Southern Rural Water

Carbon Reforestation Offsets Project:

Forrester Inspections

SUMMARY REPORT

July 2024

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V1.0	Report prepared to scope of work	20 June 2024	Scott McArdle
V2.0	Changes made after consultation with client	24 June 2024	Scott McArdle
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Acknowledgement

Nexsys Industries Consulting acknowledges the Traditional Owners of the lands on which we work, the Brayakaulung people of the Gunaikurnai nation, and we acknowledge their continuing connection to land, sea, culture and country. We extend that acknowledgement to traditional owners of other lands on which this work was conducted, and pay our respect to elders past, present and emerging.

Prepared for Southern Rural Water as a key deliverable and summary of findings for C5830—2024-001 Carbon Reforestation Offsets Project – Forrester Inspection.

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EXECUTIVE SUMMARY

Nexsys Industries Consulting, supported by Agilus, Habitat Creations and Unearthed Heritage Australia, were engaged to provide advice to Southern Rural Water (SRW) on the suitability of each of three sites for reforestation through the Carbon Offsets Reforestation Project (CROP). The CROP program aims to be a key contributor to achieving SRWs overall net zero target. Proposed areas of Blue Rock Dam, Lake Glenmaggie and Merrimu Reservoir were assessed against criteria as set out by SRW and the requirements for generating carbon credits under the chosen scheme.

The approach entailed a combination of desktop reviews of available data, specific assessment tasks against set criteria, and onsite visits to visually assess landscape and site details against the requirements of the method and of SRW. This report, and the associated detailed assessments for bushfire risk, bushfire potential impact and cultural heritage, are a summary of the findings and advice provided to SRW. Bushfire Management Plans for each final site are provided as a second deliverable subsequent to this summarising report.

Each of the three proposed sites were assessed for suitability against the Reforestation by Environmental or Mallee Plantings (REMP) method of the Australian Carbon Credit Units (ACCU) Scheme. All three sites were deemed as suitable, fully or in part, for establishing and maintaining a reforestation project, consistent with the REMP Method. Soils, climate, historical vegetation types, gradient and landscape conditions at the sites all supported an appropriately designed and delivered reforestation program. Some stratification of Carbon Estimation Areas (CEAs) is required at each site, predominantly due to variations in aspect and soil type.

Each site has had an appropriate mix of species recommended for planting. This recommendation is based on historical EVC makeup, as well as observed local species mixes in adjacent or nearby forested areas and site characteristics. Species difficult to propagate and establish were removed from the recommended species lists. The recommended planting approach for all sites is through tubestock planting. This recommendation is driven by the susceptibility of many of the soils to erosion with heavy machinery operations, avoiding disturbance to existing native vegetation (mostly groundcover and small shrub), and at Lake Glenmaggie and Merrimu Reservoir, avoiding disturbing potentially sensitive cultural heritage sites.

A range of possible planting densities have been provided to accommodate differing levels of investment scale for the establishment of reforested areas. All ranges provided meet the REMP method determinants for target forest/canopy cover once established.

At Merrimu Reservoir, two areas were excluded due to the historical EVC being a treeless grassland vegetation class. A further exclusion area is recommended at Merrimu, due to the presence of an old quarry that, in the view of the team, requires an alternative approach to rehabilitation. These same areas are also recommended for exclusion based on bushfire risk and impact assessment.

Blue Rock Dam and Merrimu Reservoir sites have areas proposed to be excluded from any submitted project area due to an assessed increase to bushfire risk to community assets, dwellings and infrastructure. The project team, in consultation with SRW, deemed that placing a dwelling under a revised Bushfire Management Overlay (i.e. contiguous forested areas within 150m of the dwelling) was to be avoided. Utilising this approach, and additional assessment criteria, further optional setbacks were recommended to deliver on this risk mitigation approach to community and private assets.

Across all three sites, exclusion areas and setback distances have been recommended to assets and infrastructure, including roads, and for community/user safety in the event of a bushfire. Climate projections indicate that all three sites are likely to be subject to increased fire occurrence than at present.

Both Lake Glenmaggie and Merrimu Reservoir have been identified as having areas and elements of cultural heritage sensitivity, in particular aboriginal heritage, on or adjacent to the proposed planting areas. This was highlighted through desktop review, validated through onsite observation, and prior communication with traditional owners. Areas of potential sensitivity also exist at Blue Rock Dam. Further engagement with traditional owners is recommended, through the development of voluntary Cultural Heritage Management Plans, for each of the three sites. Given the recommendation for CHMP development for each site, this process will accommodate the tender deliverable of a process to be followed if something (an artefact or site of interest) is found during planting activities.

Overall, across the three sites, the advice provided to SRW across the delivery of this review and inspection program, for the criteria outlined and for the scope of this work, is that the target of 200ha of land available for establishing a reforestation project, consistent with the REMP Method, is achievable.

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METHOD

The forester inspections were conducted to provide advice to Southern Rural Water (SRW) on the suitability of each of three sites for reforestation, under the Reforestation by Environmental or Mallee Plantings (REMP) method of the Australian Carbon Credit Units (ACCU) Scheme, as a key deliverable of the Carbon Offsets Reforestation Project (CROP). Advice was based on a combination of database/desktop reviews and analysis, along with site visits to identify key features of site suitability and methodologies for planting each site. The inspection team consisted of specialists with expertise across the fields of landscape planning, native species identification, selection and production, bushfire risk assessment and management planning, natural resource management, and cultural heritage. Each site is also referenced against the REMP method and criteria for suitability.

Each SRW site has been referenced by title as a general and common reference source, with details regarding each of the suitability criteria listed against the title. Where parts of a title are referenced, that area is identified geographically and by map representation for clarity.

Site suitability and species selection

Desktop reviews were carried out for the following elements of the site suitability and plantation establishment feasibility, to inform which sites would be capable of establishing and sustaining trees:

- Historical EVC (pre 1750 EVC) and species – NatureKit Victoria;
- Species densities – DSE (Victorian Government 2006) Native Vegetation Revegetation Planting Standards: Guidelines for establishing native vegetation for net gain accounting.
- Major soil types – a range of resources from the Corangamite CMA, Victorian Resources Online, Digital Twin Victoria and Soil Science Australia;
- Erosion potential (based on soil type, characteristics and landform);
- Gradients and slope, landform – Google Earth/Maps, topographical information;
- Current and historical imagery and various representations of the sites – Google Earth, NatureKit; and
- Climate projections – Victorian Climate Projections 2019 from the Victorian Government.

Each site was visited and inspected against the criteria, with notes and map indications recorded at the time, then compared against the desktop reviews. Sites were visually assessed for:

- Major soil type, condition, suitability for planting (with a coring tool used in planting), rock presence, evidence of erosion, compaction, hardpan, topsoil removal, cracking and salinity;
- Gradients and slope that would impact planting approaches and establishment, including impacts on erosion potential;
- Existing vegetation on site – type, presence, general health and indicators of stress:
- Adjoining vegetation – type, indicators of stress, species composition;
- Weeds and pest presence, including browsing pressure from pest and native species;
- Observations on, and species mix appropriate for visual amenity; and
- Other factors that could impact establishment.

These factors were then combined to provide SRW with maps and recommendations regarding:

- Appropriate and recommended planting approaches;
- Main species to be planted;
- An ideal stems per hectare target for different vegetation types (overstorey trees, understorey trees/large shrubs, medium shrubs, small shrubs) within the EVC;
- Areas that require differentiated Carbon Estimation Areas based on observations;
- Weeds and pests that need to be managed to support establishment;
- Areas that require pest control to support establishment; and
- Management approaches to reduce browsing pressure.

A modified stems per hectare target range is also provided, recognising that the full EVC modelled target may pose a cost basis outside reasonable scope of investment for SRW. In providing a modified range of stems per hectare, the key canopy and understorey trees/large shrub layers were kept consistent. These plant types provide the primary carbon sequestration benefit, as well as being key contribution in meeting the requirements of the REMP method of greater than 20% canopy cover. Reductions to 75%, 50% and 25% of the modelled ECV stems per hectare (number of plants) for medium and small shrub layers for each site are provided. The indicative change in cost per hectare with these changes is also provided, noting that the cost is calculated on the direct cost of recommended planting preparation and delivery at each site and the direct costs with recommended supports (guarding, including deer guarding where recommended, water and fertiliser). The costs guide does not include broader site preparation, landscape weed spraying or pest control, project management and site infrastructure.

Bushfire Risk

A bushfire risk assessment for bushfire risk was undertaken for sites and surrounding areas. The assessment included risks to SRW infrastructure, staff and contractors, neighbouring communities, water quality, surrounding environment and recreational facilities and activities. The risk assessment included:

- Accessing available SRW bushfire related assessments;
- Accessing publicly available information including the Municipal Fire Management Plan, Regional Bushfire Strategy and other local information;
- Undertaking a desktop assessment and develop an existing conditions report;
- Developing a landscape bushfire hazard assessment including the identification of bushfire scenarios from both external and internal to the project sites;
- Assessing the proposed sites to determine the likely impact on the status of the Bushfire Management Overlay and Bushfire Prone Areas and determining the likely impact on the surrounding landscape including neighbouring properties;
- Assessing the sites against Clause 13.02 of the relevant Planning Scheme. It is noted that planning consent may not be required, and Clause 13.02 will be used to inform a best practice assessment;
- Undertaking a risk assessment using AS/ISO31000 to determine the impact of the carbon farming project;
- During the assessment of bushfire risk, considering the climate change projections; and
- Preparing a report that outlines the potential impacts resulting from the implementation of the project.

The outcome of the assessments included consideration of the safety of the existing and future users of the locations, incorporated into ‘potential impacts’ reports, provided separately to the Risk Reports.

The project included a review of the potential users to ensure there are no other categories that should be considered in addition to those listed.

A Bushfire Management Plan (Phase 2, July 2024) will be developed for each site and will utilise the outcomes of the ‘existing conditions’ and ‘potential impacts’ reports.

The Bushfire Management Plan for each location will include as a minimum:

- Bushfire risk assessment specific to the locality;
- An outline of the potential impacts to the existing regulatory regime on the property and in the surrounding landscape;
- Based on the ‘existing conditions’ and ‘potential impacts’ reports and the bushfire risk assessment, recommendations for site selection;
- For preferred sites, mitigation recommendations that will manage the bushfire risk for the duration of the project. These recommendations will consider the various stages of the planning and growing cycle including site preparation and harvesting.
- Mitigations may include:
    - Firefighting water supplies

- Species selection (i.e. low bark hazard trees)
- Fire breaks both local and strategic
- Access track dimensions and network design
- Ongoing fuel load management.

The report will ensure consideration is given to alignment with other private and public bushfire mitigation strategies including Transmission Lines, Public Land works and road manager activities

Phase 2 of the bushfire study (July 2024) will involve the preparation of a Bushfire Management Plan that:

- Presents the outputs of a bushfire risk assessment at each site;
- Provides recommendations for site suitability and selection;
- Outlines the potential impact to neighbouring communities (eg. Changes to planning overlays) for each site;
- Provides recommended bushfire risk mitigation measures that align with REMP methodology (eg. Species selection, planting design, water supply, fire breaks, road suitability, engagement with fire agencies) for each site; and
- Can be included in project registration under the Project Permanence Plan.

Cultural heritage

The project conducted an initial review of cultural heritage sensitivity for the three sites. The cultural heritage review included a desktop review of planning and regulatory considerations, an initial assessment of values, including from the Victorian Aboriginal Heritage Register, and site visits to each of the three sites. The site visits focussed on landscape scale assessment of potential sensitivity and provided an initial ground assessment guided by desktop results.

From these reviews maps were prepared showing potential and identified areas of sensitivity. A proposed methodology for reporting and management for reach site was developed, and recommendations were made as to future actions to be taken. Where the review identified that further engagement with Traditional Owners would be appropriate or necessary, this was identified with associated recommendations as to the appropriate approach to be taken, such as the development of a voluntary Cultural Heritage Management Plan.

As this stage was a preliminary or initial assessment, no direct engagement with Traditional Owners or Registered Aboriginal Parties (RAP) was undertaken, however we note that previous discussions and communications have occurred with both relevant RAPs prior to delivery of this task.

The RAP for Blue Rock Dam and Lake Glenmaggie is Gunaikurnai Land and Waters Aboriginal Corporation (GLaWAC).

The RAP for Merrimu Reservoir is Wurundjeri Woi Wurrung Cultural Heritage Aboriginal Corporation (WWWCHAC).

SITE PLANTING, PRIORITISATION AND COSTS

Table 1. Key considerations for SRW CROP Sites

Site	Year	Key Considerations
Blue Rock Dam	2025-26	- Tubestock planting recommended, due to erosion risk on susceptible soils and gradient across the site. - Low overall levels of weeds present, scattered infestations, management required. - Low risk from a cultural heritage disturbance, lower degree of identified cultural heritage sensitivity. - Management options to reduce browsing pressure would support establishment in areas likely to be under pressure from deer and wallaby. - Stratification of Carbon Estimation Areas with differing aspect and soil type will be required. - Proximity to township of Willow Grove and rural dwellings will need to be considered.
Lake Glenmaggie	2025-26	- Tubestock planting recommended, to reduce impact on existing vegetation, sensitive areas including billabongs, and lake edges. - Weeds present at low, scattered levels, management required. - Initial indicators are that the site could have cultural heritage sensitive areas. Further engagement with GLaWAC should occur through development of a voluntary Cultural Heritage Management Plan.
Merrimu Reservoir	2026-27	- Tubestock planting recommended, to reduce impact on existing native vegetation, sensitive areas and lake edges, and to reduce risk of increased erosion on susceptible soils. - High level of weed management required with indicative multiyear effort to suppress current weed activity, to aid establishment and increase medium term health of reforested areas. - Rabbit control would be advantageous for effective establishment of plantings - Identified cultural heritage sensitivity area, recommendation to undertake engagement and management planning through development of a Cultural Heritage Management Plan with WWWCHAP.

The REMP Method requires that the planting approach – block planting with tubestock or direct seeding – be uniform across a Carbon Estimation Area (CEA). Where some sites may have had limited areas suitable for direct seeding (not associated with deep ripping) they would have also required areas also to be planted with tube stock. To avoid the fragmentation of CEAs across the landscape, in addition to the primary reasoning provided, the recommendation is to implement planting with a consistent approach, that of tube stock. Blue Rock Dam can be split across two planting years for a 100 + 100ha planting schedule.

Planting densities and indicative pricing across the three sites are outlined in Table 2.

Table 2. SRW CROP Density and Pricing Guide

	Blue Rock Dam 108.6ha	Lake Glenmaggie 15ha	Merrimu Reservoir 71.5ha
Planting density (Stems/ha)	3080	2340	2040

Table 3. SRW Alternate densities (stems per hectare) and indicative cost variations.

