving devices in the new residence to reduce the effluent load for onsite disposal.

- Use of low phosphorus and low sodium (liquid) detergents to improve effluent quality and maintain soil properties.

- Operation and management of the treatment and disposal system in accordance with the recommendations made in this report.

ANDREW REDMAN BSc.
GEOLOGIST.

C.E.T. ACCREDITED
AR: gk
8. References


Environment Protection Authority (2016). Publication 891.4 *Code of Practice for Onsite Wastewater Management.*


Sargeant and Imhof (2000). *Major Agricultural Soils of the Maffra Region.* Department of Natural Resources and Environment, Victoria, Australia.


APPENDICES

i. Land Channel Property Report
ii. Plan of Proposed Subdivision
iii. Aerial and Site Photographs
iv. Bureau of Meteorology Climate Report for Bannockburn
v. Test Site Location Plan (Plan of Proposed Subdivision)
vi. Borelog Descriptions
vii. Laboratory Results
APPENDIX i

LAND CHANNEL PROPERTY REPORT

Address: ACKLAND ROAD LETHBRIDGE 3332
Lot and Plan Number: Lot 2 PS715798
Standard Parcel Identifier (SPI): 2PS715798
Local Government (Council): GOLDEN PLAINS Council Property Number: 91003018
Directory Reference: VicRoads 522 C10

This property is in a designated bushfire prone area. Special bushfire construction requirements apply. Planning provisions may apply.
Further information about the building control system and building in bushfire prone areas can be found in the Building Commission section of the Victorian Building Authority website www.vba.vic.gov.au

State Electorates
Legislative Council: WESTERN VICTORIA
Legislative Assembly: BUNINYONG

Utilities
Regional Urban Water Business: Barwon Water
Rural Water Business: Southern Rural Water
Melbourne Water: outside drainage boundary
Power Distributor: POWERCOR (Information about choosing an electricity retailer)

Planning Zone Summary
Planning Zone: TOWNSHIP ZONE (TZ)
SCHEDULE TO THE TOWNSHIP ZONE
Planning Overlays: LAND SUBJECT TO INUNDATION OVERLAY (LSIO)
LAND SUBJECT TO INUNDATION OVERLAY SCHEDULE (LSIO)
SALINITY MANAGEMENT OVERLAY (SMO)
SALINITY MANAGEMENT OVERLAY SCHEDULE (SMO)

Areas of Aboriginal Cultural Heritage Sensitivity:
This property is within, or affected by, one or more areas of cultural heritage sensitivity

Planning information continued on next page

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ACKLAND-ROAD-LETHBRIDGE-BASIC-PROPERTY-REPORT

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Page 17 of 36
Reference Number: 8250C
Planning scheme data last updated on 9 March 2017.

A planning scheme sets out policies and requirements for the use, development and protection of land. This report provides information about the zone and overlay provisions that apply to the selected land. Information about the State, local, particular and general provisions of the local planning scheme that may affect the use of this land can be obtained by contacting the local council or by visiting Planning Schemes Online.

This report is NOT a Planning Certificate issued pursuant to Section 159 of the Planning & Environment Act 1987. It does not include information about exhibited planning scheme amendments, or zonings that may affect the land. To obtain a Planning Certificate go to Titles and Property Certificates.

The Planning Property Report includes separate maps of zones and overlays.

For details of surrounding properties, use this service to get the Reports for properties of interest.

To view planning zones, overlay and heritage information in an interactive format visit Planning Maps Online.


Areas of Aboriginal Cultural Heritage Sensitivity

The data provides indicative information about the location and extent of areas of Aboriginal cultural heritage sensitivity and is provided to assist with the decisions about the potential need to prepare a Cultural Heritage Management Plan in relation to proposed activities on this property.

For further information about whether a Cultural Heritage Management Plan is required go to Aboriginal Heritage Planning Tool.

To find out if your property has any recorded Aboriginal cultural heritage places, such as scarred trees, occupation sites or places of burial, you can request information from the Victorian Aboriginal Heritage Register.

