



Lake
Baroon
Catchment
Care
Group

Working with our community...for our waterways

Projects 2014-15

Obi Waterfall Project – Fencing & Weed Control (Lawrie)



PROJECT PLAN

Project No. 1415-015

This Project Plan has been prepared by:

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|----------------------------------|---------|--|
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Disclaimer

While every effort has been made to ensure the accuracy of this Project Plan, Lake Baroon Catchment Care Group makes no representations about the accuracy, reliability, completeness or suitability for any purpose other than this particular project and disclaims all liability for all expenses, losses, damages and costs which may be incurred as a result of the Plan being inaccurate or incomplete in any way.

Terms used in this Plan

Lake Baroon and Baroon Pocket Dam are used interchangeably, although *Lake Baroon* is usually used when referring to the catchment and *Baroon Pocket Dam* refers to the dam as commercial water storage.

PROJECT VERSIONS & APPROVALS

| Version | Date | Version/Description | Result |
|---------|--------------|---|---------------------|
| a | Apr 2015 | Application to Sunshine Coast Council Landholder Environment Grants | tbd |
| 1.0 | Apr-May 2015 | Draft LBCCG Project Plan | n/a |
| 1.0 | 14/5/2015 | Project presented to LBCCG Committee | Approved (Minutes) |
| 1.0 | tbd | Project Proposal forwarded to Seqwater for approval (email) | tbd |

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1415-015 Obi Waterfall Project – Fencing and Weed Control (Lawrie)

Cover photo: *The Lawrie property lies in the mid to lower reaches of Obi Obi Creek. This area is a mix of low intensity grazing, rural residential and conservation purposes.*

PART A EXECUTIVE SUMMARY

PROJECT NUMBER & TITLE: 1415-015 Obi Waterfall Project – Fencing and Weed Control (Lawrie)

Maintaining water quality is critical to providing safe bulk drinking water to the population of South east Queensland. All of the raw water storages managed by Seqwater are located in catchments which are developed to varying extents; supporting active and growing communities, including important industrial and rural economic activity. To provide a multi-barrier approach to the supply of drinking water, Seqwater must influence the management of land not owned by, but which exert an influence on Seqwater's core business. The Lake Baroon Catchment Care Group (LBCCG) was formed by original Dam managers AquaGen and the local community to address water quality issues in the recently completed storage in 1991.

LBCCG have been working in the mid to lower Obi Obi Creek area for many years, mainly on the larger properties upstream, however to continue addressing land management issues in this important zone, it is strategic to engage smaller landholders with significant frontage to Obi Obi Creek. Evidence suggests that by enhancing the riparian zone in this area, polluted flows from the upper Obi Obi Creek, Walkers Creek and urban Maleny can be 'cleaned' as they move through pools, riffles, macrophytes and terrestrial vegetation.

The project will fence an Obi Obi Creek tributary excluding livestock, control weeds both within the fenced area and in the Obi Obi Creek riparian zone, and remediate a minor erosion gully in the watercourse.

The project aims to complete four components:

1. Install 460 metres of riparian fencing to exclude livestock from 102 metres of watercourse;
2. Control weeds in the 1 hectare of fenced area;
3. Control weeds in a further 4 hectares as part of a staged Obi Obi Creek riparian rehabilitation; *and*
4. Remediate a minor erosion gully that threatens to damage a farm dam bank.

The project will:

- Commence a longer term project that will ultimately enhance 800 metres of Obi Obi Creek riparian zone including the protection and enhancement of remnant vegetation;
- Exclude livestock from 102 metres of an Obi Obi Creek tributary reducing erosion, nutrient and pathogen loads;
- Provide watercourse stability by undertaking minor pre-emptive erosion control;
- Enhance wildlife habitat; improving the linkage with Obi Obi Creek;
- Engage a new landholders; *and*
- Strengthens partnership with Sunshine Coast Council and Landholder Environment Grants program.

The LBCCG/Seqwater funded component of the project (fencing and erosion management) will be completed by June 30, 2015.

