

GXLab

Prepared for

Example

Environmental Farm Assessment · Soil Carbon and Vegetation

Example

Management	Report date	Feasibility
Mixed	**09/07/2026**	**Medium**

SOC CURRENT	POTENTIAL	PROJECT AREA	TREE COVER
68.6	**77.7**	**153**	**28.9**
t C/ha (0-30cm)	t C/ha achievable	hectares	ha woody (20%+)

01 Executive Summary

Carbon Project Feasibility

Medium

Economic feasibility of running a carbon project, given area, rainfall and clay. Applies to both environmental plantings and soil carbon.



Low

any one of: under 100 ha / under 350 mm / under 10% clay

Your farm size, average annual rainfall or average clay % is below the recommended range for a commercially viable carbon project.

Medium

any one of: 100 to 500 ha / 350 to 500 mm / under 20% clay

Your farm size is lower than the typical range for a carbon project.

High

500 ha+ / 500 mm+ / 20%+ clay

Your farm size, average annual rainfall and average clay % are in the recommended range for a potential carbon project.

This property: Medium. Your farm size is lower than the typical range for a carbon project (farm 153 ha, rainfall 661 mm, clay 35%).

Environmental Plantings

High



Low	Medium	High
<8 t	8-10 t	≥10 t

Bands by modelled pixel yield, ACCUs/ha/yr.

Soil Carbon Potential

Medium



Low	Medium	High
<5 t	5-10 t	≥10 t

Modelled boundary-line gap of 9.0 t C/ha achievable headroom over 25 years.

Summary

GXLab has prepared this Environmental Farm Assessment for a 153 ha property. The assessment draws on GXLab's national SOC model (10m resolution, 5,000+ samples), FullCAM/Renovo environmental planting modelling, and Bureau of Meteorology climate data.

Average annual rainfall of 661mm supports active organic matter cycling. Your property is achieving above-average soil carbon for its zone - a positive sign despite the lower rainfall.

Modelled mean SOC stock of 68.6 t C/ha (0-30cm) indicates a high soil carbon opportunity. Boundary-line analysis using clay content indicates a mean achievable SOC stock of 77.7 t C/ha, with a mean uplift of 9.02 t C/ha across the property. Environmental planting potential averages 5.904 tCO_2e/ha/yr.

02 Introduction

GXLab has generated this Environmental Farm Assessment for **Example** that contains key considerations around undertaking a carbon project. It considers two carbon project options suited to the region: **soil carbon projects** and **environmental plantings carbon projects**.

These carbon projects typically last 25 years and aim to increase carbon stored in either the soil or the woody vegetation on the land. Projects generate Australian Carbon Credit Units (ACCUs) for additional carbon stored in the landscape. These credits can be sold to a third party to create a new revenue stream on farm, or retired to offset the farm's own emissions. Projects carry costs, so it is necessary to understand potential revenue and costs to determine economic viability.

Potential income is determined by the size of the project and projected carbon yields. Carbon yields vary across the landscape and are driven by rainfall, climate and soil type, with land management also influencing carbon cycling.