Find out more about the Victorian Aboriginal Heritage Register.

Area Map

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APPENDIX ii

PLAN OF PROPOSED SUBDIVISION
APPENDIX iii

AERIAL & SITE PHOTOGRAPHS
AERIAL PHOTOGRAPH

Client: SIMONE & STEPHEN FOREMAN
Ref. Number: 8250C
Date: 3/4/17
Site: Lot 1, 207-231 Ackland Road, LETHBRIDGE

SUBJECT SITE
SITE PHOTOGRAPHS

LOOKING NORTH FROM CENTRE OF SITE

LOOKING EAST FROM CENTRE OF SITE
SITE PHOTOGRAPHS

LOOKING SOUTH FROM CENTRE OF SITE

LOOKING WEST FROM CENTRE OF SITE
APPENDIX iv

BUREAU OF METEOROLOGY CLIMATE REPORT
FOR BANNOCKBURN
### Monthly Rainfall (millimetres)

**BANNOCKBURN**

Station Number: 087009 • State: VIC • Opened: 1898 • Status: Open • Latitude: 38.02°S • Longitude: 144.16°E • Elevation: 106 m

### Statistics for this station calculated over all years of data

<table>
<thead>
<tr>
<th></th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>Annual</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean</strong></td>
<td>31.3</td>
<td>35.0</td>
<td>35.8</td>
<td>41.4</td>
<td>42.9</td>
<td>42.9</td>
<td>42.9</td>
<td>46.1</td>
<td>50.9</td>
<td>52.9</td>
<td>48.7</td>
<td>41.2</td>
<td>509.2</td>
</tr>
<tr>
<td><strong>Lowest</strong></td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>5.1</td>
<td>6.3</td>
<td>6.3</td>
<td>6.3</td>
<td>15.2</td>
<td>2.8</td>
<td>0.0</td>
<td>0.5</td>
<td>275.9</td>
</tr>
<tr>
<td><strong>5th percentile</strong></td>
<td>1.0</td>
<td>2.2</td>
<td>3.9</td>
<td>7.3</td>
<td>10.0</td>
<td>14.4</td>
<td>17.4</td>
<td>15.2</td>
<td>18.6</td>
<td>12.9</td>
<td>11.5</td>
<td>4.9</td>
<td>335.4</td>
</tr>
<tr>
<td><strong>10th percentile</strong></td>
<td>3.0</td>
<td>4.6</td>
<td>7.1</td>
<td>11.4</td>
<td>15.1</td>
<td>18.3</td>
<td>20.3</td>
<td>18.4</td>
<td>21.5</td>
<td>19.2</td>
<td>15.3</td>
<td>10.4</td>
<td>369.0</td>
</tr>
<tr>
<td><strong>Median</strong></td>
<td>24.8</td>
<td>25.1</td>
<td>27.4</td>
<td>37.1</td>
<td>43.5</td>
<td>40.0</td>
<td>40.6</td>
<td>45.9</td>
<td>48.7</td>
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1) Calculation of statistics

Summary statistics, other than the Highest and Lowest values, are only calculated if there are at least 20 years of data available.

2) Gaps and missing data

Gaps may be caused by a damaged instrument, a temporary change to the site operation, or due to the absence or illness of an observer.

3) Further information

APPENDIX v

TEST SITE LOCATION PLAN
(PLAN OF PROPOSED SUBDIVISION)
TEST SITE LOCATION PLAN

Client: SIMONE & STEPHEN FOREMAN
Ref. Number: 8250C
Date: 3/4/17
Site: Lot 1, 207-231 Ackland Road, LETHBRIDGE

RECOMMENDED ENVELOPE FOR LAND APPLICATION AREA
* MAYBE ALTERED
APPENDIX vi

BORELOG DESCRIPTIONS
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APPENDIX vii