LANDMANAGER & PROPERTY DETAILS

| | | | | | |
|---------------------------------|---|------------------------|----------------------------------|----------------------|----|
| Names | | | | | |
| Phone Number | | | | | |
| E-mail | | | | | |
| Property Address | | RP Number (Lot) | SP192176 (1) | | |
| Property Size | 27 ha | Land-use | Grazing, rural residential | Stock Carried | 25 |
| Latitude/longitude | -26.741088 / 152.834812 | | | | |
| Sub-Catchment | Obi Obi Creek | | LBCCG Management Unit | OB8 | |
| M.U. Priority (LBCCG IP) | Moderate | | M.U. Priority (Pollution) | Moderate | |
| Water Quality | Less than 40% of samples between 1993-2005 exceeded ANZECC guideline levels | | | | |

PROJECT PARTNERS/STAKEHOLDERS & ROLES/CONTRIBUTIONS

| | |
|---|--|
| Lake Baroon Catchment Care Group (Seqwater 2014-15 Project Funding) | On ground project implementation cash \$9,324 |
| Lake Baroon Catchment Care Group (Seqwater 2014-15 Administration Funding) | Project coordination, administration, reporting, monitoring & evaluation \$3,600 |
| Sunshine Coast Council (Landholder Environment Grants) | Project funding \$3,000 |
| Rod & Kay Lawrie | Landowner, labour, funding \$11,505 cash & in-kind |

PROJECT DETAILS

| | | | | | |
|---|-------------|---------------------------|----------|-------------------------|----------|
| Start Date | Jun 2015 | On-ground Complete | Jun 2015 | Monitor Complete | Dec 2015 |
| OUTPUTS | | | | | |
| Weed management | 3 hectares | | | | |
| Fencing | 460 metres | | | | |
| Erosion control (gully erosion in watercourse) | 1 location | | | | |
| OUTCOMES | | | | | |
| Area of weeds controlled | 3 hectares | | | | |
| Area of land fenced from livestock | 1 hectare | | | | |
| Length of watercourse protected by fencing | 102 metres | | | | |
| Landholder engagement | 1 landowner | | | | |

supporting the **Sunshine Coast Rivers Initiative**

PART B PROJECT PLAN

i. INTRODUCTION

Lake Baroon Catchment Care Group (LBCCG) is a not for profit community group focussed on reducing the risks to water quality in the Lake Baroon catchment - primarily through the implementation of on-ground remediation projects. This aim is consistent with Seqwater's objectives of efficiently producing high quality potable water for the Sunshine Coast (and greater South east Queensland) region.

Maintaining water quality is critical to providing safe bulk drinking water to the population of SEQ. All of the storages managed by Seqwater involve catchments which are developed (to varying extents) and support active and growing communities, along with important industrial and rural economic activity (Murton & Keys 2012). This is particularly true of the Lake Baroon catchment.

LBCCG was formed in 1991 by the local community and AquaGen in response to ongoing water quality issues in the recently completed Baroon Pocket Dam. It was recognised that engaging landholders and stakeholders in the local community was best achieved through a local grassroots organisation that could develop long term relationships and build trust within the community – an outcome not easily achieved by governmental organisations. Furthermore LBCCG is able to source a range of funding opportunities not available to government, resulting in significant leverage on Seqwater investment (typically 3 to 1).

LBCCG implements varied projects in the Lake Baroon catchment with landholders and partners that directly address water quality and broader environmental issues. The proposed project is consistent with both the LBCCG and Seqwater aim of reducing threats and risks to water quality posed by environmental weeds in the Obi Obi Creek riparian zone, and associated activities are considered a prudent investment to support.

ii. BACKGROUND

The project evolved from an application to the Sunshine Coast Council's Landholder Environment Grants program by the landowners Rod and Kay Lawrie (successful applications to be announced in early June, 2015). LBCCG became involved when it was determined that the location and outcomes of the proposed project was deemed of having significant water quality benefits.

The project addresses livestock access to riparian zones, weeds and watercourse erosion.

LBCCG have been working in the mid to lower Obi Obi Creek area for many years, mainly on the larger properties upstream, however to continue addressing land management issues in this important zone, it is strategic to engage smaller landholders with significant frontage to Obi Obi Creek. Evidence suggests that by enhancing the riparian zone in this area, polluted flows from the upper Obi Obi Creek, Walkers Creek and urban Maleny can be 'cleaned' as they move through pools, riffles, macrophytes and terrestrial vegetation.

iii. WEED MANAGEMENT

Major environmental weeds pose a serious and immediate threat to native vegetation and water quality due to their ability to alter the structure and composition of plant communities. Small leaf privet can thrive in low-light conditions and over time will dominate riparian zones, out-competing native species and effectively developing mono-culture systems. Similarly lantana and blackberry form dense thickets. Natural regeneration is reduced below sustainable levels and only mature individual native flora species persist.