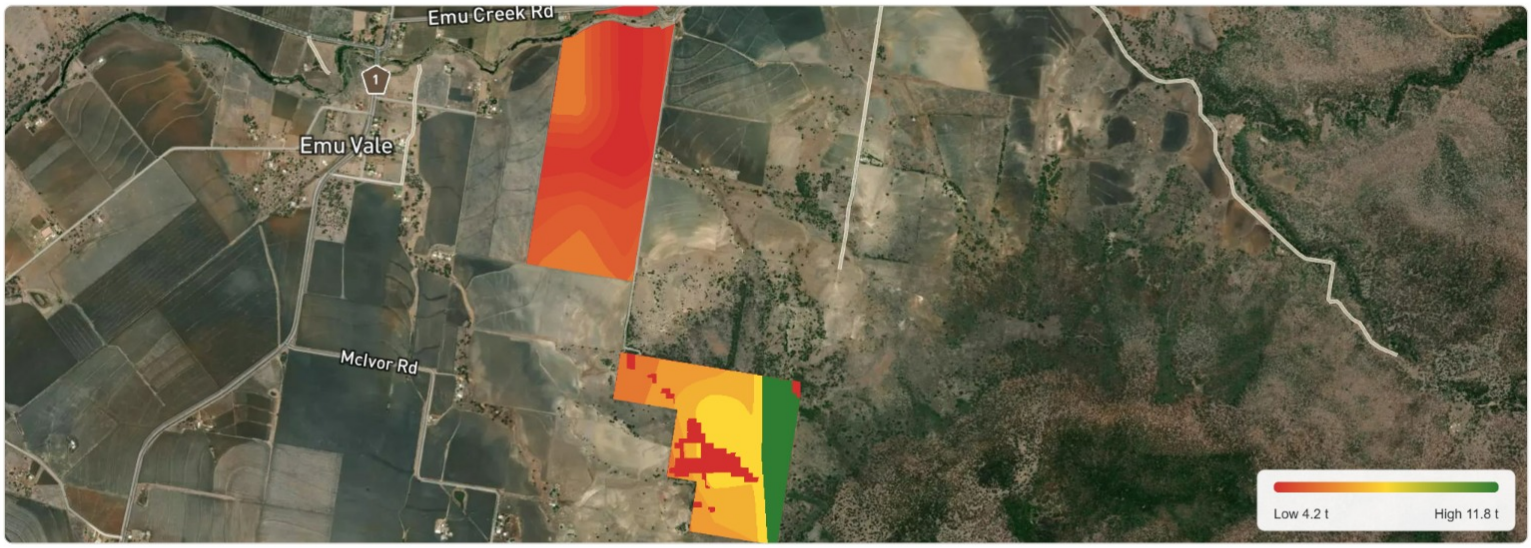
This report includes key information needed to understand your land's potential to support a carbon project: total area, rainfall, current modelled soil organic carbon, environmental plantings yield modelling and on-farm project scenarios. The information and maps are best used alongside your on-ground knowledge of the property, its management and productivity.

03 Environmental Plantings Potential

Planting mixed native trees and shrubs on your property can capture carbon. The carbon potential is assessed using the **FullCAM model**, used in Australia's national greenhouse gas reporting and the ACCU scheme. Environmental plantings involve planting locally native species at over 200 stems per hectare (able to form a forest of at least 20% canopy cover and over 2m tall), or over 800 stems per ha for shelterbelt plantings. The minimum project area is 0.2 ha, and projects under 200 ha have significantly reduced ongoing reporting and auditing costs.

Areas in **red** show the lowest potential to generate carbon credits through revegetation, while areas in **green** represent the highest potential. This is measured in tonnes of CO_2 equivalent (CO_2e) per hectare per year, equivalent to one carbon credit. **Example** has an average yield of **5.904** carbon credits/ha/yr, with some areas yielding up to **11.8** carbon credits/ha/yr. Plantings in these areas would generate more credits and returns.

Map · Environmental planting abatement potential. Red = low, green = high (credits/ha/yr)



Environmental Plantings Potential — High

Carbon captured through tree plantings

Low
all pixels < 8 t carbon
All of your farm will generate less than 8 ACCUs/Ha/Yr.

Medium
pixels 8-10 t carbon
Parts of your farm will generate 8-10 ACCUs/Ha/Yr.

High
pixels ≥ 10 t carbon
Parts of your farm will generate 10+ ACCUs/Ha/Yr.

Data source

This heatmap was generated using **Renovo Agriculture** software. For more information contact Renovo Ag for independent, commission-free guidance.

Project size depends on where you choose to plant in the landscape. The two scenarios below use **3.8 ha** (2.5% of the property) and **7.7 ha** (5% of the property).

	Scenario A	Scenario B
Area	3.8 ha (2.5%)	7.7 ha (5%)
Average carbon credits per ha/yr	**5.904**	**5.904**
Annual carbon credits	**23 /yr**	**45 /yr**
Total carbon credits over 25 years	**565**	**1,129**

04 Current Levels of Tree Cover on Property

Existing farm vegetation provides multiple benefits, including carbon sequestration, and mapping it helps identify opportunities for soil carbon projects and new environmental plantings. Areas not already at forest cover are eligible for an environmental plantings project.