	Blue Rock Dam 108.6ha	Lake Glenmaggie 15ha	Merrimu Reservoir 71.5ha
	Revised Stems/ha~	**Revised Stems/ha~**	**Revised Stems/ha~**
EVC	3080	2340	2040
EVC @ 75%	2420	1970	1790
EVC @ 50%	1760	1460	1340
EVC @ 25%	1100	950	890

~Stems per hectare includes full numbers of canopy tree and understorey tree / large shrub species. Reductions are to medium and small shrub layer numbers.

BLUE ROCK DAM

Summary

All the identified zones at Blue Rock Dam would be capable of establishing and maintaining a reforestation planting project. Areas north and south of the Willow Grove township are recommended for exclusion due to increased bushfire risk to community and private infrastructure. Major soil types are consistent across the site, with some erosion present and a high risk of triggering additional erosion should heavy machinery be utilised. Management will be required for scattered blackberry and other weed species, in particular on the lake foreshore.

Site Capability

The site is callable of establishing and sustaining a reforestation program consistent with the requirements of the REMP method. The historical EVCs present (Lowland Forest (16), Shrubby Foothill Forest (45) and Damp Forest (29)) on the site included tree layers with 35-45% mature and immature tree canopy cover, consistent with surrounding vegetation.

Extending the planting to the lakes edge will add valuable area to the total planted areas. Planting to the lakes edge will also assist in the stabilisation of the dam banks over time.

Planting design and approach

Tubestock planting is recommended for Blue Rock Dam across all titles. The site consists of planting areas with well-established pastures that will provide a high degree of competition to direct seeded forest establishment. Tunnel erosion was observed, and the soil type is susceptible to further erosion, particularly with active disturbance creating free entry for water into the subsurface layers should heavy machinery be utilised on the site. Some of the areas adjacent to and along the lake edge would not sustain machinery disturbance or traffic, nor would the steeper slopes.

Landscape, Soil and Site Conditions

The site consists of gentle to sometimes steep gradients sloping to the main water body, currently utilised as pasture for grazing both dairy and beef herds. Pastures appear well managed. Adjacent areas to the lake are heavily forested.

For the development of CEAs across the site, there are areas that will require some stratification to meet the requirements of the REMP Method, mostly based on aspect, with parts of 1,2\TP815512 and 1\TP883174, 1\LP117649 also stratified by soil type. The topographical image in Figure 3 (Google Maps Terrain layer active) shows the norther areas of the site, including Taskmasters (Table 2.), with differentiated east, west and southerly aspects.

It was observed whilst on site that increasing the forested edges of the lake through this project has the potential to positively contribute to overall water quality and the reduction in nutrient loading/inflow to the dam through greater vegetative filtering of runoff and subsurface flows. Quantification of this effect was not part of the project scope.

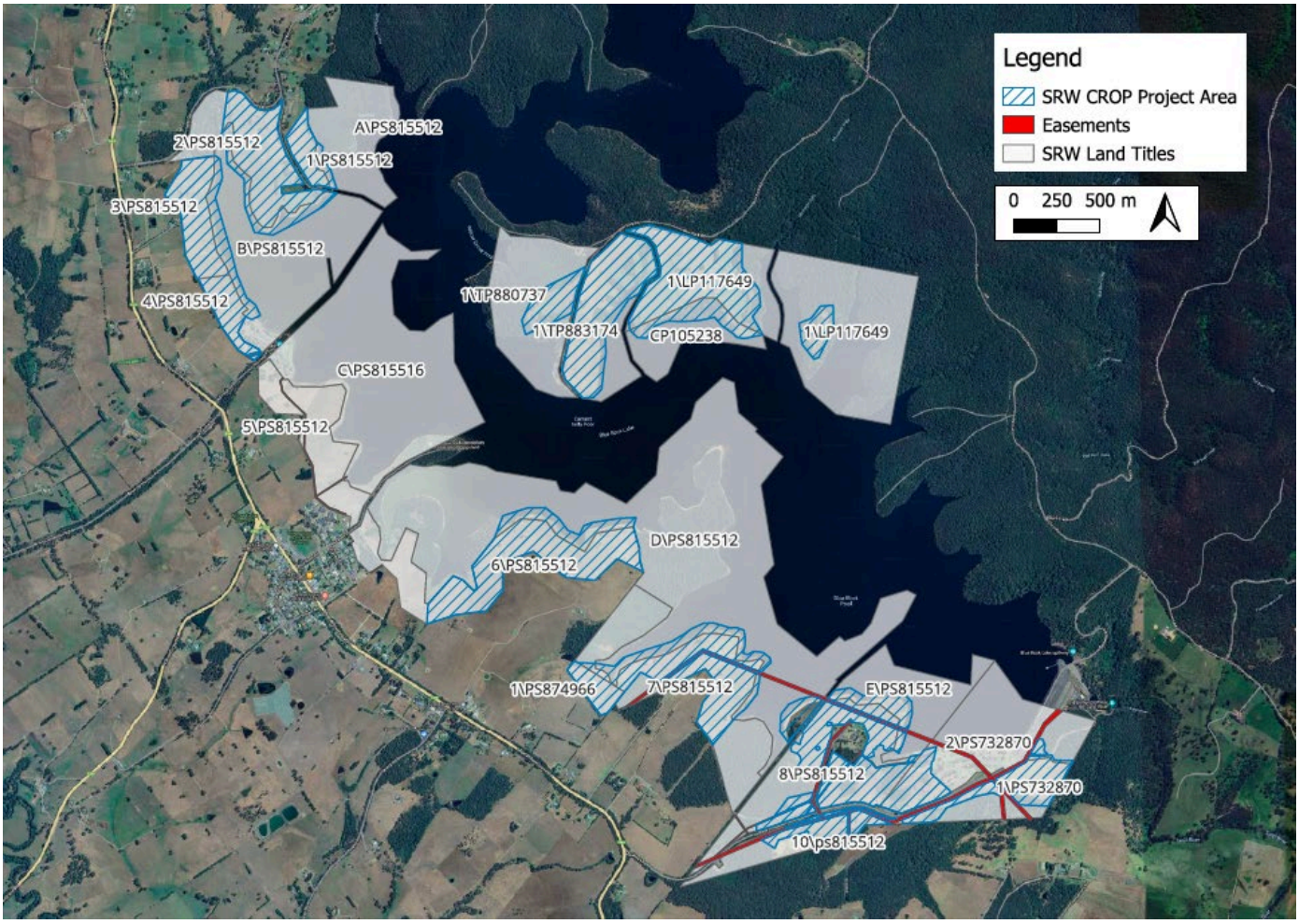


Figure 1. Blue Rock Dam final project areas.

Figure 2. Blue Rock Dam landscape

Figure 3. Terrain features of northern areas of Blue Rock Dam site.

Soils are a grey clay loam, often with a subsurface light clay layer with sand, gravel present between 300-450mm below the surface, transitioning to a yellow/brown deep sublayer +600mm. The soil has evidence of basalt rocks through the sublayers as well as quartz associates distributed throughout. Some quartz/sands can be more present in the upper layers in areas.

Soil distribution is quite consistent across the project area, with soil maps showing a uniform soil distribution of grey dermosols on the western slopes and at Taskmasters. There is one differentiated area, part of titles 1 and 2\TP815512, where the upper slopes / ridgeline shows a basalt based acidic red ferrosol (red clay) as shown in Figure 4. This does not show a marked change on site in terms of existing vegetation cover or performance. The reference database (Data Vic, 1:100,000 scale) notes that the layers should be treated as indicative rather than specific occurrences, as detailed survey has not been undertaken extensively across the region. As soil type is meant to be uniform within CEAs, this area may need to be split into two CEAs, depending on final design and the tolerance acceptance of the project.

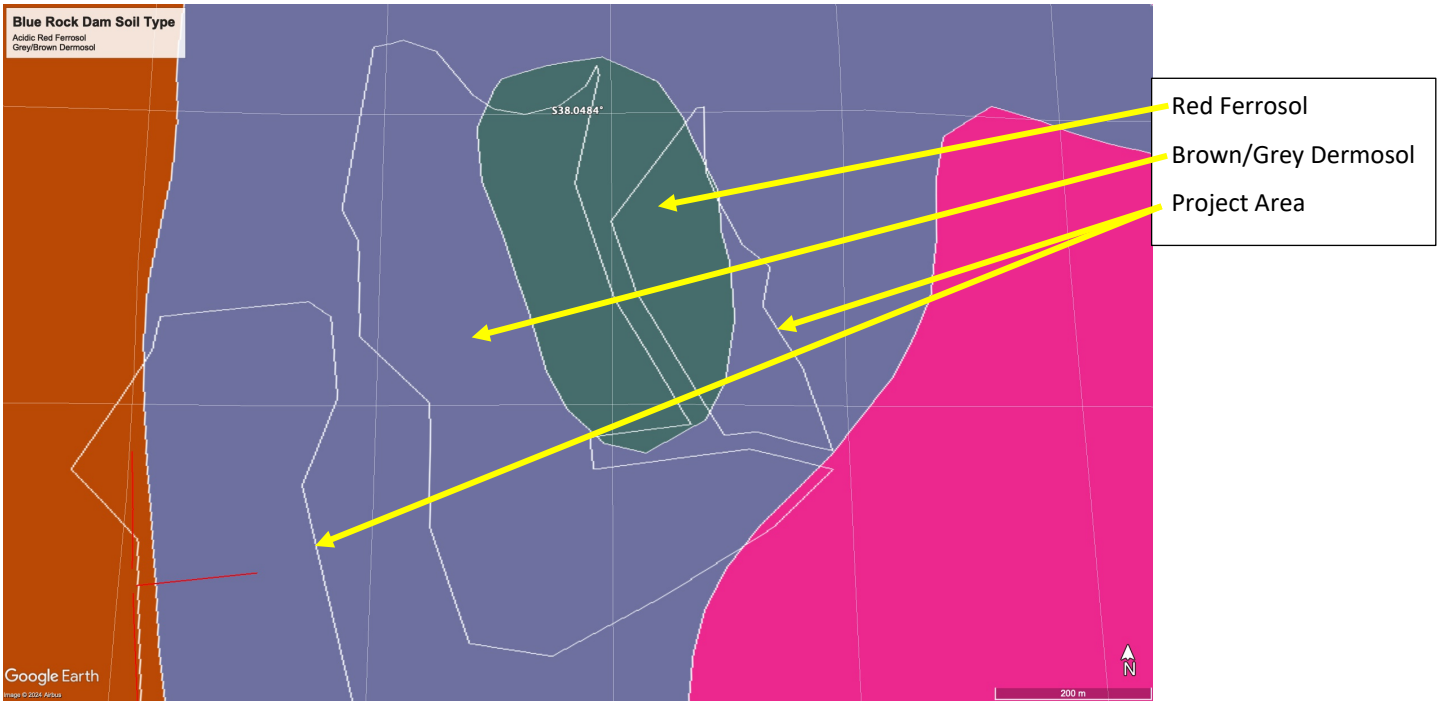


Figure 4. Acidic Red Ferrosol and Grey/Brown Dermosol presence at Blue Rock Dam.

Table 4. Soil description for Blue Rock Dam

Title	ASC Code	ASC Description	General description	Photograph
A\PS815512 B\PS815512 D\PS815512 E\PS815512 Part 1\PS815512 Part 2\PS815512 3\PS815512 4\PS815512	DEAB	Grey DERMOSOL	Grey to brown soils with a thick clay loam surface with a lighter sandy clay loam A2. Subsoil layer a yellow light clay with increasing quartz content. Noted erosion potential and active tunnel erosion at some sites between surface and subsurface layers. Downslope	
Part 1\PS815512 Part 2\PS815512	FEAA	Acidic Red FERROSOL	Upslope elevated areas transition to red basalt clays.	
1\TP880737 1\TP883174 1\LP117649 CP105238	DEAB DEAC	Yellow or Grey DERMOSOL	Grey to brown soils with a thick clay loam surface with a lighter sandy clay loam A2. Subsoil layer a yellow light clay with increasing quartz content. Noted erosion potential and active tunnel erosion at some sites between surface and subsurface layers.	Similar to above. Collectively known as 'Taskmasters' site.

6\PS815512 7\PS815512 8\PS815512 10\PS815512 1\PS874966 1\PS732870 2\PS732870	DEAC	Yellow and grey DERMOSOL	Clay loam surface rapidly transitioning to sandy clay loam with rock (quartz) contained within the subsurface layers. Cracking clay subsurface layers when exposed over time.	

There is evidence of tunnel erosion forming at the junction between the clay and sand/gravel dominant sub-layers, particularly where there are drainage lines present across the landscape on the steeper slopes, as well as below small dams mid slope. Additional erosion is present at the lakes edge, driven by wave action. This appears more significant on edges exposed to the sustained easterly winds that can affect the lake.

Reforestation is expected to greatly increase the stability of both slopes and lake edges over time.

If weather and seasonal conditions are similar to when site visits were conducted, no additional watering or nutrient application is anticipated as required. Current surface soils demonstrated a sufficient level of moisture to support establishment. Planting in the winter window (June-August) will increase likelihood that the site will not require supporting watering activities. Should conditions during the planting and early establishment window change, then supporting watering should be considered.

Weeds noted as present include blackberry, inkweed, thistles and ragwort. They are scattered across the site, with blackberry in particular present along the lakes edge and in some pastures, specifically across the Taskmasters site.

Pest animal presence was observed to be predominantly deer, with scats present across the site and small numbers of animals (deer) observed whilst on site. Anecdotal evidence was collected of low numbers of rabbit (at the time of visit), below the levels suitable for active control programs. Should rabbit presence increase to a point of presenting a tangible browsing impact, targeted control options should be implemented prior to planting. Management action should include baiting and warren destruction, noting the recommendation to avoid heavy machinery on site. Deer are known to significantly increase browsing pressure on new and immature plantings. Additional browsing pressure can be anticipated from wallaby, with their presence observed (scats and visual sighting) on site across the western and northern blocks and Taskmasters. Management actions to improve establishment could include collaborating with adjoining public land managers to control deer away from the fence and thus reducing inbound pressure on the site, and guarding new plants, in particular trees and large understorey trees/shrubs using deer guards in areas of higher density/pressure, specifically Taskmasters, with regular guards utilised across the site to limit

wallaby and rabbit browsing. Appendix 1 includes recommended areas where deer control would be feasible and support establishment.

Reforestation of the slopes adjacent to Blue Rock Dam, including conversion of pastures to forested landscapes, should have a beneficial impact on water quality of the dam, including decreasing immediately adjacent fertiliser use and providing a vegetative filtration zone along much of the lake foreshore. The project did not include quantification of this impact over time.