Vine weeds, although requiring high light levels (and therefore not usually a major threat to robust remnant vegetation) spread easily and can rapidly envelope all other vegetation, and in time can kill those plants simply through the elimination of light and smothering. Over time weedy vines and other pest species will degrade the edges of remnant vegetation and slowly but surely decrease the total area of remnant.

Many weed species due to their ability to out compete native species and form monocultures affect overland water flow and run off, and may not filter sediments and nutrients as effectively as diverse native vegetation.

1.0 WHAT

The project will fence an Obi Obi Creek tributary excluding livestock, control weeds both within the fenced area and in the Obi Obi Creek riparian zone, and remediate a minor erosion gully in the watercourse.

The project aims to complete four components:

1. Install 460 metres of riparian fencing to exclude livestock from 102 metres of watercourse;
2. Control weeds in the 1 hectare of fenced area;
3. Control weeds in a further 4 hectares as part of a staged Obi Obi Creek riparian rehabilitation; *and*
4. Remediate a minor erosion gully that threatens to damage a farm dam bank.

2.0 WHERE

Rod & Kay Lawrie grazing and rural residential property
154 Burgum Road, North Maleny

Property is approximately 27 hectares – currently comprising the following:

- 8.25 ha of improved pasture;
- 13.25 ha of lightly vegetated unimproved pasture (including riparian zones);
- 3 ha of regrowth vegetation;
- 1.8 ha of remnant vegetation (RE12.8.3); *and*
- 0.7 ha dwellings and sheds;

Included in the above figures is approximately 0.8 ha of road reserve. The property due to its shape has approximately 800 metres frontage to Obi Obi Creek.

3.0 WHY

Lake Baroon Catchment Care Group is focussed on improving raw water quality in the Lake Baroon catchment and by definition achieves this by working with private landholders in the catchment. Supporting landholders to improve land management, which provides multiple outcomes; water quality and broader environmental benefits while contributing to essential productivity gains. Catchment activities not only benefit the raw water flowing into one of south east Queensland's most important water storages (hence Seqwater's significant support) but also provides broad environmental outcomes.

Analysis of raw catchment water quality data, targeted sampling and analysis (by the Baroon Pocket Dam Managers), and anecdotal evidence suggests that the Obi Obi Creek downstream of Maleny plays a significant and important role of removing pollutants and contamination before it reaches Lake Baroon. It has been suggested this is due to a combination of dilution, aeration and vegetated riparian buffers over a relatively long length of waterway. Therefore any activity that enhances the riparian buffer is likely to benefit raw water quality before it enters the storage (pers. comm. Peter Pollard, Griffith University 2013).

The project site is located a relatively short distance upstream of Baroon Pocket Dam - the major supplier of potable water to the Sunshine Coast and important contributor to greater South east Queensland via the Northern Pipeline Interconnector).

LBCCG over several years have been implementing numerous projects in the mid Obi Obi Creek reaches (between Maleny and Lake Baroon) focussed on excluding livestock access to watercourses, installing alternative watering points, managing weeds in the riparian zone, and protecting and enhancing remnant and high quality regrowth vegetation.