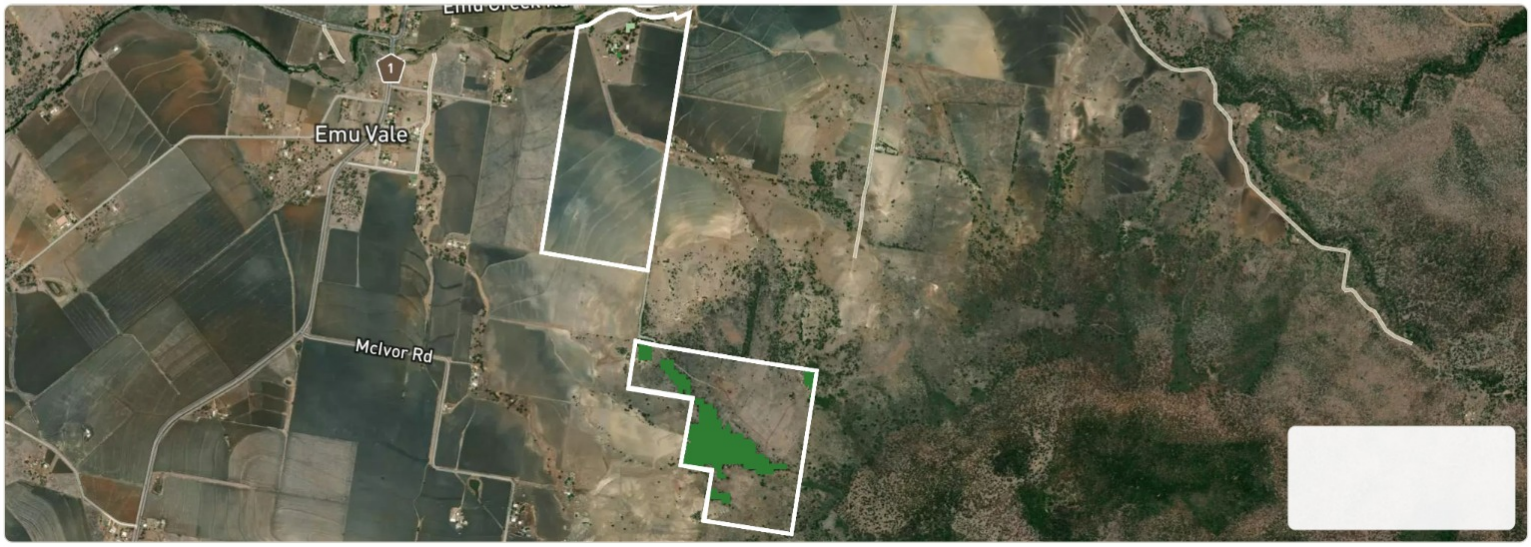
The Commonwealth National Forest and Sparse Woody Vegetation Dataset uses three categories:

- **Non Woody**: 0% canopy cover.
- **Sparse Woody Vegetation**: greater than 0% and less than 20% canopy cover.
- **Woody Vegetation (forest)**: 20% or more canopy cover, at least 2m high, minimum area 0.2 ha.

The mapped canopy layer for your property shows about:

- **28.9 ha** Woody Vegetation (20% or more canopy)
- **0.4 ha** Sparse Woody Vegetation (greater than 0% and under 20% canopy)

Map: Forest and Sparse Woody Vegetation cover. Farm boundary shown in white.



Figures describe the mapped canopy extent within the supplied raster, not whole-of-property cover. Areas outside the mapped woody and sparse classes are eligible for a plantings project. Integrating vegetation where it delivers the most on-farm benefit and aligns with farm goals is critical to a well-designed plantings project.