Bushfire Risk

Key considerations for reducing bushfire risk at the Blue Rock Dam site in the planning and execution of the reforestation project are provided in the table below. These risks and recommended actions are further outlined in the bushfire risk study and potential impact study provided as supporting documents to this advice.

Bushfire risk planning was done on the default risk mitigation criteria that as a result of the project, private dwellings not currently under the BMO overlay should not be placed under one as a result of reforestation activities. Therefore for each dwelling a minimum setback of reforestation activities of 150m was established.

Table 5. Blue Rock Dam bushfire risk summary

Asset	Description	Recommended Action
Willow Grove township	Rural town of Willow Grove situated centrally to the proposed project area.	Exclusion zones (excluded from project area) to be established north and south of the township to reduce bushfire risk.
Rural dwellings	Scattered rural dwellings located adjacent to proposed project area	Setbacks established for planting to a minimum of 150m from the private dwelling asset. Includes 1836 Willow Grove Road. Properties under an existing BMO should be considered relative to the recommended setback.
Hunts Road	Primary ingress/egress route for property owners and residents on Hunts Road	Plantings setback a minimum of 64m from road to reduce risk to road infrastructure and travel. For the dwelling at 136 Hunts Road the recommended Hunts Road setback of 64m applies
Spillway Road	Primary transit route and access point for SRW and public	Setback of 48m recommended for plantings along Spillway Road.
General	EVC species selection and design	Design plantings within the EVC guidelines to reduce bushfire risk, such as reduced shrub layers and tree species that minimise spotting.

Figure 5. Blue Rock Dam Bushfire Risk Exclusion Zones and Setback Options

Climate change and variability

Planting species with a higher tolerance for drier and more variable climatic conditions, consistent with all listed EVCs, will create resilience in the forest establishment and sustainment. Individual species selections from within the listed group should be targeted at species with a higher tolerance for wet/dry seasonality, anticipating that the lake (modified landscape) is likely to experience greater wet/dry cycles as the climate warms and becomes more variable.

There is a degree of species overlap between the three EVCs. In particular, selecting tree and large shrub species that exist across the Damp and Shrubby Foothill Forest and Lowland Forest EVCs will support long term health of the forest as a warming climate has a drying effect on the Damp and Shrubby Foothill Forest EVCs.

Selecting species with a lower flammability will assist in limiting the impact of increasing frequency fire events on both the reforested areas and nearby assets. Associated planning for converting adjacent burgan dominated bush, in particular on areas south of Willow Grove, to a more representative forest EVC structure would also create longer term climate resilience for the reforestation projects.

It is likely with the climate projections that the area surrounding Merrimu Reservoir will have more days where the fire risk exceeds the current position.

Cultural Heritage

The overall cultural heritage sensitivity of the Blue Rock site was assessed as low, with existing records showing few recorded sensitive sites or areas. The landscape is heavily modified, with traditional places such as terraces likely now underwater, should they have been present. The historic town of Old Tanjil is fully covered by the body of the dam waterbody now. Areas to the north and east of the main dam are known to contained old gold mining sites, both alluvial and shaft/underground based operations, as there is a distinct

transition to the Cement Hills rock and alluvial complexes to the north and east of the dam, including and behind Taskmasters.

The use of tubestock and manual planting practices is not identified as a trigger action requiring the preparation of a formal Cultural Heritage Permit.

Visual Amenity

Willow Grove: due to the recommended exclusion of zones immediately north and south of Willow Grove, there should be minimal changes to the visual landscape as seen from the township. The exception to this would be from the aero club and walking track beyond the town to the point. This point provides expansive views north, south and east. At this site there will be a transition from pastures to reforested edges and slopes adjacent to the waterbody. This will lead to similar views as already exist across the lake to forested borders of the lake.

Rural dwellings with lake views: houses to the north of the boat ramp / Old Tanjil Road generally look over the paddocks to the water's edge. These houses would continue to look over the top of established trees/forest (~20-30m in height) to the main water body as they are significantly higher than the shoreline (+40-60m, see Figure 2.), with a transitional change to the view of the waters edge from pasture/paddock to forest over time. There is only one dwelling set closer/lower to the water's edge. This house is proposed to have an exclusion zone from planting given the bushfire risk and Bushfire Management Overlay changes that would occur if planted.

Dwellings to the south of Willow Grove are 20-60m above the lakes edge, so the visual impact would be similar to that of the north, although the horizontal distance from the lakes edge ifs further than to the north. Views would transition to looking over the reforested areas to the main waterbody.

Key Risks and Considerations

Table 6. Blue Rock Dam Risks and management actions.

Risk / Consideration	Management Action
Bushfire Risk to townships, infrastructure and dwellings	Recommended setbacks for plantings of 150m+ to ensure no dwelling that is not currently under a Bushfire Management Overlay (planning overlay) has an overlay placed on it by way of reforestation activities. Setbacks for infrastructure designed specifically for each element and the landscape in which it occurs. Hunt Road setback of a minimum of 64m to reduce risk of fire impact from reforested areas. Spillway Road setback to be a minimum of 48m from the road. Exclude areas north and south of Willow Grove.
Erosion risk, particularly from sub-soil water movement	Tubestock planting. Avoidance of heavy machinery and deep groundworks/ripping – avoiding over exposure to or creation of increased free water movement into sub-surface soil horizons.
Adjacent vegetation, some areas heavily covered with Burgan increase bushfire risk	Consideration of future vegetation management to remove over-presence of Burgan and transition to forested landscape consistent with surrounding EVC, to reduce the bushfire risk to surrounding communities and to reforestation areas delivered under this project.
Browsing pressure from deer, in particular on Taskmasters, and wallaby.	Collaborative management program with neighbouring land managers to reduce deer presence and thus inbound browsing pressure on plantings, particularly during establishment and early maturation of forest. Deer guards used on Taskmasters and regular guards across the site.

Biosecurity	Biosecurity practices will be important on this site to avoid further activity-induced spread of biosecurity risks across the site, and across the properties adjoining each block.

Recommendations

	Recommendation
1	Tubestock is the recommended planting method.
2	Weed management (spot spraying) is undertaken prior to and in the early establishment phase (post planting) of the project to reduce pressure on and improve establishment of reforested areas.
3	Reduce browsing pressure through active management of deer prior to and during establishment phase, and utilisation of appropriate guards around tubestock.
4	Exclude identified areas north and south of Willow Grove from proposed planting areas, due to increased bushfire risk.
5	Create a setback for plantings of a minimum of 150m on areas adjacent to the house adjoining 3\PS815512 to avoid placing BMO over the dwelling. Address is 1826 Willow Grove Rd. Willow Grove.
6	Create a setback for plantings on 2\PS815512 and 1\PS815512 adjacent to Hunts Road for a minimum of 64m and 150m from neighbouring dwellings, where those dwellings are not under an existing BMO.
7	Crete a setback from Spillway Road of a minimum of 48m for all plantings.
8	Develop a Cultural Heritage Management Plan for the site.

LAKE GLENMAGGIE

Summary

All the identified zones at Lake Glenmaggie would be suitable for establishing and maintaining a reforestation project across the site. Extending the identified zones to the lake edge will add additional areas available for planting and provide shoreline stabilisation benefits to the lake. The banks of billabongs within the blocks north and south of Licola Road show evidence of historical trees, with stumps present and trees present in adjacent areas. Plantings can occur in and around ground level vegetation consisting primarily of grasses and rush species, which will provide cover for early establishment of tree and shrub species.

Setbacks from the adjacent roads should be included to reduce the impact of a bushfire on these assets and users.

Protection of aboriginal artefacts identified as part of site visits should be accommodated in planting programs, which under current observations should align with boundary / fence line buffers of planned plantings. Further engagement with GLaWAC as the Registered Aboriginal Party and Traditional Owners of the land on which Lake Glenmaggie is situated is recommended, as well as the development of a voluntary Cultural Heritage Management Plan, including further site surveys alongside GLaWAC representatives to better understand the cultural significance of the site.

Site Capability

The site is capable of establishing and sustaining a reforestation program consistent with the requirements of the REMP method. The historical EVCs present (Plains Grassy Forest (151) and Dry Valley Forest (169)) on the site included tree layers with 30-35% tree cover, consistent with the surrounding forest vegetation.

Planting design and approach

Tubestock planting is recommended for Lake Glenmaggie. The site consists of planting areas with high levels of existing native ground species that are at risk of major disturbance should machinery be utilised on the site. Some of the areas adjacent to and along the boundary and lake edge would not sustain machinery disturbance or traffic.

Given the identified presence of aboriginal artefacts (see Cultural Heritage), earthworks and heavy machinery should be avoided to minimise the risk of additional disturbance being introduced to the site to preserve sensitive areas.

Landscape, Soil and Site Conditions

The landscape at this site is predominantly alluvial floodplain with ephemeral billabongs and abutting hills. The proposed panting areas should exclude the billabongs as these are not suitable for planting, however the banks and adjoining areas are suitable. The recommendation is to plant to the edges of both the dam and billabong, reflecting how the vegetation would have existed in the past. Old tree stumps in these areas demonstrates the historical presence of trees adjoining the billabong and creek frontage (now lake body).

Figure 6. Final project areas for Lake Glenmaggie.

Figure 7. Planting landscape at Lake Glenmaggie

The soils are friable, well-structured sandy clays. There is evidence of erosion from flowing water along the creek, in particular on the outer walls of bends. Planting to the edge of the bank would be expected to assist in stabilising the banks and minimising further erosion.

If the most southern block (4\TP880115), and blocks on 2&3\TP880115 are listed as a separate CEAs, no further significant stratification is anticipated for this site, as there is a high degree of uniformity in soil type and aspect.

Table 7. Soil description for Lake Glenmaggie

Title	ASC Code	ASC Description	General description	Photograph
1\TP862864 1\TP880115 2\TP880115 3\TP880115 4\TP880115 6\TP880115 7\TP880115	DEAA	Sodic Red and Black DERMOSOLS	Clydebank Thomson complex soil type. Sandy clay alluvial floodplain soils.	
			Erosion noted at site, predominantly shoreline erosion driven by flowing water through site (upper reaches) and wave action (lower reaches where the lake is more dominant)	

The upper reaches of the lake present on this site transition into the feeder creek (Glenmaggie Creek) and both the creek frontage and lake areas display shoreline erosion, as seen above. The feeder creek frontages display erosion driven by flowing water (high incoming flows), particularly on the outer walls of bends, whereas the lower reaches at the site where the Lake is a more dominant influence, wave action is likely to be more contributing driver of erosion. In both cases revegetation should provide bank stabilisation services long term.

Currently the site is accessed by cattle from the neighbouring property. Cattle have free access to the creek and lake banks and billabong areas. The team's observation is that this will be increasing the erosion potential of the banks and potentially leading to increased nutrient loading in the local waterbody. Cattle will also pose a browsing risk to planting establishment. Working with the adjoining landholder to restrict access to the property will be advantageous to long term forest establishment. Currently cattle appear to have open access to the north and south of the site (between private property and the SRW site), and potentially to the east, and are walked through the property. The site appears to be the primary route for cattle between otherwise isolated parts of eth private property. Advice by the property manager suggests that all the surrounding private property is owned by the same landholders.

Willows are present around the billabong areas (Brittle/Crack Willow) and the creek frontage. Control will support establishment of more beneficial native species as part of the reforestation program.

Bushfire Risk

The whole area of Lake Glenmaggie is considered a very high-risk fire zone. The addition of new plantings as proposed is not considered to affect this rating, as it is already high. There are no dwellings associated with or adjacent to the project site, with the main infrastructure being the Licola Road and bridge over Glenmaggie Creek that runs parallel with the site's western boundary.

The bushfire risk to infrastructure is considered low across the site. A setback from Licola Road of 48m is recommended, as well as reducing the shrub density in areas closer to road infrastructure. Operational considerations are also provided for SRW staff and travelling public.

Climate change and variability

Planting species with a higher tolerance for drier and more variable climatic conditions, consistent with both listed EVCs, will create resilience in the forest establishment and sustainment. Individual species selections from within the listed group should be targeted at species with a higher tolerance for wet/dry seasonality, anticipating that the lake (modified landscape) is likely to experience greater wet/dry cycles as the climate warms and becomes more variable.

It is likely with the climate projections that the area surrounding Lake Glenmaggie will have more days where the fire risk exceeds the current position.

Cultural Heritage

Whilst undertaking the landscape review on the site visit, UHA staff identified several aboriginal artefacts on site. It was also identified that the creek and billabong landscape of the site would have been a likely visitation site for indigenous people. Indications are that a likely 'camp' is situated on the adjacent private land upslope and on the ridge line from the location the artefacts were found, and that the artefacts have both washed downhill and have been uncovered over time with disturbance and erosion.

The use of tubestock and manual planting practices is not identified as a trigger action requiring the preparation of a formal Cultural Heritage Permit.

Further detailed survey and engagement with Gunaikurnai GLaWAC as traditional owners and GLaWAC as the registered RAP is recommended. This can be delivered through the preparation of a voluntary Cultural Heritage Management Plan. The recommended project activities do not formally trigger the requirements around preparation of a Cultural Heritage Permit. Prior discussions with GLaWAC indicated a willingness to work alongside SRW and consultants in developing an improved understanding of the historical and cultural significance and sensitivity of the site.

Key Risks and Considerations

Table 8. Lake Glenmaggie Risks and management actions.

Risk / Consideration	Management Action
Sensitive landscape with existing native ground vegetation	Tube stock planting. Minimise heavy machinery on site to avoid damage to billabong and existing vegetation.
Indigenous artefacts and sensitive areas identified	Recommend further engagement with GLaWAC as RAP. Undertake a voluntary Cultural Heritage Management Plan for the site.
Billabong sensitive landscape	Exclude billabong waterways from planting areas, but plant to edges. Extend plantings around the edges of the lake, to the high-water mark, utilising the narrow linear areas between the title boundary/fence and the lakes edge.

Willows present	Control program for willows prior to planting to increase resilience of planting and prevent further degradation of the banks.
Cattle present	Work with the neighbouring landholder to restrict access by cattle to the site in preparation for planting.

Recommendations

	Recommendation
1	Tubestock is the recommended planting method.
2	Weed management (spot spraying) is undertaken prior to and in the early establishment phase of the project to reduce pressure on and increase health of reforested areas.
3	Control willows prior to planting to reduce impact on reforested areas, billabongs and downstream bank health.
4	Exclude identified billabong watercourse areas – as exclusion zones in CEAs – to protect watercourse.
5	Create a setback of at least 48m from Licola Road.
6	Develop a Cultural Heritage Management Plan and engagement approach with GLaWAC to increase understanding of, and protect indigenous heritage landscape.