LABORATORY RESULTS
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</tr>
<tr>
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<td>03 5224 4560</td>
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<tr>
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Paul Woodward  
Managing Director  
paul@groundswellabs.com.au

---

Reference: GS17219  
Date issued: 3/04/2017

---

Groundswell Laboratories Pty Ltd  
ABN 24 133 248 923  
116 Moray Street, South Melbourne, Victoria, 3205  
Ph (03) 8669 1450  
Fax (03) 8669 1451  
E-mail: admin@groundswellabs.com.au

Page 1 of 4
### Soil Analysis Results

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**Comments:**
1. pH & electrical conductivity determined & reported on a 1:5 soil:water extraction
2. CEC determined by soil chemical method 1581 "Exchangeable bases and cation exchange capacity - 1M ammonium chloride at pH 7.0, no pre-treatment for soluble salts"
3. ESP, sodicity rating & SAR determined by calculation using the exchangeable cation results
**Soil Analysis Results**

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# Inorganics Quality Control Report

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</table>

**Comments:**

1. Exchangeable cations LCS values based on independent water standards.
2. NA = Not Applicable
10th April 2017

Our Reference: 8250C

Groundswell Laboratories
115 Moray Street
SOUTH MELBOURNE VIC 3205

Dear Sir/Madam,

**Re: Lot 1, 207-231 Ackland Road, Lethbridge, Vic.**

Please perform the following soil tests:

i Emerson Aggregate Class  
ii Cation Exchange Capacity  
iii Electrical Conductivity (EC)  
iv pH  
v Sodicity – Exchangeable Sodium Percentage (ESP)  
v Sodium Absorption Ratio (SAR)

For the following One (1) sample from one (1) location:

<table>
<thead>
<tr>
<th>DATE</th>
<th>SAMPLE</th>
<th>TEST SITE</th>
<th>DEPTH (mm)</th>
<th>MATERIAL</th>
<th>LAB ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>03/04/2017</td>
<td>1</td>
<td>1</td>
<td>600mm</td>
<td>SOIL</td>
<td></td>
</tr>
</tbody>
</table>

Yours sincerely

ANDREW REDMAN BSc.  
GEOLOGIST.

AR: hs
PLAN OF SITE LEVELS
PROPOSED LOT 1
ACKLAND ROAD, LETHBRIDGE

4527m²
LAND DESCRIPTION

Lot 2 on Plan of Subdivision 715798N.
PARENT TITLE Volume 11092 Folio 844
Created by instrument PS715798N 01/04/2014

REGISTERED PROPRIETOR

Estate Fee Simple
Joint Proprietors
STEVEN JOHN FOREMAN
SIMONE RUTH FOREMAN both of 205 ACKLAND ROAD LETHBRIDGE VIC 3332
PS715798N 01/04/2014

ENCUMBRANCES, CAVEATS AND NOTICES

Any encumbrances created by Section 98 Transfer of Land Act 1958 or Section 24 Subdivision Act 1988 and any other encumbrances shown or entered on the plan set out under DIAGRAM LOCATION below.

DIAGRAM LOCATION

SEE PS715798N FOR FURTHER DETAILS AND BOUNDARIES

ACTIVITY IN THE LAST 125 DAYS

NIL

------------------------END OF REGISTER SEARCH STATEMENT------------------------

Additional information: (not part of the Register Search Statement)
Street Address: ACKLAND ROAD LETHBRIDGE VIC 3332

DOCUMENT END
**PLAN OF SUBDIVISION**

**LOCATION OF LAND**

**PARISH:** WABDALLAH

**TOWNSHIP:** LETHBRIDGE

**SECTION:** -

**CROWN ALLOTMENT:** 30 (PART)

**CROWN PORTION:** -

**TITLE REFERENCES:** VOL I1092 FOL 844

**LAST PLAN REFERENCE:** PS614525P (LOT 1)

**POSTAL ADDRESS:** 205 ACKLAND ROAD LETHBRIDGE

**MGA Co-ordinates**

<table>
<thead>
<tr>
<th>E</th>
<th>N</th>
<th>ZONE</th>
</tr>
</thead>
<tbody>
<tr>
<td>240330</td>
<td>793660</td>
<td>55</td>
</tr>
</tbody>
</table>