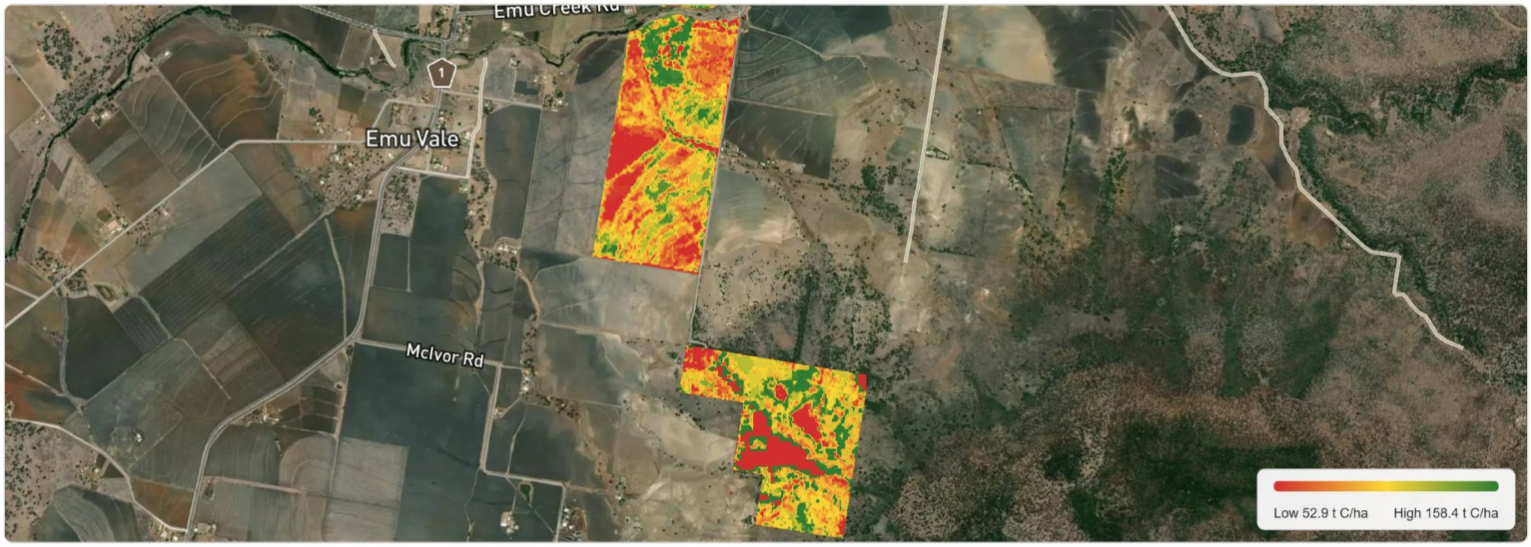
05 Soil Carbon Project

Current Soil Carbon Levels

Soil carbon depends on rainfall, soil type, agricultural practices and geography. To understand the potential for storing carbon in Australian agricultural soils, GXLab has built a high-resolution soil carbon model validated using over **5,000 on-the-ground soil samples**.

This model, at **10m × 10m resolution**, shows the estimated spread of soil carbon across your farm in the top 30cm. Average estimated soil carbon for **Example** is **68.6 t C/ha** in the top 30cm, with a range of **52.9-158.4 t C/ha** across the property.

Map · Modelled Soil Organic Carbon Stock (0-30cm, t C/ha). Red = low, green = high



Eligible Management Activities for Soil Carbon

Soil carbon projects require a land management change, meaning something new or different from current practice. Eligible practices depend on how you currently manage the farm, and well-designed projects support strategies that make sense for your business and production system.

- Cultivation, cropping or stubble management
- Converting from intensive tilling to reduced or no-till
- Retaining stubble after harvest
- Using cover crops or including legumes to improve soil health
- Improving pasture function in grazing systems
- Altering stocking rate, duration or intensity of grazing
- Using legumes in a pasture system
- Re-establishing or rejuvenating pasture by seeding or pasture cropping
- Converting cropland to permanent pasture
- Applying gypsum to remediate sodic or magnesic soils
- Applying lime to remediate acid soils
- Applying nutrients to overcome a material deficiency
- New irrigation or soil modification
- Landform works: erosion control, water ponding, controlled traffic, deep ripping
- Clay delving or spreading

Soil Carbon Potential

Soil carbon potential yields are less certain than plantings yields, since more factors affect SOC, including soil type, rainfall, and historic and current management. Bigger management changes drive bigger increases. Conversion from cropping to pasture is likely to lead to a large increase but may not align with current production goals, while applying lime could give more moderate increases that fit the current system better.

The analysis below is your modelled potential to build further soil carbon. The model predicts the upper soil carbon levels across your farm based on average annual rainfall and soil type, and compares this to current levels. The gap between current and potential is the headroom to build soil carbon.