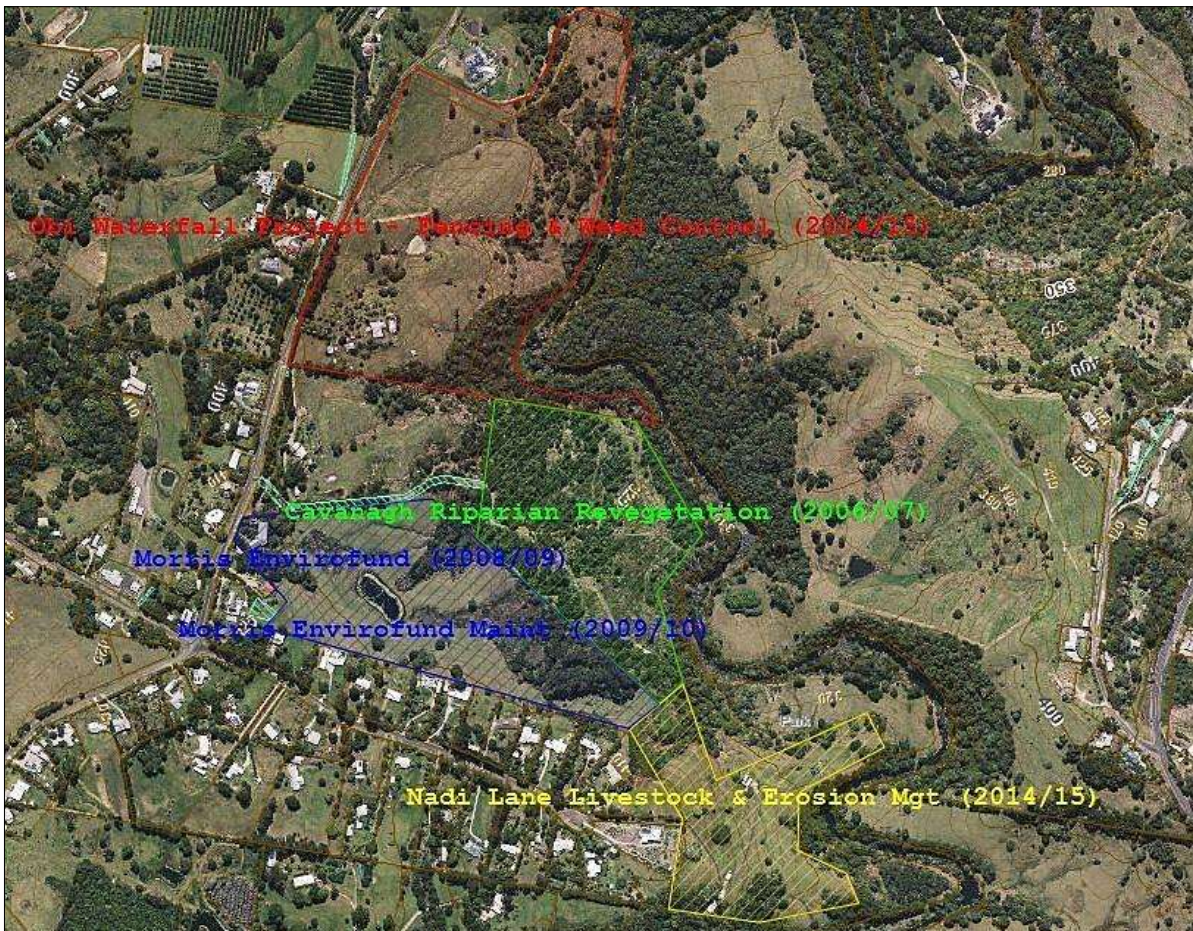


Figure 2: The proposed project in red continues on from a suite of adjoining projects/properties showing that provided sufficient enthusiasm can be generated, working with smaller landholders can have a cumulative large impact.

LBCCG has completed (or underway) several nearby projects, including immediately upstream on the Cavanagh property (2006/07 Cavanagh Riparian Revegetation; 2008/09 Morris Envirofund and 2009/10 Morris Envirofund Maintenance; and 2014/15 Nadi Lane Livestock and Erosion Management).

Less than 40% of raw water samples in the period 1993-2005 taken at Obi Inflow (Baroon Pocket Dam) exceeded ANZECC guideline levels however this is due to the ability of the lower Obi Obi Creek riparian zone to remove contaminants – a particularly useful characteristic for water quality outcomes.

The project will:

- Commence a longer term project that will ultimately enhance 800 metres of Obi Obi Creek riparian zone including the protection and enhancement of remnant vegetation;

- Exclude livestock from 102 metres of an Obi Obi Creek tributary reducing erosion, nutrient and pathogen loads;
- Provide watercourse stability by undertaking minor pre-emptive erosion control;
- Enhance wildlife habitat; improving the linkage with Obi Obi Creek;
- Engage a new landholders; *and*
- Strengthens partnership with Sunshine Coast Council and Landholder Environment Grants program.