MERRIMU RESERVOIR

Summary

Parts of the proposed project areas at Merrimu Reservoir are not suitable for establishment of a reforestation project. Some areas are historically a treeless grassland EVC, and the old quarry, in the project teams view, requires an alternative rehabilitation effort prior to revegetation. All other areas are suitable and would sustain a reforestation program. Tubestock is the recommended planting method for all of Merrimu Reservoir. Some setbacks are required for bushfire risk mitigation, in particular to the north around Coimadai Public School and the dwellings north of Bennetts Lane.

Merrimu Reservoir was identified by Wurundjeri as a sensitive area in preparation for this project: this has been confirmed through this review process. The development of a Cultural Heritage Management Plan is recommended, which will enable further engagement with Wurundjeri traditional owners through the Wurundjeri Woi Wurrung Cultural Heritage Aboriginal Corporation.

Site Capability

There is variability in suitability across the proposed Merrimu site. Two areas were identified as being unsuitable for reforestation under the REMP method:

1. The old quarry site on 2\LP221537: this area is composed of hardpan roads at the base/floor of the quarry, rock faced batters and steep quarry walls. These areas are in need of broader rehabilitation efforts prior to revegetation and as such should be excluded from the project area; and
2. Areas on 2\LP221537 that map against the 1750 EVC overlay as Plains Grassland (132), which is a treeless vegetation type. This area, both north and south of Diggers Rest Coimadai Road, should be excluded.

Both recommended exclusion zones are shown in Figure 8.

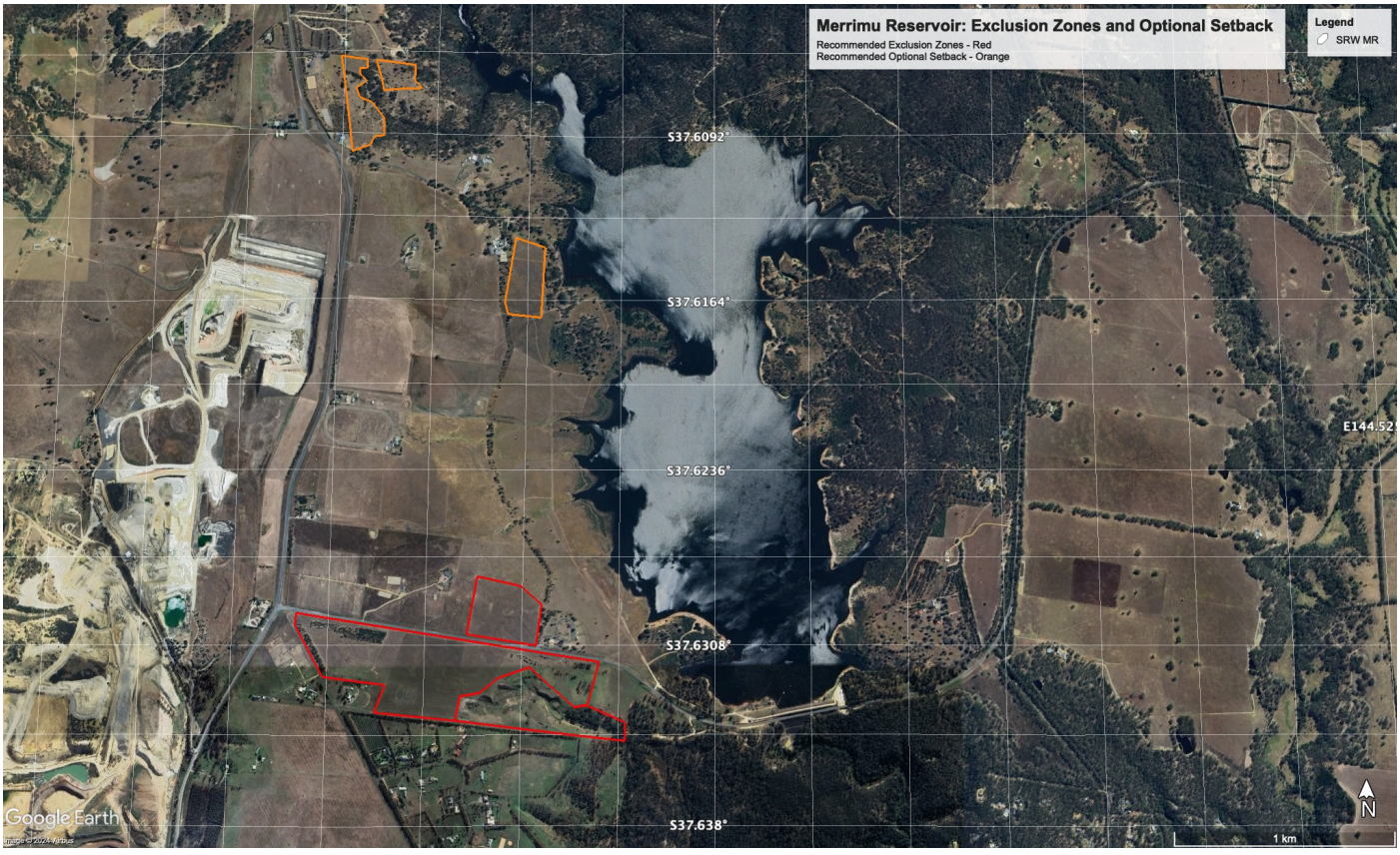


Figure 8. Merrimu Reservoir recommended exclusion zones.

Planting design and approach

Tubestock planting is recommended for Merrimu Reservoir. The site consists of planting areas with high levels of existing native ground species that are at risk of major disturbance should machinery be utilised on the site. Some of the areas adjacent to and along the boundary and lake edge would not sustain machinery disturbance or traffic.

Given the identified aboriginal cultural heritage sensitivity of the area broadly (see Cultural Heritage section), earthworks and heavy machinery should be avoided to minimise the risk of additional disturbance being introduced to the site to preserve sensitive areas.

Landscape, Soil and Site Conditions

The landscape at this site is predominantly low hills and gentle slopes between the ridgelines and the main waterbody. Areas to the north withing the project area are wetter, stonier slopes with higher gradients and sharper declines towards the reservoir and feeder creeks. The easterly facing slopes of the reservoir are interspersed with drainage lines/gullies running from the ridgeline to the waterbody. Some of these gullies show active tunnel and gully erosion, with evidence of previous battering and earthworks to manage gully erosion. The areas to the north (1\TP880892) are steeper, moist slopes containing a higher percentage of surface and subsurface rock, with active, deep gully erosion in drainage lines. South of Diggers Rest Coimadai Road (2\TP221537), at the eastern end of the remaining project area, tunnel and gully erosion is present.

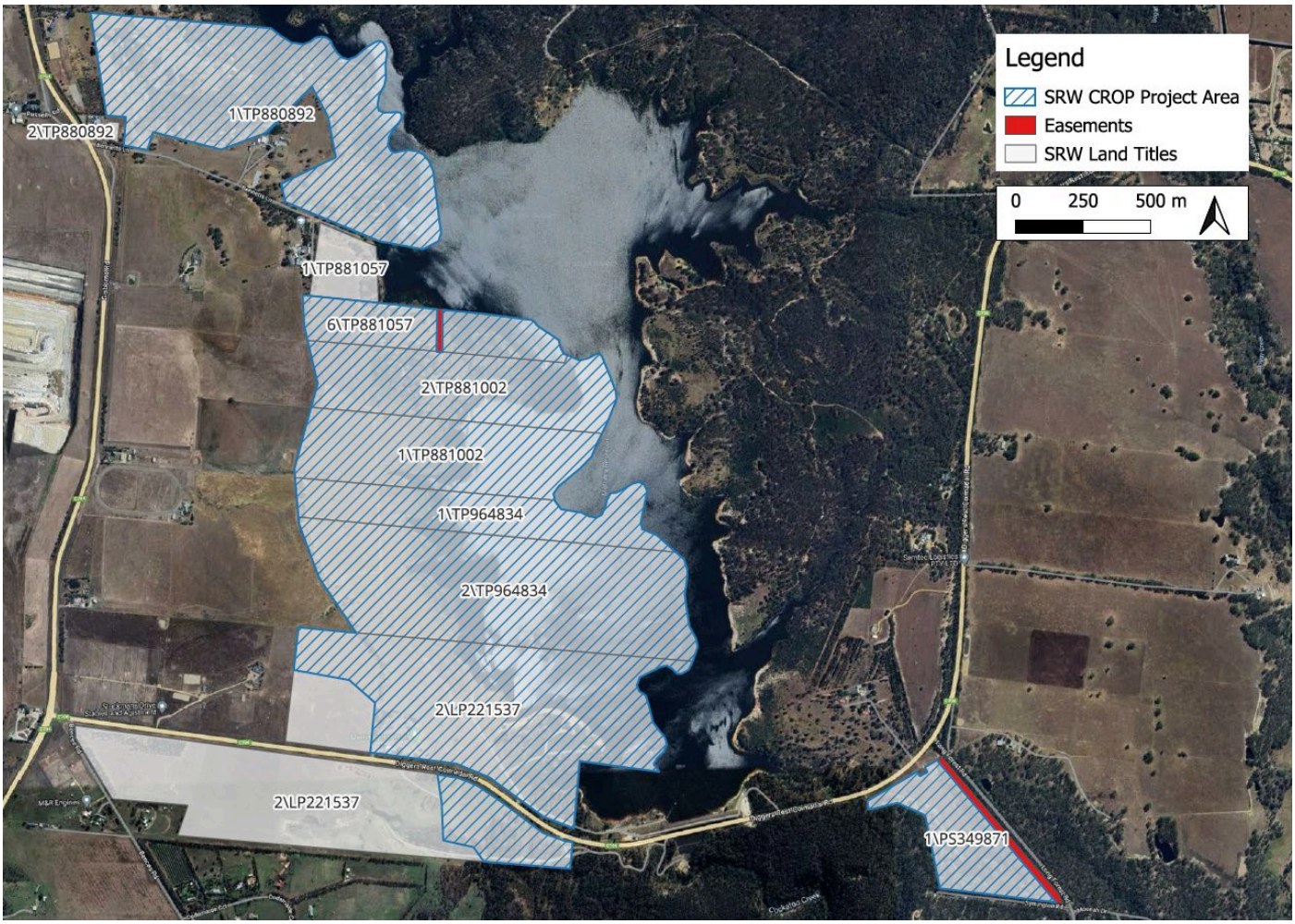


Figure 9. Final project areas for Merrimu Reservoir.

Figure 10. Merrimu Reservoir landscape.

Figure 11. Merrimu Reservoir erosion areas.

Table 9. Soil description for Merrimu Reservoir.

Title	ASC Code	ASC Description	General description	Photograph
1\TP880892 2\TP880892 1\TP881057	SOAA	Red SODOSOL	Red duplex sandy loam soil with surface and subsurface gravel and small rock. High moisture levels in this landscape.	

6\TP881057 1\TP881002 2\TP881002 2\TP964834	SOAA	Red SODOSOL	Red duplex soil with clay loam consistency.	
2\LP221537	SOAB	Brown SODOSOL Mottled brown duplex	Mottled brown duplex soil with clay loam soils upslope transitioning to sandy clay downslope with surface gravel in lower zones. Yellow subsoil heavily vulnerable to erosion with shallow surface soils in lower slope.	
1\PS349871	CHAB	Red & Brown CHROMOSOL Red & Mottled brown duplex soils	High sand levels in a brown clay loam.	

Most of the Merrimu site has significant weed infestation, with large patches of serrated tussock, boxthorn and artichoke thistle the dominant weeds present. In places these are the dominant vegetative species present. It is recommended that a multi-year control program be started to suppress the weed load on site prior to planting, supporting improved establishment and maintenance of a healthy, reforested area.

Active rabbit presence was observed across the Merrimu Reservoir site, with feeding sites and warrens on the site south of Diggers Rest Coimadai Road, below the Merrimu Reservoir picnic area and on the northern blocks. Warrens and active feeding sites were also observed at the SRW Depot and throughout the block across the road from the depot (1\PS349871).

Bushfire Risk

Merrimu Reservoir is identified as an area of high bushfire risk. Elevated risk areas are usually associated with forested areas in this region. Reforestation of areas proposed will in part create more contiguous forested areas from north to south in the landscape.

For the northern proposed reforestation blocks. It is recommended to remove revegetation zones from north and east of Coimadai Public School to avoid continuous forest north of the school. There are also dwellings upslope from these proposed panting areas.

Plantings are also recommended for removal from the project planting south of Diggers Rest – Coimadai Road and north of Dodemaide Circuit and the associated estate.

The creation of a planting setback north of Diggers Rest – Coimadai Road of 53m will assist in reducing direct radiant heat exposure to the road asset and users of that road, given it is a significant arterial transit route for local community members.

Climate change and variability

Planting species with a higher tolerance for drier and more variable climatic conditions and that extend into adjacent and/or drier EVC types will support forest longevity in a drying climate.

The soils around Merrimu Reservoir are traditionally lower quality, nutrient poor soils. Inclusion of species with increased nutrient benefits such as acacias (nitrogen fixing), will support and increase the resilience of soils and landscape over time in traditionally lower quality soils and assist in the maintenance of healthy forest environments.

It is likely with the climate projections that the area surrounding Merrimu Reservoir will have more days where the fire risk exceeds the current position.

Cultural Heritage

In communication with Wurundjeri Woi Wurrung CHAC in preparation for delivery of this component, Merrimu Reservoir was identified as a known area of cultural heritage sensitivity. This was confirmed through desktop reviews of existing knowledge in the vicinity of the project area.

The use of tubestock and manual planting practices is not identified as a trigger action requiring the preparation of a formal Cultural Heritage Permit.

Further engagement with Wurundjeri traditional owners and the Wurundjeri Woi Wurrung CHAC through the preparation of a voluntary Cultural Heritage Management Plan is recommended.

Visual Amenity

There will be a transitional visual landscape with the introduction of reforestation efforts at Merrimu Reservoir. Public/community changes will predominantly be for local users of the landscape, such as the community of Coimadai Public School, users of the Merrimu Reservoir Picnic Area and local residents with a view of the reservoir. The views will transition from an open pasture with scattered trees to that of a forest consistent with neighbouring forested areas on the eastern edge of the reservoir.

Key Risks and Considerations

Table 10. Merrimu Reservoir Risks and management actions.