**COUNCIL CERTIFICATION AND ENDORSEMENT**

**COUNCIL NAME:**

**REF:**

1. This plan is certified under Section 6 of the Subdivision Act 1988
2. This plan is certified under Section 11(7) of the Subdivision Act 1988
3. This is a statement of compliance issued under Section 25 of the Subdivision Act 1988

**OPEN SPACE**

(i) A requirement for public open space under Section 10 of the Subdivision Act 1988 has not been made

(ii) The requirement has been satisfied

(iii) The requirement is to be satisfied at Stage

Council Delegated
Council Seal
Date

Re-certified under Section 11(7) of the Subdivision Act 1980
Council Delegated
Council Seal
Date

**NOTATIONS**

**STAGING:** This is not a staged subdivision

**PLANNING PERMIT NO:** P12-31

**DEPTH LIMITATION:** DOES NOT APPLY

**THIS IS A SPEAR PLAN**

**LOT 1 ONLY IS THE RESULT OF THIS SURVEY**

**SURVEY:** THIS PLAN IS NOT BASED ON SURVEY

**EASEMENT INFORMATION**

<table>
<thead>
<tr>
<th>Subject Land</th>
<th>Purpose</th>
<th>Width (Metres)</th>
<th>Origin</th>
<th>Land Benefitted/In Favour Of</th>
</tr>
</thead>
</table>

**LEGEND:**

F - Encumbering Easement, Condition in Crown Grant in the Nature of an Easement or Other Encumbrance
A - Appurtenant Easement
R - Encumbering Easement (Real)

**STANDARD OF COMPLIANCE:**

**STATEMENT:**

**RECEIVED:**

**DATE:** 21/03/2014

**LRS:**

**PLAN REGISTERED:**

**TIME:** 4.24pm

**DATE:** 01/04/2014

R.Winney
Assistant Registrar of Titles

**LICENSED SURVEYOR:**

**DATE:** / /

**REF:** 0736

**VERSION:** 01

**COUNCIL DELEGATE SIGNATURE:**

**SHEET 1 OF 2 SHEETS**

**ADAM O’HALLORAN & ASSOCIATES**

Land Surveyors

PO Box 445 Airways Inlet 2221
Ph. (03) 5289 6668  Fax. (03) 5289 6670

**DIGITALLY SIGNED**

**REF:** 0736

**VERSION:** 01

Signed by: Adam Michael O'Halloran (Adam O'Halloran) Surveyor's Plan Version (01) SPEAR Ref: S035729H 11/07/2013
Plan of Subdivision PS715798N
Certification of plan by Council (Form 2)

SUBDIVISION (PROCEDURES) REGULATIONS 2011

SPEAR Reference Number: S035729H
Plan Number: PS715798N
Responsible Authority Name: Golden Plains Shire Council
Responsible Authority Reference Number 1: SUB-801
Surveyor’s Plan Version: 01

Certification

This plan is certified under section 6 of the Subdivision Act 1960

Public Open Space

A requirement for public open space under section 18 of the Subdivision Act 1988

Has not been made at Certification

Digitally signed by Council Delegate: Amy Boyd
Organisation: Golden Plains Shire Council
Date: 29/07/2013

Signed by: Amy Boyd (Golden Plains Shire Council) 29/07/2013
# Application for Planning Permit for a Subdivision