SOC Stock potential (0-30cm) · Boundary-line model (stock vs clay) - dark = near ceiling, yellow = large gap



Mean potential stock (0-30cm): 77.7 t C/ha
Mean current stock: 68.6 t C/ha
Mean stock gap: 9.02 t C/ha
Max achievable cap: 92.8 t C/ha
Paired pixels: 11,309
Using SOC stock (SOC% x BD x 30cm), more accurate than SOC% alone

Boundary-line method identifies the maximum SOC stock (t C/ha) achievable at each clay level. The gap between current and potential stock is the sequestration headroom achievable with management change.

CO_2e from closing this gap (25yr): 5,062 t CO_2e this is the basis for the soil carbon credits shown above, not an amount in addition to them

Soil Carbon Potential · 0-30cm

Average Potential SOC	Current SOC	Soil Carbon Gap
77.7	**68.6**	**9.0**
t C/ha	t C/ha	t C/ha headroom

Three scenarios below span a more conservative SOC increase (Low) through to the full modelled potential (High). These are potentially achievable given the analysis, but more property-specific information is needed to understand which is most likely in your system.

	Low	Medium	High
Project area	153 ha	153 ha	153 ha
Current average SOC	68.6 t C/ha	68.6 t C/ha	68.6 t C/ha
Target SOC after 25 yrs	73.1 t C/ha	75.4 t C/ha	77.7 t C/ha
Change in carbon stocks (top 30cm, 25 yrs)	4.5 t C/ha	6.8 t C/ha	9.0 t C/ha
Sequestration rate per ha per year	0.18 t C/ha	0.27 t C/ha	0.36 t C/ha
Carbon credits* per yr**	101	152	202
Total carbon credits* over 25 yrs**	2,531	3,796	5,062

**SOC is reported in tonnes of carbon per hectare (t C/ha), converted to tonnes of CO_2 equivalent (× 3.667) for the carbon credit value. **Scenarios scale the modelled gap: Low 50%, Medium 75%, High 100%.*

From SOC stock gap 9.02 t C/ha × 3.667 ÷ 25yr = 1.323 t CO_2e/ha/yr (soil carbon sequestration, 25-year project)

06 Conclusion & Next Steps

This farm represents a **High** opportunity from an environmental plantings perspective, with **7.7 ha** (5% of the property) planted yielding an estimated **1,129 carbon credits** over 25 years.

This farm represents a **Medium** opportunity from a soil carbon project perspective, with a medium forecast of building an additional **6.8 t C/ha** in the top 30cm over 25 years, yielding an estimated **3,796 carbon credits** over the life of the project.

Notes

This property presents a measurable carbon opportunity across soil sequestration and environmental plantings. Over 25 years, soil sequestration may generate approximately 5,062 carbon credits (CO_2e).From SOC stock gap 9.02 t C/ha × 3.667/25yr = 1.323 t CO_2e/ha/yr across 153 ha. With 1,129 tCO_2e additional from plantings across an estimated 8 ha (5% default).

GXLab recommends baseline soil sampling to verify modelled SOC and confirm CER eligibility. Engagement with a registered carbon project developer is the recommended next step.

Recommended next step

If there is an eligible management practice change that fits the farm, GXLab recommends initial soil carbon sampling to verify the modelled SOC predictions. Engagement with a registered carbon project developer or CER-authorised agent is a recommended next step. Project developers signed up to the Carbon Market Industries Code of Practice can be found via the CER.

Appendix

Glossary, Clay & Climate

Glossary of key terms

SOC

Soil Organic Carbon, the carbon component of soil organic matter.

ACCU

Australian Carbon Credit Unit. One credit per tonne of CO_2-e sequestered; sellable or retired against a farm's emissions. Issued by the CER.

Bulk Density (BD)

Mass of dry soil per unit volume (g/cm³). Converts SOC % into SOC stock (t C/ha).

CO_2-e

Carbon Dioxide Equivalent. SOC (t C/ha) × 3.667 = tonnes of CO_2 equivalent. 1 CO_2-e = 1 ACCU.

CER

Clean Energy Regulator. Australian body that issues ACCUs and administers carbon projects.