The project's objectives and outcomes are consistent with:

- 2014-15 Priority Strategy for Funding Provided by Seqwater (LBCCG 2014)
- Lake Baroon Catchment Implementation Plan (AquaGen/LBCCG 2007)
- Lake Baroon Catchment Management Strategy (AquaGen/LBCCG 2004)
- Seqwater Natural Assets Management Plan – Lake Baroon Catchment (Seqwater 2012)
- Sanitary Survey of Baroon Pocket Catchment Report (Seqwater 2014)
- Catchment and In-Storage Risk Assessment for Water Quality – Baroon Pocket Dam (Seqwater 2009)
- Sunshine Coast Council Waterways and Coastal Management Strategy 2011-2012 (SCC 2011)
- Mary River and Tributaries Rehabilitation Plan (Mary River Catchment Coordinating Committee 2001)

4.0 HOW

4.1 WEED MANAGEMENT



Figure 3: Steep slopes requiring specialised weed management. A small waterfall is on the far right of the figure.

through hand clearing (cut and paint) and some herbicide spraying. Follow up control will be required over a twelve month period during which it is expected natural regeneration will establish and in the long term outcompete weed species.

The landholders and Sunshine Coast Council are funding weed management (primarily lantana control but including other environmental weeds) as the first stage of managing weeds in the Obi Obi Creek riparian zone.

This reach of Obi Obi Creek riparian zone supports good stands of remnant vegetation, poor to good quality areas of regrowth vegetation and open (previously grazed) areas that environmental weeds have invaded. The variety of conditions (and weed infestations) requires several management techniques to effectively and efficiently control weeds.

For this stage it has been determined that bush regeneration specialists will be utilised to clear the steep areas of weeds primarily

4.2 FENCING



Figure 4: Standard cattle fencing to be erected.

Fencing is required to exclude livestock from the rehabilitation area and include a farm dam and associated watercourse. This will also exclude stock from the eroding dam bank preventing failure.

The fencing alignment will require partial clearing to enable a straight (and strong) fence to be installed.

Fencing will consist of standard cattle fencing; timber split posts at four metre intervals, except where rock will require the use of steel posts, timber strainer posts and steel gates, and four strands of barb wire.

4.3 EROSION CONTROL

The dam bank is currently under threat from gully erosion (an existing fence post has been undermined). To prevent further erosion and potentially failure of the dam wall locally sourced rock will be placed in the erosion head and area isolated from livestock by realigning the fencing to include the dam.

5.0 WHEN

In planning any weed management program, it is important to know the most appropriate time to undertake on-ground activities to optimise outcomes. Often this is influenced by the weed species being controlled or the control technique being employed. In riparian areas, the role of hydrology in weed management is an additional factor that requires consideration. Floods and water-logged soils may impede access, particularly for machinery, while prolonged dry periods can reduce weed activity thereby reducing herbicide effectiveness.

Importantly the timing of weed management and monitoring activities will be planned to ensure the best outcome for investment in these activities.