**Supplied by**
Dani Edwards

**Submitted Date**
26/04/2017

## Application Details

<table>
<thead>
<tr>
<th>Field</th>
<th>Details</th>
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</thead>
<tbody>
<tr>
<td>Application Type</td>
<td>Planning Permit for a Subdivision</td>
</tr>
<tr>
<td>Version</td>
<td>1</td>
</tr>
<tr>
<td>Applicant Reference Number</td>
<td>1379</td>
</tr>
<tr>
<td>Responsible Authority Name</td>
<td>Golden Plains Shire Council</td>
</tr>
<tr>
<td>Responsible Authority Reference Number(s)</td>
<td>P17-106, Tracey Simmons</td>
</tr>
<tr>
<td>SPEAR Reference Number</td>
<td>S102688P</td>
</tr>
<tr>
<td>Application Status</td>
<td>Permit Decision Pending</td>
</tr>
<tr>
<td>Planning Permit Issue Date</td>
<td>NA</td>
</tr>
<tr>
<td>Planning Permit Expiry Date</td>
<td>NA</td>
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</tbody>
</table>

## The Land

**Primary Parcel**
ACKLAND ROAD, LETHBRIDGE VIC 3332
Lot 2/Plan PS715798
SPI 2/PS715798
CPN 91003018

<table>
<thead>
<tr>
<th>Zone:</th>
<th>32.05 Township</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overlay:</td>
<td>43.04 Development Plan</td>
</tr>
<tr>
<td></td>
<td>44.04 Land Subject to Inundation</td>
</tr>
<tr>
<td></td>
<td>44.02 Salinity Management</td>
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</table>

## The Proposal

<table>
<thead>
<tr>
<th>Plan Number</th>
<th>(Not Supplied)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of lots</td>
<td>2</td>
</tr>
<tr>
<td>Proposal Description</td>
<td>It is proposed to subdivide 1 lot off the property, creating a 2 lot subdivision.</td>
</tr>
</tbody>
</table>

| Estimated cost of the development for which a permit is required $ | 0 |

## Existing Conditions

**Existing Conditions Description**
The site consists of cleared land. The property is gently undulating with a creek/wetland running through the centre. This is generally dry but is subject to inundation. The site has access from three roads; Ackland Road along the west boundary, and Bruce Street along the East Boundary are both Gravel Roads. Stephenson Street which abuts the north boundary is a Bitumen sealed Road.

**Title Information - Does the proposal breach an encumbrance on Title?**
The proposal does not breach an encumbrance on title, such as a restrictive covenant, section 173 agreement or other obligation such as an easement or building envelope.

## Applicant Contact

**Applicant Contact**
Dani Edwards
<table>
<thead>
<tr>
<th><strong>Applicant</strong></th>
<th>(Applicant details as per Applicant Contact)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Owner</strong></td>
<td></td>
</tr>
<tr>
<td>Owner 2</td>
<td>Simone Foreman</td>
</tr>
<tr>
<td></td>
<td>205 Ackland Road, Lethbridge, VIC, Australia</td>
</tr>
<tr>
<td>Owner 3</td>
<td>Steven Foreman</td>
</tr>
<tr>
<td></td>
<td>205 Ackland Road, Lethbridge, VIC, Australia</td>
</tr>
<tr>
<td><strong>Declaration</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I, Dani Edwards, declare that I have notified the owner(s) about this application.</td>
</tr>
<tr>
<td></td>
<td>I, Dani Edwards, declare that all the information supplied is true.</td>
</tr>
<tr>
<td><strong>Authorised by</strong></td>
<td>Dani Edwards</td>
</tr>
</tbody>
</table>
1 SUMMARY

<table>
<thead>
<tr>
<th>Proposal</th>
<th>Two (2) lot subdivision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning Scheme Definition</td>
<td>Subdivision</td>
</tr>
<tr>
<td>Location of Subject Site</td>
<td>Ackland Road, Lethbridge</td>
</tr>
<tr>
<td>Title Details</td>
<td>Lot 2, PS715798N (Volume 11484 Folio 541)</td>
</tr>
<tr>
<td>Land Size</td>
<td>7.222 ha</td>
</tr>
<tr>
<td>Zoning</td>
<td>Township Zone (TZ)</td>
</tr>
<tr>
<td>Overlays</td>
<td>Salinity management overlay (SMO) Land subject to inundation and flooding overlay (LSIO)</td>
</tr>
</tbody>
</table>

2 APPENDICES

The following documents are included with this submission:

- Copy of Title
- Plan of Site Levels
- Proposed Subdivision Layout

3 LOCATION

The subject land comprises an allotment running between Ackland Road, (on the west) and Bruce Street (on the east) in the township of Lethbridge. It also has a frontage to Stephenson Street.