Risk / Consideration	Management Action
Cultural heritage sensitivity	Engage with Wurundjeri Woi Wurrung CHAC through the development of a Cultural Heritage Management Plan. Avoid heavy machinery and deep soil disturbance/earthworks to protect any sensitive areas.
Erosion and soil stability	Avoid heavy machinery and deep soil disturbance to avoid destabilising the soil profile and creating additional erosion potential. Landscape planting will assist in long term soil stability.
Weed and pest control	Undertake control programs for dominant weeds, including African boxthorn, serrated tussock and artichoke thistle to protect planting establishment and health of reforested areas. Establishing a dominant shrub and tree canopy will assist in long term control of key weed species. Biosecurity practices will be important on this site to avoid further induced spread of weed species across the site. Rabbit control will reduce browsing pressure on young plants and support long term establishment of a healthy groundcover layer in reforested areas. Rabbit control will also support soil stability.
Healthy groundcover	Many of the proposed blocks have a good balance of groundcover species, including well established native grass species, that will form the basis of a healthy forest ecosystem. Preventing damage to groundcover species through use of heavy machinery and weed/pest control will encourage healthy forest ecosystem establishment.
Bushfire risk mitigation	Create setbacks for the dwellings to the north of and adjacent to 1\TP881892. Exclude 1\TP881057 from the proposed project area to create a setback from Coimadai Public School.

Recommendations

	Recommendation
1	Tubestock is the recommended planting method.
2	Weed management (spot spraying) is undertaken prior to and in the early establishment phase of the project to reduce pressure on and increase health of reforested areas. A multi-year program of weed control works is recommended.
3	Exclude identified areas that are historically treeless (Plains Grassland EVC).
4	Exclude the old quarry site as it requires dedicated rehabilitation works outside the remit of a reforestation (REMP method) project.
	Include setback areas around private and community assets / infrastructure in the northern project area, as identified.
5	Develop a Cultural Heritage Management Plan and engagement approach with WWWCHAC to increase understanding of, and protect indigenous heritage landscape.
6	Restrict cattle access to the site.

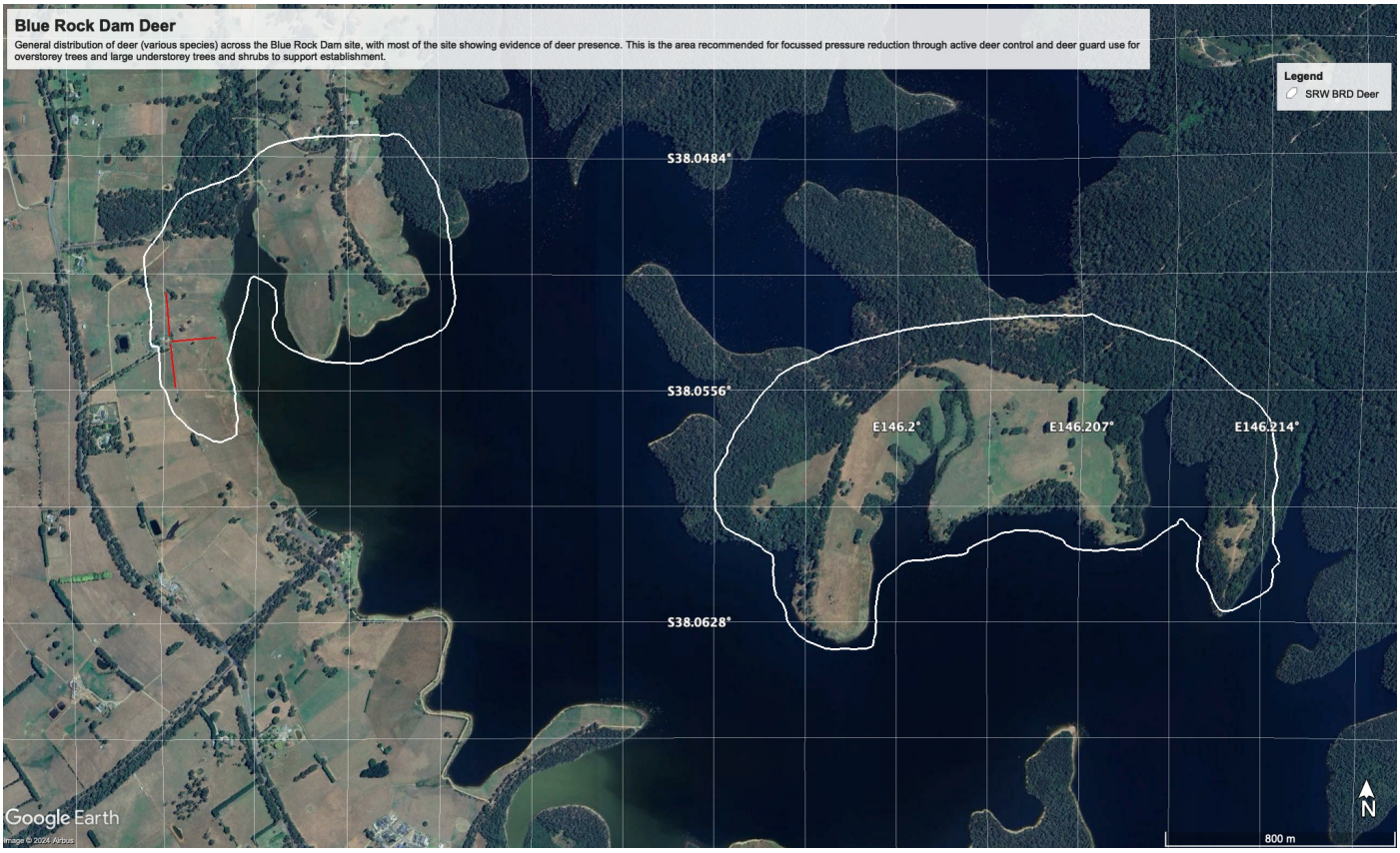
SUMMARY CROP APPROACH

Table 11. Summary SRW CROP Approach.

Site	Planting Approach	Planting Window	Watering	Pests Management	Indicative $/ha	Comments
Blue Rock Dam	Tubestock	June – October	Unlikely, unless seasonal conditions are extremely dry	**PESTS:** Deer **BROWSING PRESSURE:** deer, rabbits, wallaby, cattle **WEEDS:** Blackberry, ragwort, thistles	$25,500	Excluded areas north and south of Willow Grove to minimise future bushfire risk to township of Willow Grove. Soils at risk of erosion.
Lake Glenmaggie	Tubestock	June – September	Seasonally dependent	**PESTS:** **BROWSING PRESSURE:** cattle **WEEDS:** Blackberry, thistles, willow	$17,800	Engage in the development of a CHMP with GLaWAC.
Merrimu Reservoir	Tubestock	June – August	Yes	**PESTS:** Deer, rabbits **BROWSING PRESSURE:** deer, rabbits, wallaby, cattle **WEEDS:** Serrated tussock, blackberry, African boxthorn, artichoke thistle	$16,100	Excluded Plains grassland EVC areas and quarry from planting area. Soils at risk of erosion. Engage in the development of a CHMP with WWWCHAC.