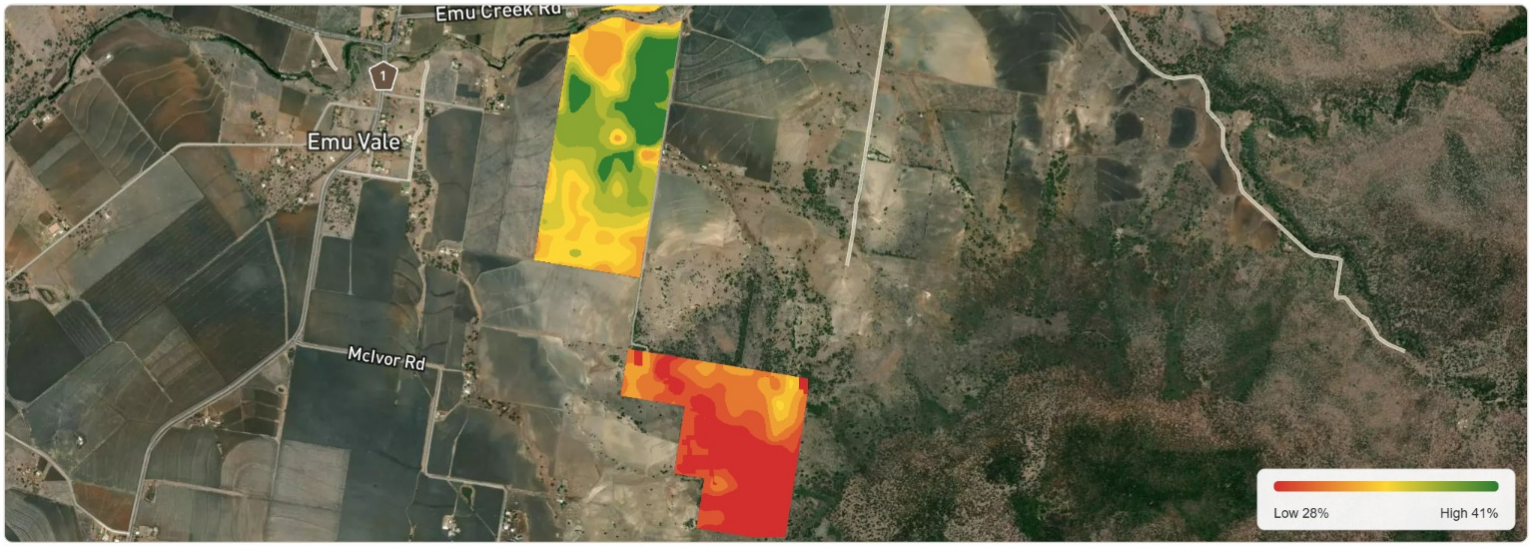
Boundary-line model

Statistical method identifying the maximum achievable SOC at each clay level.

Clay Map

The analysis below shows the predicted clay % across your farm, a key driver in the ability to build and maintain SOC.

Map · Predicted clay content (%)