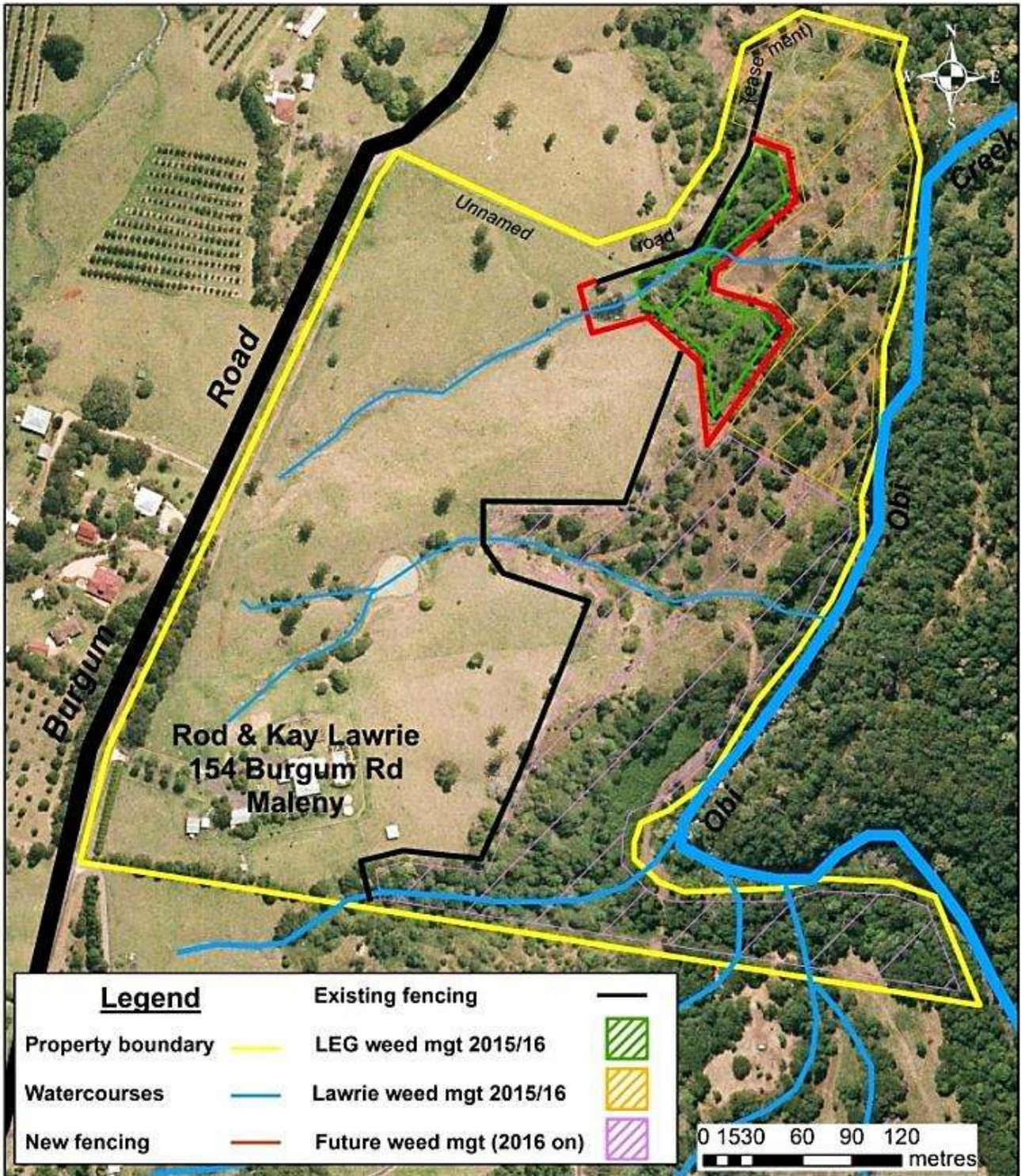
The staged nature of weed management, including the multiple techniques utilised, means activities will need to be implemented throughout the year. Site access is good and flooding is not expected to impact on weed management activities.

Ideally weed management will commence before fencing is installed to enable access. Weather permitting the fencing (the LBCCG/Seqwater funded component of the project) will be completed by June 30, 2015.

6.0 BUDGET

LBCCG has a policy of keeping Project Budgets confidential as individual project costings vary and can give misleading information. Detailed Budgets can be supplied on request. Please contact the LBCCG Project Manager on info@lbccg.org.au for further information.

7.0 PROJECT MAP



Obi Waterfall Project – Fencing and Weed Control (Lawrie)



This plan has been generated using data supplied by The State of Queensland (Department of Natural Resources and Water), Maroochy Shire Council, Caloundra City Council and Lake Baroon Catchment Care Group. Digital Cadastre Database (DCDB) © The State of Queensland Department of Natural Resources and Water) [2006]. Maroochy Shire Council, Caloundra City Council, and Department of Natural Resources and Water (NRW), does not warrant the correctness of this plan or any information thereon. The Council's and NRW accepts no liability or responsibility in respect of the plan and any information or inaccuracies thereon. Any persons relying on this plan shall do so at their risk.

This map must not be reproduced in any form whole or part without the express written consent of the Lake Baroon Catchment Care Group.

Data shown in Map Grid of Australia coordinates (Universal Transverse Mercator, Zone 56).

8.0 REFERENCES

Dunstan, M 2007, *Lake Baroon Catchment Implementation Plan*, AquaGen Water & Renewable Energy, Palmwoods.

Murton, S. & Keys, S. 2012, *Seqwater Natural Asset Management Plan – Lake Baroon*, Sinclair Knight Merz, Brisbane

Truill, C.B. 2007, *State of the Lake Baroon Catchment, Volume 2: Appendices*, AquaGen Water and Renewable Energy, Palmwoods.