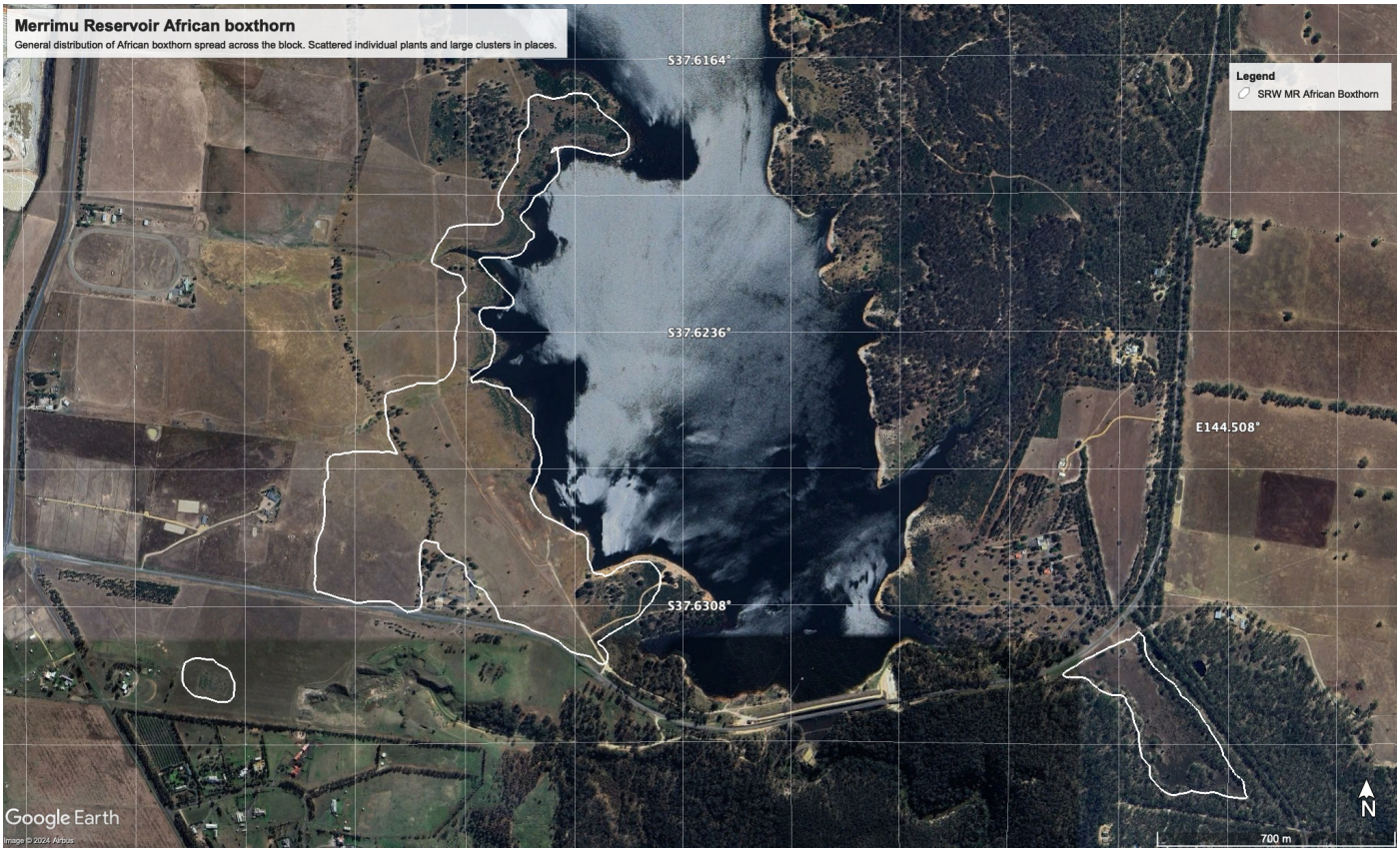
APPENDIX 1: WEED AND PEST DISTRIBUTION

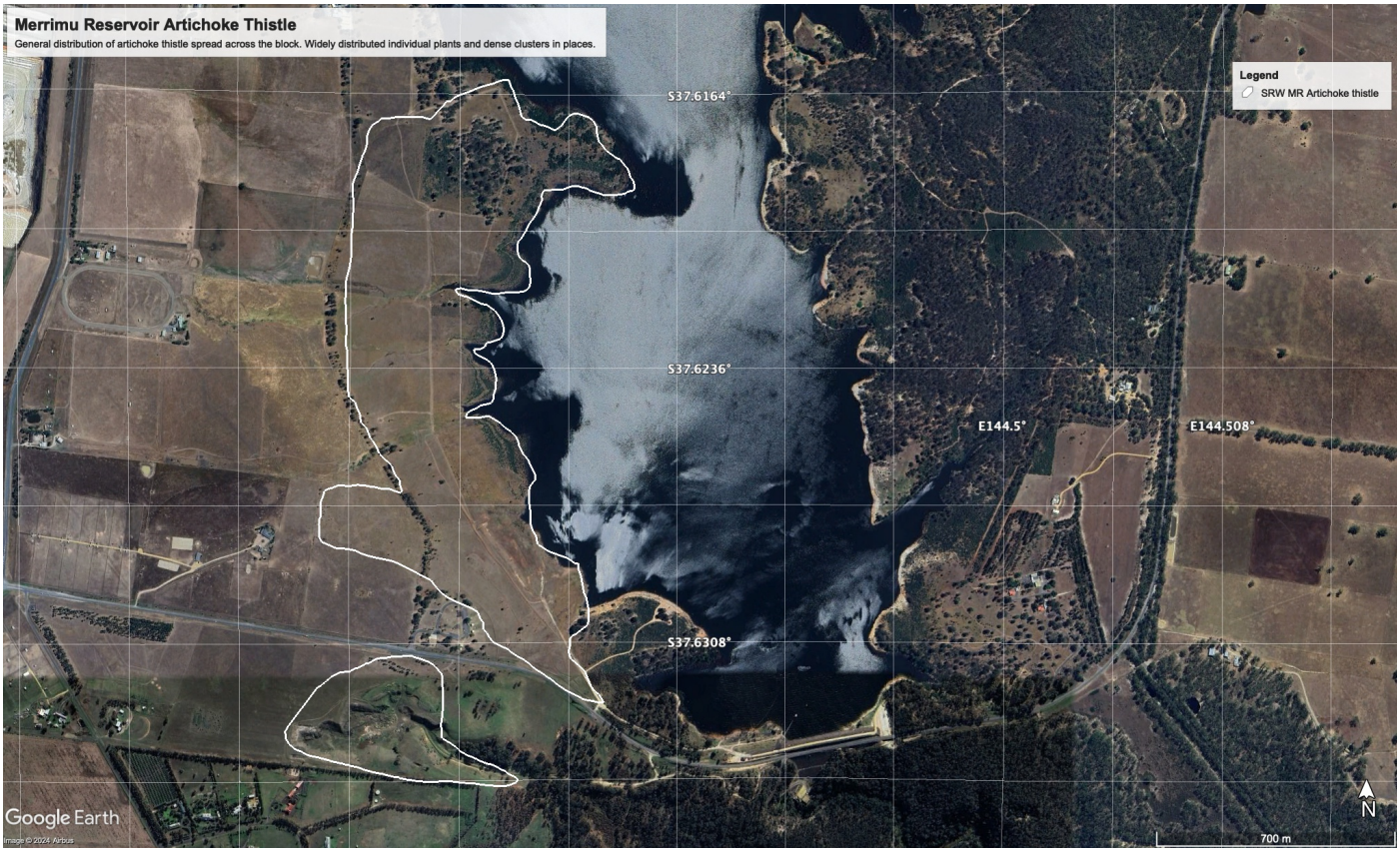
Blue Rock Dam

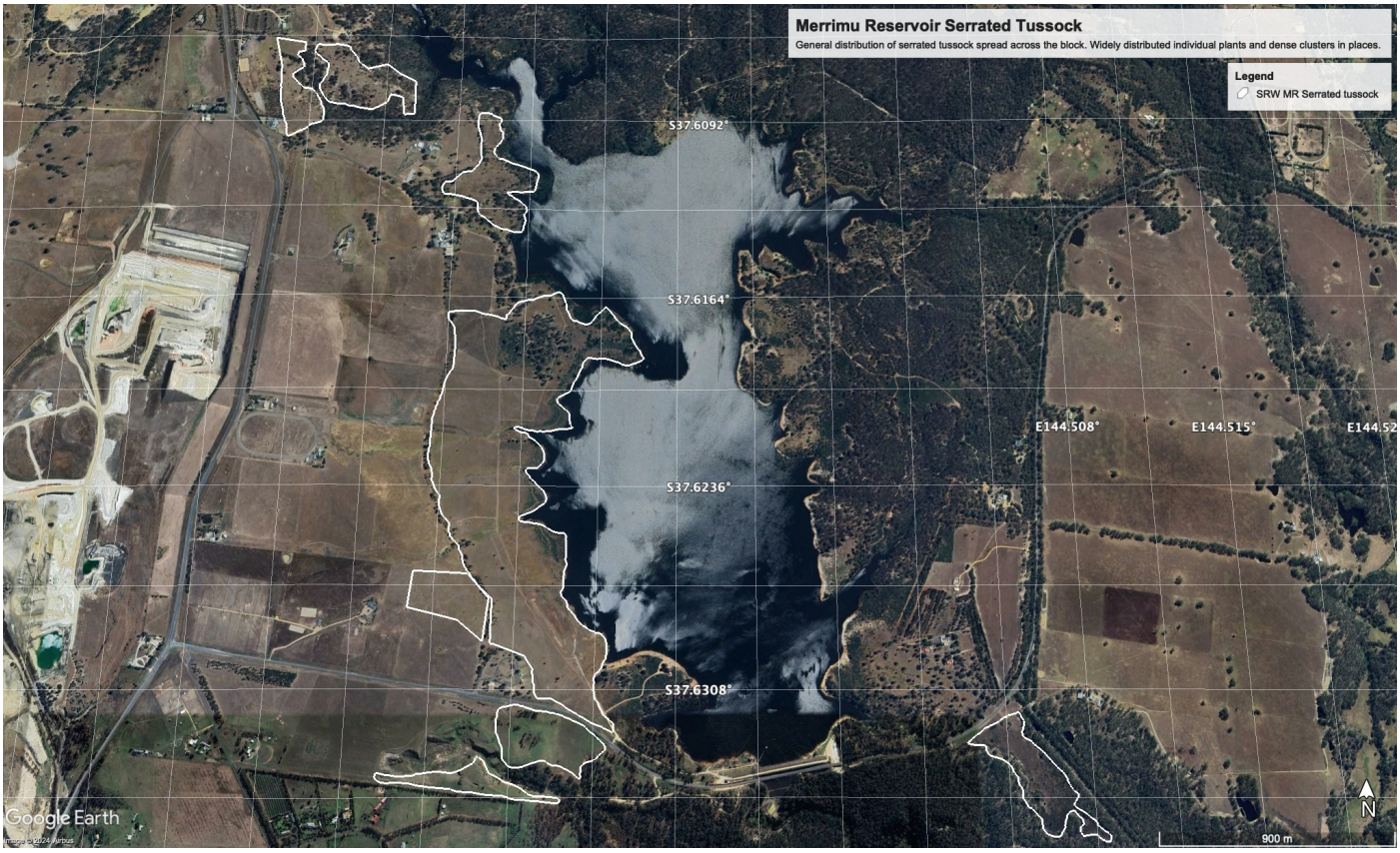


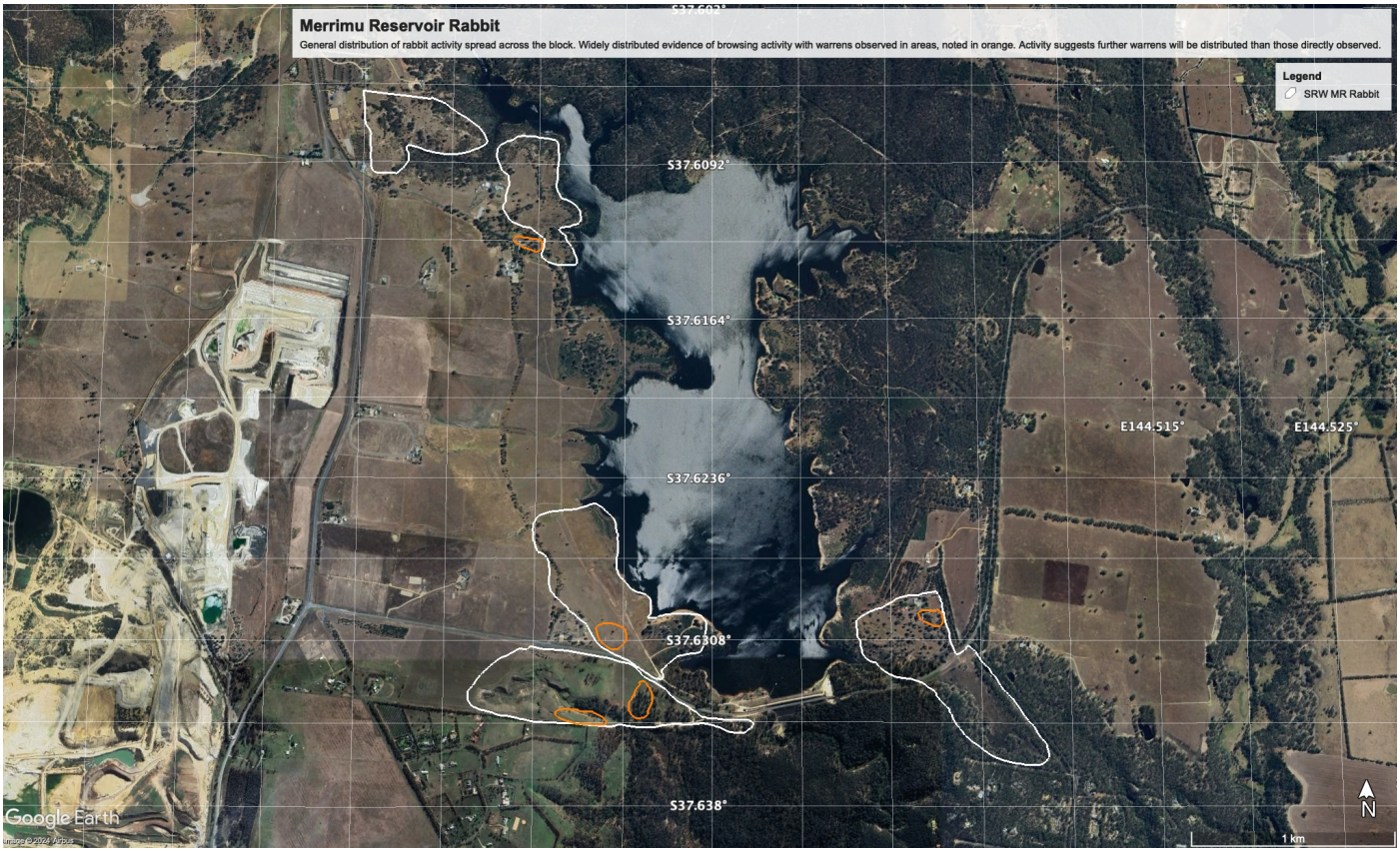
Lake Glenmaggie

Merrimu Reservoir









APPENDIX 2: SPECIES SUITABILITY

BLUE ROCK LAKE

There are 16 potential project sites for the Reforestation Feasibility study for Southern Rural Water, see Figure 1.

PROJECT SITES

1/PS815512	5/PS815512	7/PS815512	1/PS732870
2/PS815512	C/PS815512	10/PS815512	1/TP880737
3/PS815512	6/PS815512	8/PS815512	1/TP883174
4/PS815512	1/TP874966	2/PS732870	1/LP117649

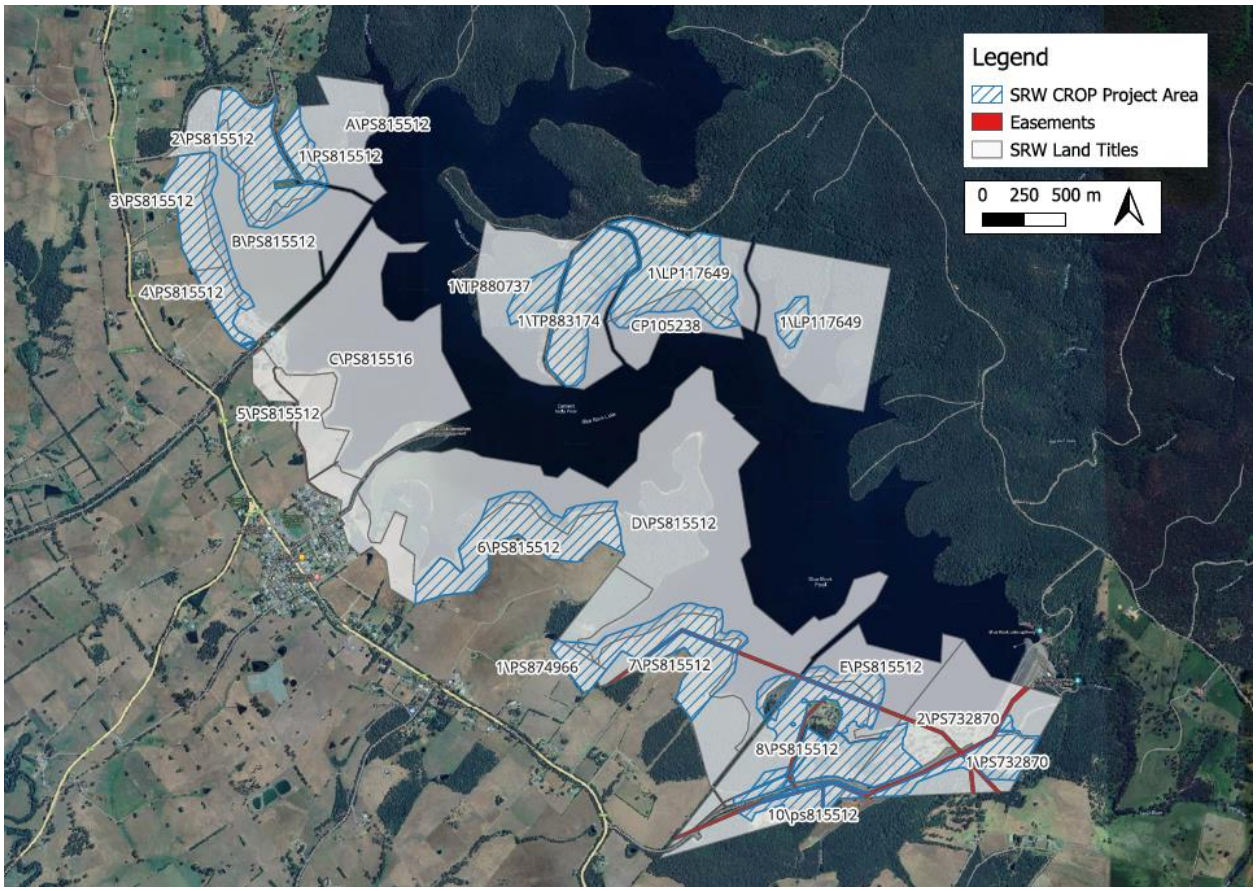


Figure 1. Blue Rock Dam Project sites for the Reforestation Feasibility study.

Figure 2 highlights the EVCs that apply to the Blue Rock Lake area. The 16 potential project sites cover three EVC types (Figure 3) within the Highlands – Southern Fall Bioregion used to develop a Plant Schedule or list of suitable species for the Reforestation program.

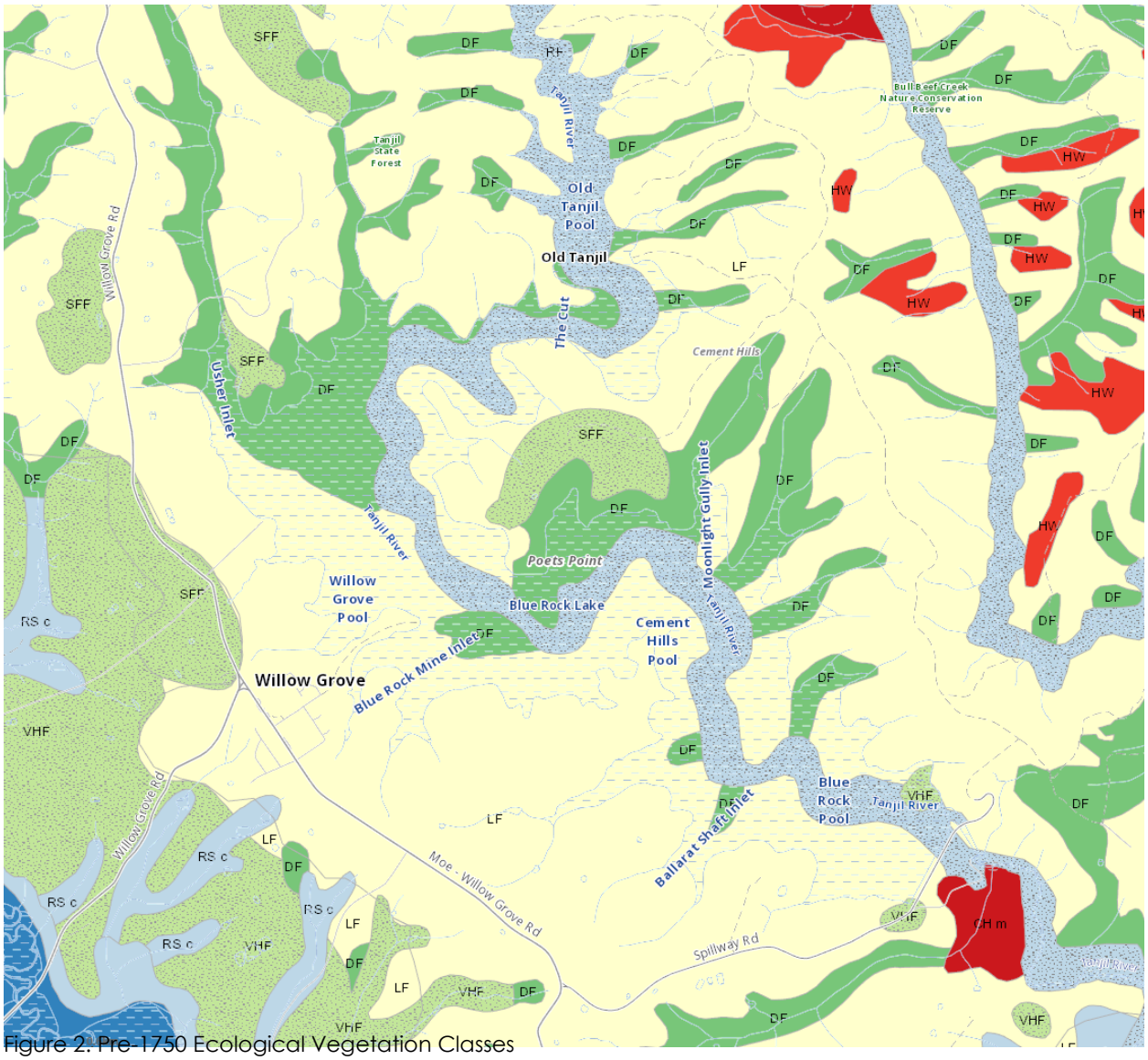


Figure 2. Pre-1750 Ecological Vegetation Classes

EVC 16 - Lowland Forest (LF)	EVC 45 - Shrubby Foothill Forest (SFF)	EVC 29 - Damp Forest (DF)
% Tree Canopy Cover - 30%	% Tree Canopy Cover - 40%	% Tree Canopy Cover - 40%
Immature Canopy Tree - 5%	Immature Canopy Tree - 5%	Immature Canopy Tree - 5%
Understorey Tree or Large Shrub - 10%	Understorey Tree or Large Shrub - 5%	Understorey Tree or Large Shrub - 20%
Medium Shrub - 30%	Medium Shrub - 35%	Medium Shrub - 25%
Small Shrub - 5%	Small Shrub - 10%	Small Shrub - 1%

Figure 3. EVC types for the 16 potential project sites

BLUE ROCK LAKE

PROJECT SITES
1/PS815512
2/PS815512
1/TP883174
1/LP117649

BIOREGION
HIGHLANDS - SOUTHERN FALL

LISTED EVCs
EVC 16 – Lowland Forest
EVC 29 – Damp Forest
EVC 45 – Shrubby Foothill Forest

EVC PLANT SCHEDULE

Below is a list of species under the EVC that can be propagated for the project sites.