4 TITLE

Title details to the land are as follows:-

- Lot 2, PS715798N (Volume 11484 Folio 541)

A copy of title has been included with this submission.

5 SITE AND CONTEXT DESCRIPTION

The site consists of cleared land. The property is gently undulating with a creek/wetland running through the centre. This is generally dry but is subject to inundation.

The site has access from three roads; Ackland Road along the west boundary, and Bruce Street along the East Boundary are both Gravel Roads. Stephenson Street which abuts the north boundary is a Bitumen sealed Road.

A Plan of Site Levels for lot 1 has been included with this submission.
6 PROPOSAL

It is proposed to subdivide 1 lot off the property, creating a 2 lot subdivision.

- The proposed lot 1 will be a vacant allotment. It will have frontage to Ackland Road.
- The proposed lot 2 will be the balance of the land. It will contain all the creek/wetland area. It will have a frontage to Ackland Road of approximately 192m and would also be accessible from Stephenson Street on the north boundary and Bruce Street on the east boundary. Its area would be approximately 6.77ha.
- We have shown possible building and effluent envelopes (for a 6 bedroom dwelling), for lot 1, in accordance with the requirements of the planning scheme and land capability assessment for the site. However, as there are no real constraints on the site, we don’t believe there is a requirement for restrictions to be placed on the plan of subdivision.

A Plan of Proposed Subdivision has been included with this submission.

7 PLANNING ASSESSMENT

Clause 56 – Residential Subdivision

Pursuant to clause 32.05-4 of the Township Zone, a subdivision must meet the requirements of Clause 56 of the Planning Scheme. Following is an assessment of the proposed subdivision under the relevant parts of Clause 56 – Residential Subdivision

56.01-2 Design Response

The proposed plan has been designed to respond to the site. There are no real constraints on site.

56.03-05 Neighbourhood Character Objectives

The layout respects the established pattern of development within the surrounding environment. The proposed subdivision provides for safe and effective vehicle movement and will assist in providing a greater range of lot sizes in the area to promote diversity.

56.04-2 Lot Area and Building Envelopes

The proposed lot areas are of a significant size. This ensures the ability for provision of solar access, private open space, vehicle access, parking and the retention of existing vegetation.
56.04-3 Solar Orientation

The Lots are orientated for solar access. The lot sizes provide for ample flexibility of related building design.

56.04-5 Common Area Objectives

There is no common area to be created by the proposed subdivision.

56.06-8 Lot Access Objective

Vehicles will be able to exit from each lot in a forward direction. Additional crossovers will be constructed in accordance with relevant requirements.

56.07 Water Management, 56.08 Site Management, & 56.09 Utilities

Services, Water supply and Waste Water management will be installed in accordance with requirements of the relevant Authorities.

Clause 65 Decision Guidelines

Clause 65.02 of the Golden Plans Shire Planning Scheme lists a number of matters for consideration by the responsible authority when considering an application to subdivide land.

The following dot points address the dot points listed (in order) as decision guidelines in clause 65.02 of the planning scheme.