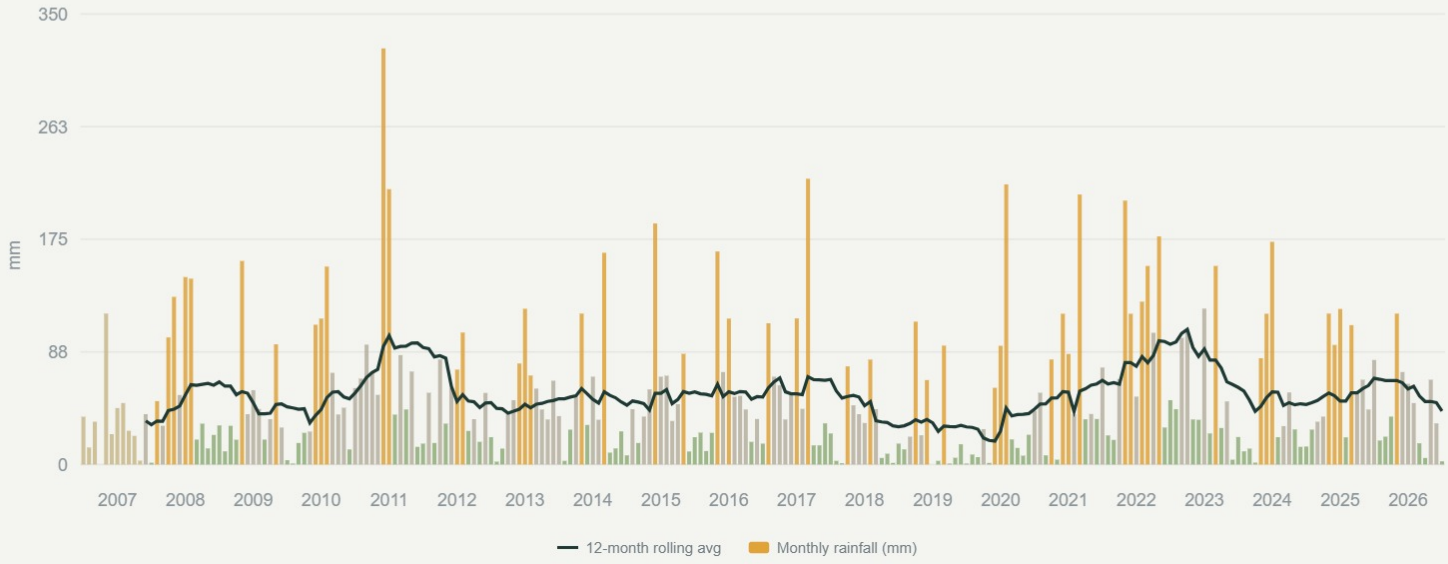


Rainfall and Climate Context

Rainfall is a primary driver of both soil carbon and environmental plantings yields. The charts below show the last 20 years of rainfall at the property, with a 12-month rolling average and the long-term monthly pattern, from the SILO DataDrill record at the farm centroid.

20yr mean	Wettest year	Driest year	Rainfall trend
661 mm/year	**2010** 1,101 mm	**2019** 220 mm	**+41 mm** per decade

20-Year Monthly Rainfall Record



Average Monthly Rainfall (20yr)



Source: SILO DataDrill · farm centroid · 2006 to 2026

Rainfall

High

Optimal range 500mm+ average annual rainfall

Low
<400 mm
Lower than is typically recommended. Below 400mm our ability to store and maintain soil carbon can be more limited and uncertain.

Medium
400-500 mm
Lower range for a soil carbon project. Some properties below 500mm have run successful projects with the right soil type and management.

High
≥ 500 mm
In the recommended range for a potential soil carbon project.

Your average annual rainfall is **661 mm**, which is in the recommended range for a potential soil carbon project.

Key references: gxlab.com · renovoag.com.au · cleanenergyregulator.gov.au

A Terms, Limitations & Disclaimer

Scope of work, data limitations and conditions of use.

All outputs in this Environmental Farm Assessment are modelled and indicative only. This report is an opportunity screening and planning tool. It is not a soil carbon measurement, an audit, or a project registration document, and it does not replace laboratory soil sampling or a registered methodology assessment.

1. GXLab SOC Model

The GXLab SOC model is a spatially continuous estimation surface built from field measurements at 10m resolution. It is provided as a decision support layer to illustrate likely SOC distribution across the property. The model does not replace laboratory analysis and must not be used as a substitute for measured SOC values in any regulatory submission. Model outputs may differ from measured values at individual locations due to local soil variability, land management history, and interpolation uncertainty.

2. Clay-SOC Boundary-Line and Potential Assessment

The clay-SOC boundary-line analysis identifies the statistical upper envelope of SOC achievable at each clay content level, based on the modelled data for this property. The resulting SOC gap is an indicative measure of potential carbon accumulation opportunity and does not constitute a guarantee of future sequestration. Actual outcomes depend on land management practices, climatic conditions, project duration, and ongoing measurement verification. The boundary-line model is a GXLab proprietary method. Results are property specific and are not transferable between sites without recalibration.

3. Carbon Uplift and Economic Scenarios

The carbon uplift projections, scenario modelling, and economic figures presented in this report are simulations based on modelled sequestration rates and configured CO_2e assumptions. They are illustrative only and do not represent contracted, audited, or guaranteed outcomes. ACCU values are indicative and subject to market fluctuation. GXLab makes no representation as to the accuracy of future carbon credit prices or sequestration rates. Scenario outputs should be used for internal planning and stakeholder communication purposes only. They do not constitute financial advice.

4. Environmental Plantings and Tree Cover

Environmental plantings yields are modelled estimates of carbon abatement and depend on species, site conditions, establishment success and management. Tree cover figures describe the mapped canopy extent within the supplied raster and are not a substitute for on-ground survey or eligibility assessment.

5. General Conditions

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