Botanical Name	Common Name	Pot Format	EVC
Trees			
Eucalyptus baxteri s.l.	Brown Stringybark	Tubestock	45
Eucalyptus cypellocarpa	Mountain Grey-gum	Tubestock	29
Eucalyptus dives	Broad-leaved Peppermint	Tubestock	16
Eucalyptus globulus ssp. bicostata	Eurabbie	Tubestock	29
Eucalyptus obliqua	Messmate Stringybark	Tubestock	16, 29, 45
Eucalyptus radiata s.l.	Narrow-leaf Peppermint	Tubestock	16, 45
Eucalyptus sieberi	Silvertop Ash	Tubestock	16, 45
Understorey			
Acacia dealbata	Silver Wattle	Tubestock	29
Acacia mucronata ssp. longifolia	Narrow-leaf Wattle	Tubestock	16
Cassinia aculeata	Common Cassinia	Tubestock	29
Coprosma quadrifida	Prickly Currant-bush	Tubestock	29
Goodenia ovata	Hop Goodenia	Tubestock	29, 45
Leptospermum continentale	Prickly Tea-tree	Tubestock	16
Olearia lirata	Snowy Daisy-bush	Tubestock	29
Pomaderris aspera	Hazel Pomaderris	Tubestock	29
Pultenaea gunnii	Golden Bush-pea	Tubestock	16
Spyridium parvifolium	Dusty Miller	Tubestock	45

NON-EVC PLANT SCHEDULE

Below is a recommended species list of local provenance species identified within 1km of the project sites that are not listed within the suitable EVC. These species can be propagated and would establish well on the project sites.

Botanical Name	Common Name	Pot Format
Acacia mearsnii	Black Wattle	Tubestock
Acacia melanoxylon	Blackwood	Tubestock
Acacia stricta	Hop Wattle	Tubestock
Bursaria spinosa	Sweet Bursaria	Tubestock
Kunzea ericoides	Burgan	Tubestock
Ozothamnus ferrugineus	Tree Everlasting	Tubestock

BLUE ROCK LAKE

PROJECT SITES
3/PS815512
4/PS815512
5/PS815512
C/PS815512
6/PS815512
1/TP874966
7/PS815512
10/PS815512
8/PS815512

BIOREGION
HIGHLANDS - SOUTHERN FALL

LISTED EVCs
EVC 16 – Lowland Forest

EVC PLANT SCHEDULE

Below is a list of species under the EVC that can be propagated for the project sites.

Botanical Name	Common Name	Pot Format	EVC
Trees			
Eucalyptus dives	Broad-leaved Peppermint	Tubestock	16
Eucalyptus obliqua	Messmate Stringybark	Tubestock	16
Eucalyptus radiata s.l.	Narrow-leaf Peppermint	Tubestock	16
Eucalyptus sieberi	Silvertop Ash	Tubestock	16
Understorey			
Acacia mucronata ssp. longifolia	Narrow-leaf Wattle	Tubestock	16
Leptospermum continentale	Prickly Tea-tree	Tubestock	16
Pultenaea gunnii	Golden Bush-pea	Tubestock	16

NON-EVC PLANT SCHEDULE

Below is a recommended species list of local provenance species identified within 1km of the project sites that are not listed within the suitable EVC. These species can be propagated and would establish well on the project sites.

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Acacia melanoxylon	Blackwood	Tubestock
Acacia stricta	Hop Wattle	Tubestock
Bursaria spinosa	Sweet Bursaria	Tubestock
Cassinia aculeata	Dogwood	Tubestock
Coprosma quadrifida	Prickly Currant-bush	Tubestock
Goodenia ovata	Hop Goodenia	Tubestock
Kunzea ericoides	Burgan	Tubestock
Olearia lirata	Snowy Daisy-bush	Tubestock
Ozothamnus ferrugineus	Tree Everlasting	Tubestock

BLUE ROCK LAKE

PROJECT SITES
2/PS732870
1/PS732870
1/TP880737

BIOREGION
HIGHLANDS - SOUTHERN FALL

LISTED EVCs
EVC 16 – Lowland Forest
EVC 45 – Shrubby Foothill Forest

EVC PLANT SCHEDULE

Below is a list of species under the EVC that can be propagated for the project sites.

Botanical Name	Common Name	Pot Format	EVC
Trees			
Eucalyptus baxteri s.l.	Brown Stringybark	Tubestock	45
Eucalyptus dives	Broad-leaved Peppermint	Tubestock	16
Eucalyptus obliqua	Messmate Stringybark	Tubestock	16, 45
Eucalyptus radiata s.l.	Narrow-leaf Peppermint	Tubestock	16, 45
Eucalyptus sieberi	Silvertop Ash	Tubestock	16, 45
Understorey			
Acacia mucronata ssp. longifolia	Narrow-leaf Wattle	Tubestock	16
Goodenia ovata	Hop Goodenia	Tubestock	45
Leptospermum continentale	Prickly Tea-tree	Tubestock	16
Pultenaea gunnii	Golden Bush-pea	Tubestock	16
Spyridium parvifolium	Dusty Miller	Tubestock	45

NON-EVC PLANT SCHEDULE

Below is a recommended species list of local provenance species identified within 1km of the project sites that are not listed within the suitable EVC. These species can be propagated and would establish well on the project sites.

Botanical Name	Common Name	Pot Format
Acacia dealbata	Silver Wattle	Tubestock
Acacia mearsnii	Black Wattle	Tubestock
Acacia melanoxylon	Blackwood	Tubestock
Acacia stricta	Hop Wattle	Tubestock
Bursaria spinosa	Sweet Bursaria	Tubestock
Cassinia aculeata	Dogwood	Tubestock
Coprosma quadrifida	Prickly Currant-bush	Tubestock
Kunzea ericoides	Burgan	Tubestock
Olearia lirata	Snowy Daisy-bush	Tubestock
Ozothamnus ferrugineus	Tree Everlasting	Tubestock

LAKE GLENMAGGIE

There are 7 potential project sites for the Reforestation Feasibility study for Southern Rural Water, see Figure 4.

PROJECT SITES

1/TP862864	1/TP880115	7/TP880115	6/TP880115
2/TP880115	3/TP880115	4/TP880115	

Figure 4. Lake Glenmaggie Project sites for the Reforestation Feasibility study.

Figure 5 highlights the EVCs that apply to the Lake Glenmaggie area. The 7 potential project sites cover two EVC types (Figure 6) within the Gippsland Plain Bioregion used to develop a Plant Schedule or list of suitable species for the Reforestation program.

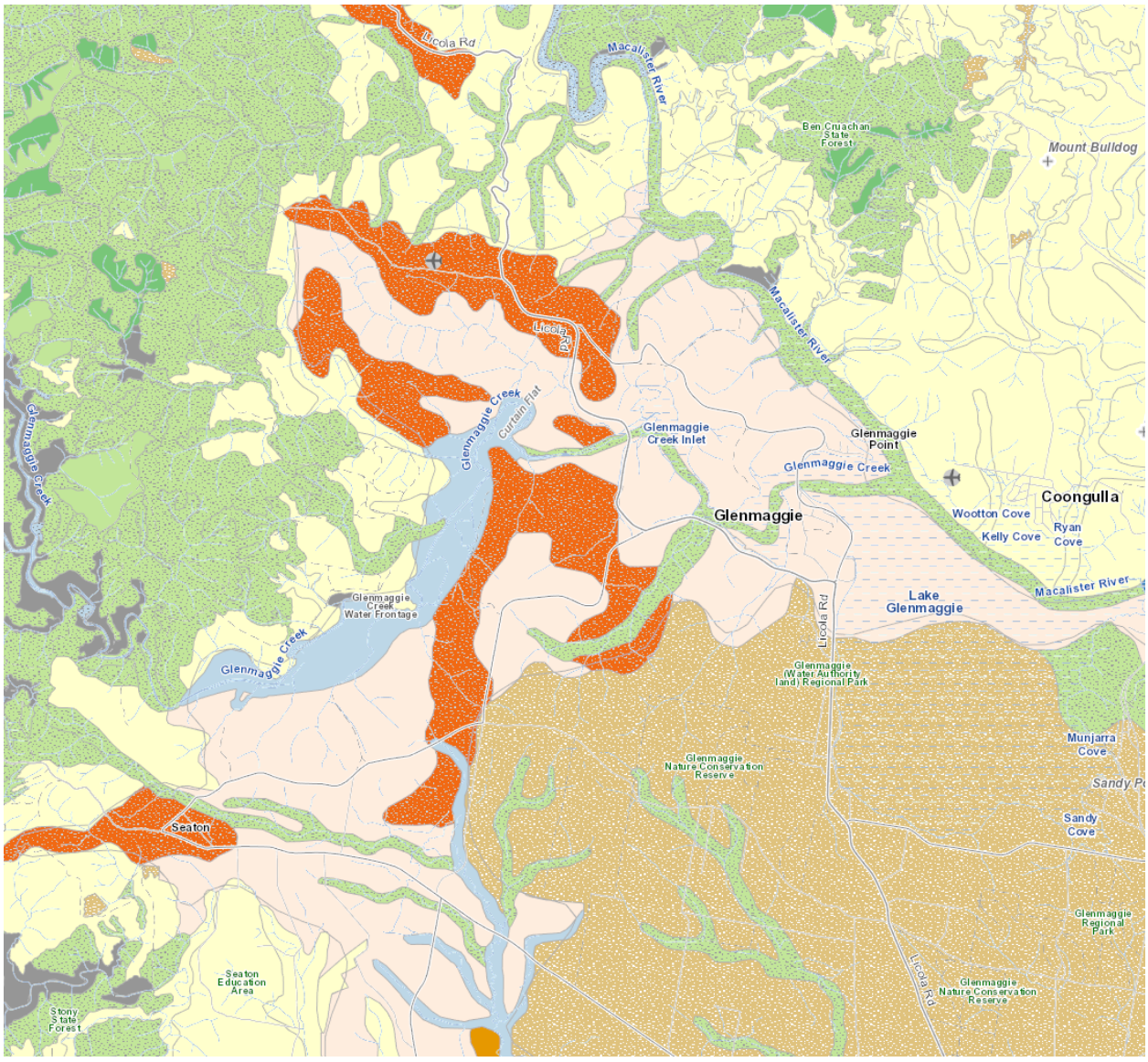

Figure 5. Pre-1750 Ecological Vegetation Classes

EVC 151 - Plains Grassy Forest (PGF)	EVC 169 - Dry Valley Forest (DVF)
% Tree Canopy Cover - 30%	% Tree Canopy Cover - 30%
Immature Canopy Tree - 5%	Immature Canopy Tree - 5%
Understorey Tree or Large Shrub - 15%	Understorey Tree or Large Shrub - 10%
Medium Shrub - 20%	Medium Shrub - 30%
Small Shrub - 5%	Small Shrub – 0%

Figure 6. EVC types for the 7 potential project sites

LAKE GLENMAGGIE

PROJECT SITES
1/TP862864
1/TP880115
6/TP880115
2/TP880115
3/TP880115
4/TP880115

BIOREGION
Gippsland Plain

LISTED EVCs
EVC 151 – Plains Grassy Forest

EVC PLANT SCHEDULE

Below is a list of species under the EVC that can be propagated for the project sites.

Botanical Name	Common Name	Pot Format	EVC
Trees			
Eucalyptus bridgesiana s.l.	But But	Tubestock	151
Eucalyptus macrorhyncha	Red Stringybark	Tubestock	151
Eucalyptus muelleriana	Yellow Stringybark	Tubestock	151
Eucalyptus polyanthemos	Red Box	Tubestock	151
Understorey			
Acacia implexa	Lightwood	Tubestock	151
Acacia mearnsii	Black Wattle	Tubestock	151
Allocasuarina littoralis	Black Sheoak	Tubestock	151
Banksia marginata	Silver Banksia	Tubestock	151
Kunzea ericoides	Burgan	Tubestock	151
Leptospermum continentale	Prickly Tea-tree	Tubestock	151
Melaleuca parvistaminea	Rough-barked Honey-myrtle	Tubestock	151

NON-EVC PLANT SCHEDULE

Below is a recommended species list of local provenance species identified within 1km of the project sites that are not listed within the suitable EVC. These species can be propagated and would establish well on the project sites.

Botanical Name	Common Name	Pot Format
Eucalyptus tereticornis subsp. mediana	Gippsland Red Gum	Tubestock
Melicytus dentatus	Tree Violet	Tubestock

LAKE GLENMAGGIE

PROJECT SITES
7/TP880115

BIOREGION
Gippsland Plain

LISTED EVCs
EVC 151 – Plains Grassy Forest
EVC 169 – Dry Valley Forest

EVC PLANT SCHEDULE
Below is a list of species under the EVC that can be propagated for the project sites.