- The land is suitable for subdivision in a strategic sense given its close proximity to physical and social infrastructure and due to the size and configuration of the lot and the existing development. There are no restrictions on this lot preventing further subdivision;
- The proposal is consistent with current and possible future development of nearby land given the prevalent residential uses. Some of the abutting properties have been subdivided into smaller allotments;
- The current proposal maximizes use of existing infrastructure;
- The development may affect other land with a common means of drainage. And final drainage design will be approved by Council;
- There are few physical characteristics on the land;
- The density of proposed development is appropriate to the locality, available infrastructure and services, and the planning scheme provisions.
- The area and dimensions of each lot are appropriate, each able to provide existing on-site parking and sufficient space for areas of private open space;
- The existing road network is adequate. The subdivision will add little to existing traffic volumes;
- There will be no conflict between pedestrian and vehicular movement to and from each of the proposed lots;
- Provision of public open space is not an issue. There is a wide range of open space.
available within a short distance of the site;
- The subdivision will not be staged;
- Each of the lots are of a size sufficient to enable the safe siting and design of buildings;
- Provision will be made for the parking of vehicles off street;
- There is no common property area;
- No body corporate is required;
- All utility services are available to the proposed subdivision;
- Reticulated sewerage is not available to the proposed development;
- The size of the lots provides for flexibility of building design, therefore not requiring the removal of the existing trees on the site.

8 CONCLUSION

Councils’ support of this application for subdivision is requested as:

- The proposal meets the relevant planning policies of the state Planning Policy Framework and Local Planning Policy Framework, including the Municipal Strategic Statement.
- The proposal is consistent with the purpose of the Township Zone.
- The lot sizes will increase choice in lot sizes with a flow on effect for housing diversity
- The additional lot will provide for infill development maximizing use of a location convenient to community, social and physical infrastructure.
Lot and Plan Number: Lot 2 PS715798
Address: ACKLAND ROAD LETHBRIDGE 3332
Local Government (Council): GOLDEN PLAINS Council Property Number: 91003018
Directory Reference: VicRoads 522 C10

Planning Zone

TOWNSHIP ZONE (TZ)

SCHEDULE TO THE TOWNSHIP ZONE

Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.
Planning Overlays

LAND SUBJECT TO INUNDATION OVERLAY (LSIO)
LAND SUBJECT TO INUNDATION OVERLAY SCHEDULE (LSIO)

SALINITY MANAGEMENT OVERLAY (SMO)
SALINITY MANAGEMENT OVERLAY SCHEDULE (SMO)
Planning Overlays

OTHER OVERLAYS
Other overlays in the vicinity not directly affecting this land

DESIGN AND DEVELOPMENT OVERLAY (DDO)
DEVELOPMENT PLAN OVERLAY (DPO)
HERITAGE OVERLAY (HO)

Note: due to overlaps some colours on the maps may not match those in the legend.
Areas of Aboriginal Cultural Heritage Sensitivity

This parcel is within, or is affected by, one or more areas of cultural heritage sensitivity as described in the Aboriginal Heritage Regulations 2007.

The data provides indicative information about the location and extent of areas of Aboriginal cultural heritage sensitivity and is provided to assist with the decisions about the potential need to prepare a Cultural Heritage Management Plan in relation to proposed activities on this property.

For further information about whether a Cultural Heritage Management Plan is required go to Aboriginal Heritage Planning Tool

To find out if your property has any recorded Aboriginal cultural heritage places, such as scarred trees, occupation sites or places of burial, you can request information from the Victorian Aboriginal Heritage Register.

Find out more about the Victorian Aboriginal Heritage Register.
Further Planning Information

Planning scheme data last updated on 6 April 2017.

A **planning scheme** sets out policies and requirements for the use, development and protection of land. This report provides information about the zone and overlay provisions that apply to the selected land. Information about the State, local, particular and general provisions of the local planning scheme that may affect the use of this land can be obtained by contacting the local council or by visiting [Planning Schemes Online](#).

This report is NOT a **Planning Certificate** issued pursuant to Section 199 of the Planning & Environment Act 1987. It does not include information about exhibited planning scheme amendments, or zonings that may abut the land. To obtain a Planning Certificate go to [Titles and Property Certificates](#).

For details of surrounding properties, use this service to get the Reports for properties of interest.

To view planning zones, overlay and heritage information in an interactive format visit [Planning Maps Online](#).