Botanical Name	Common Name	Pot Format	EVC
Trees			
Eucalyptus muelleriana	Yellow Stringybark	Tubestock	151, 169
Eucalyptus bridgesiana s.l.	But But	Tubestock	151, 169
Eucalyptus polyanthemos	Red Box	Tubestock	151, 169
Eucalyptus macrorhyncha	Red Stringybark	Tubestock	151, 169
Eucalyptus globoidea	White Stringybark	Tubestock	169
Eucalyptus radiata	Narrow-leaf Peppermint	Tubestock	169
Understorey			
Allocasuarina littoralis	Black Sheoak	Tubestock	151
Acacia mearnsii	Black Wattle	Tubestock	151, 169
Acacia implexa	Lightwood	Tubestock	151
Leptospermum continentale	Prickly Tea-tree	Tubestock	151
Banksia marginata	Silver Banksia	Tubestock	151
Kunzea ericoides	Burgan	Tubestock	151, 169
Melaleuca parvistaminea	Rough-barked Honey-myrtle	Tubestock	151
Pomaderris aspera	Hazel Pomaderris	Tubestock	169
Cassinia longifolia	Shiny Cassinia	Tubestock	169
Melicytus dentatus	Tree Violet	Tubestock	169
Coprosma quadrifida	Prickly Currant-bush	Tubestock	169

NON-EVC PLANT SCHEDULE
Below is a recommended species list of local provenance species identified within 1km of the project sites that are not listed within the suitable EVC. These species can be propagated and would establish well on the project sites.

Botanical Name	Common Name	Pot Format
Allocasuarina verticillata	Drooping Sheoak	Tubestock
Eucalyptus tereticornis subsp. mediana	Gippsland Red Gum	Tubestock

MERRIMU RESERVOIR

There are 12 potential project sites for the Reforestation Feasibility study for Southern Rural Water, see Figure 7.

PROJECT SITES

2/TP880892	1/TP880892	1/TP881057	6/TP881057
2/TP881002	1/TP881002	1/TP964834	2/TP964834
2/LP221537	2/PS349871	1/LP221536	1/PS349871

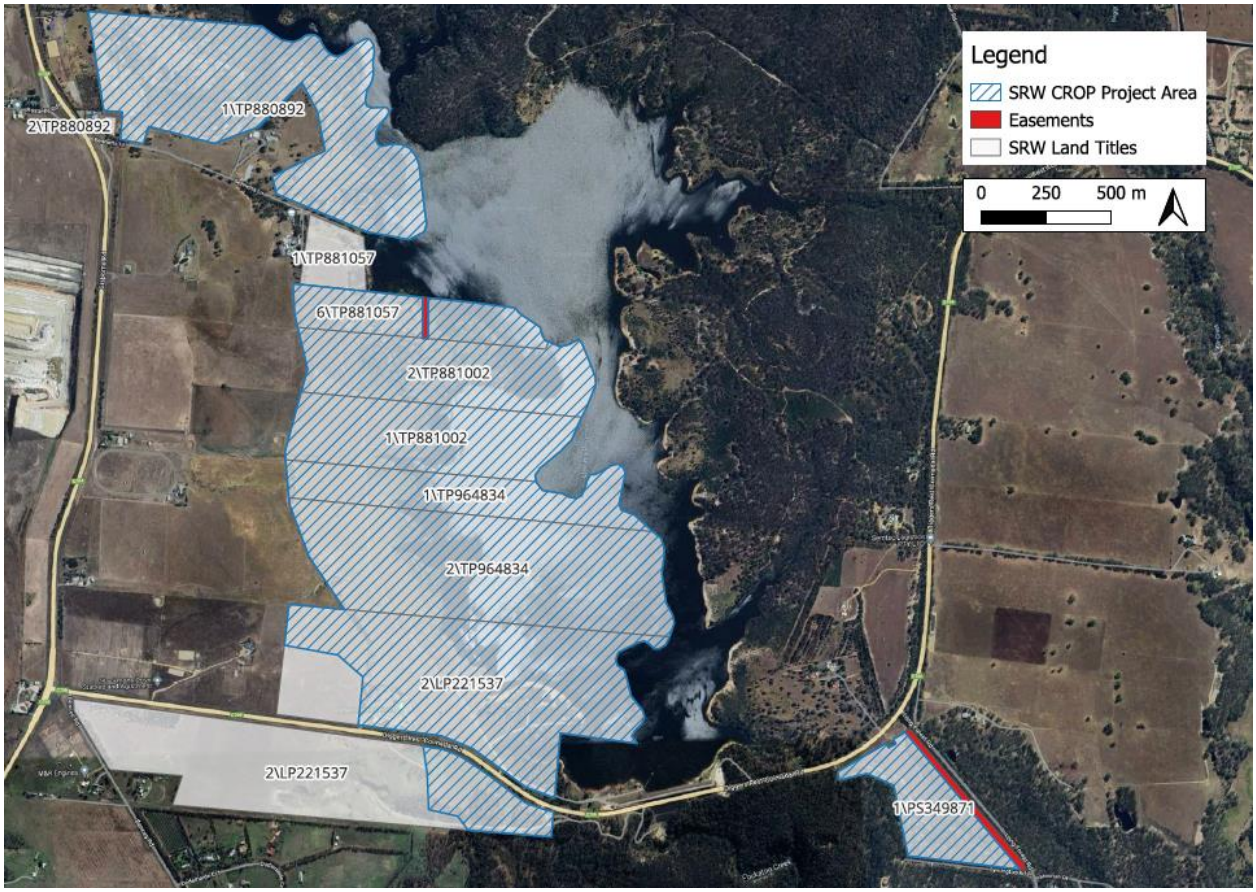

Figure 7. Merrimu Reservoir Project sites for the Reforestation Feasibility study.

Figure 8 highlights the EVCs that apply to the Merrimu Reservoir area. The 12 potential project sites cover three EVC types (Figure 9) over two Bioregions, the Victorian Volcanic Plains Bioregion and the Central Victorian Uplands Bioregion. This information was used to develop a Plant Schedule or list of suitable species for the Reforestation program.

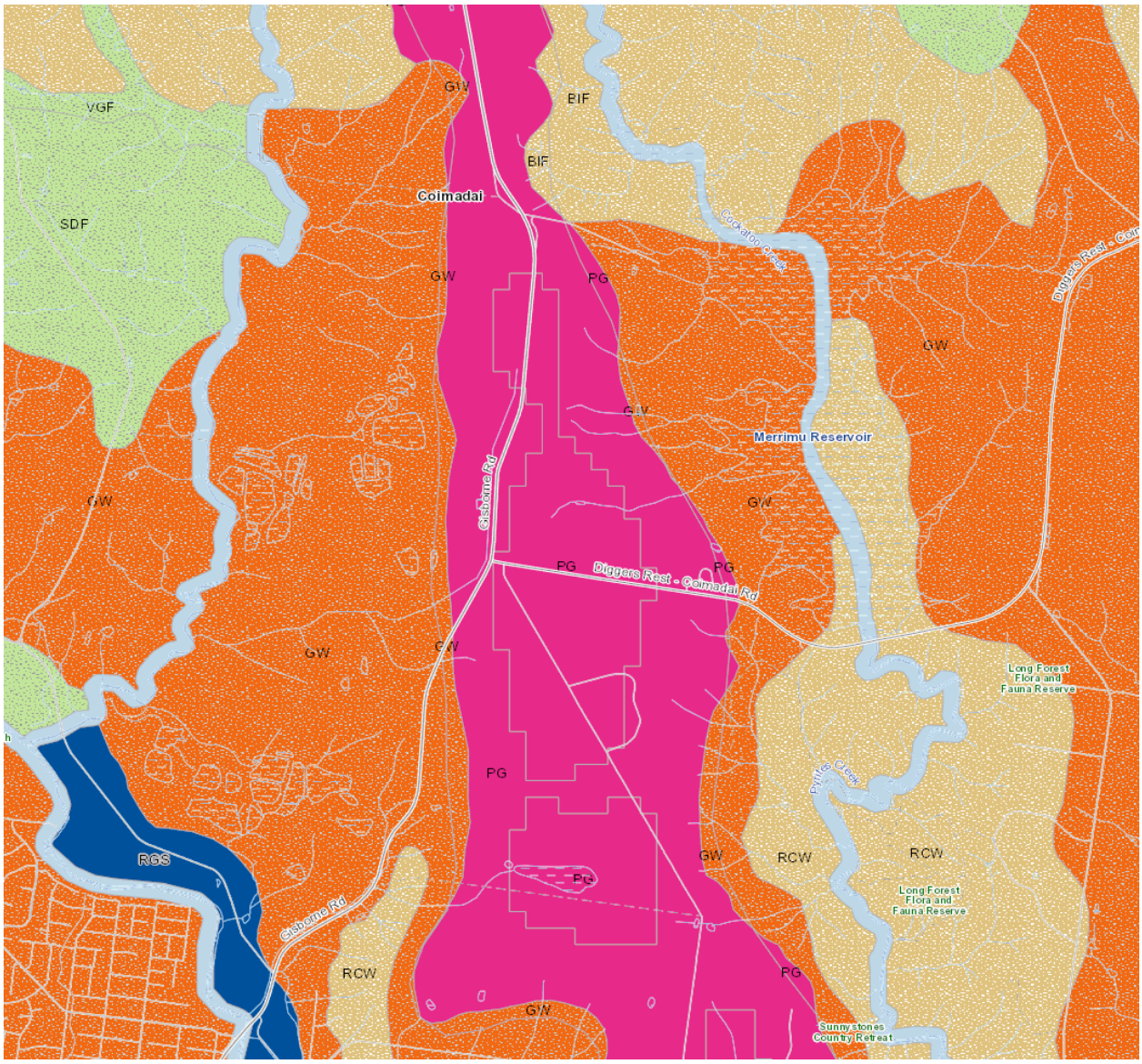

Figure 8. Pre-1750 Ecological Vegetation Classes

EVC 61 - Box Ironbark Forest - CVU	EVC 175 - Grassy Woodland - CVU	EVC 132 - Plains Grassland - VVP
% Tree Canopy Cover - 30%	% Tree Canopy Cover - 15%	Treeless
Immature Canopy Tree - 5%	Immature Canopy Tree - 5%	
Tree or Large Shrub - 5%	Understorey Tree or Large Shrub - 10%	
Medium Shrub - 25%	Medium Shrub - 15%	
Small Shrub - 5%	Small Shrub - 1%	

Figure 9. EVC types for the 7 potential project sites

MERRIMU RESERVOIR

PROJECT SITES
2/TP880892
1/TP880892

BIOREGION
Central Victorian Uplands

LISTED EVCs
EVC 61 – Box Ironbark Forest
EVC 175 – Grassy Woodland

EVC PLANT SCHEDULE

Below is a list of species under the EVC that can be propagated for the project sites.

Botanical Name	Common Name	Pot Format	EVC
Trees			
Eucalyptus goniocalyx s.s.	Bundy	Tubestock	61
Eucalyptus macrorhyncha	Red Stringybark	Tubestock	61
Eucalyptus polyanthemos	Red Box	Tubestock	61, 175
Eucalyptus tricarpa	Red Ironbark	Tubestock	61
Eucalyptus viminalis	Manna Gum	Tubestock	175
Understorey			
Acacia paradoxa	Hedge Wattle	Tubestock	175
Acacia pycnantha	Golden Wattle	Tubestock	61
Allocasuarina littoralis	Black Sheoak	Tubestock	175
Allocasuarina verticillata	Drooping Sheoak	Tubestock	175
Cassinia arcuata	Drooping Cassinia	Tubestock	61, 175
Cassinia longifolia	Shiny Cassinia	Tubestock	61
Eucalyptus behriana	Bull Mallee	Tubestock	61

NON-EVC PLANT SCHEDULE

Below is a recommended species list of local provenance species identified within 2km of the project sites that are not listed within the suitable EVC. These species can be propagated and would establish well on the project sites.

Botanical Name	Common Name	Pot Format
Acacia implexa	Lightwood	Tubestock
Acacia mearnsii	Black Wattle	Tubestock
Allocasuarina verticillata	Drooping Sheoak	Tubestock
Atriplex semibaccata	Berry Saltbush	Tubestock
Bursaria spinosa	Sweet Bursaria	Tubestock
Eucalyptus radiata s.l	Narrow-leaf Peppermint	Tubestock
Melicytus dentatus	Tree Violet	Tubestock

MERRIMU RESERVOIR

PROJECT SITES
1/TP881057
6/TP881057
2/TP881002
1/TP881002
1/TP964834
2/TP964834
2/LP221537
2/PS349871
1/LP221536
1/PS349871

BIOREGION
Central Victorian Uplands

LISTED EVCs
EVC 175 – Grassy Woodland

EVC PLANT SCHEDULE

Below is a list of species under the EVC that can be propagated for the project sites.

Botanical Name	Common Name	Pot Format	EVC
Trees			
Eucalyptus polyanthemos	Red Box	Tubestock	175
Eucalyptus viminalis	Manna Gum	Tubestock	175
Understorey			
Acacia paradoxa	Hedge Wattle	Tubestock	175
Acacia pycnantha	Golden Wattle	Tubestock	175
Allocasuarina littoralis	Black Sheoak	Tubestock	175
Allocasuarina verticillata	Drooping Sheoak	Tubestock	175

NON-EVC PLANT SCHEDULE

Below is a recommended species list of local provenance species identified within 2km of the project sites that are not listed within the suitable EVC. These species can be propagated and would establish well on the project sites.

Botanical Name	Common Name	Pot Format
Acacia implexa	Lightwood	Tubestock
Acacia mearnsii	Black Wattle	Tubestock
Atriplex semibaccata	Berry Saltbush	Tubestock
Bursaria spinosa	Sweet Bursaria	Tubestock
Eucalyptus behriana	Bull Mallee	Tubestock
Eucalyptus leucoxylon	Yellow Gum	Tubestock
Eucalyptus melliodora	Yellow Box	Tubestock
Eucalyptus microcarpa	Grey Box	Tubestock
Melaleuca lanceolata	Moonah	Tubestock
Melicytus dentatus	Tree Violet	Tubestock

MERRIMU RESERVOIR

There are two project sites that feature areas that have EVC 132 – Plains Grassland in the Victorian Volcanic Plains Bioregion. This EVC is treeless and has no understorey that would not be suitable for reforestation. This is the area west of the Southern Rural Water Merrimu Reservoir public park and the western area of the quarry site across the road from the public park, listed with the title of 2/LP221537.