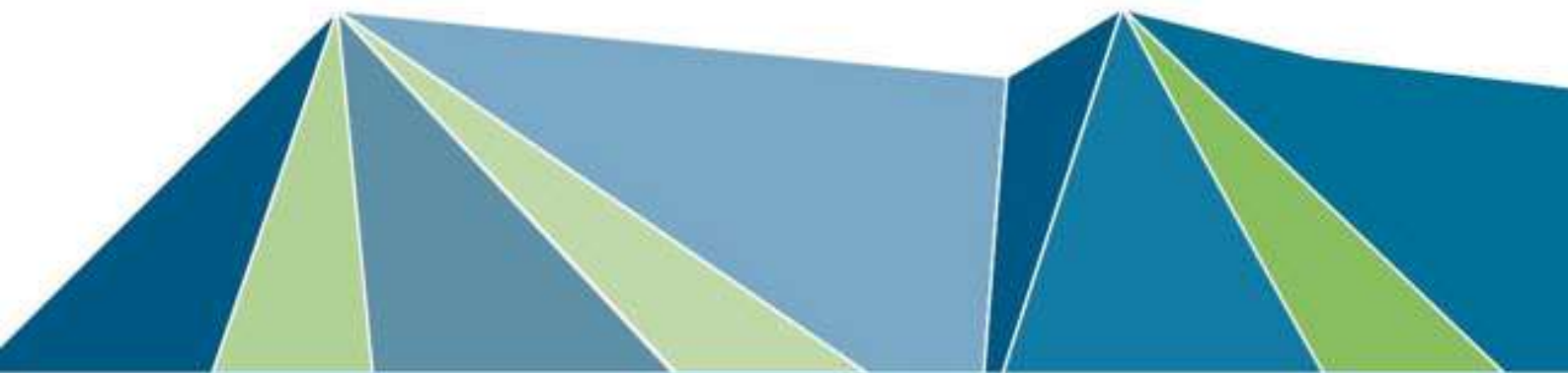


# ATTACHMENTS TO

## *Ordinary Meeting Business Paper* 24 October 2024

UNDER SEPARATE COVER



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## **Delivery Program and Operational Plan 30 September 2024 Review**

**Corporate and Community Division**



**Commercial Services (Property)**

Code	Program Action	Comments	On Target?
PE3.1a	Progress availability of land at the Russellton Industrial Estate	Civil construction works progressing well despite weather delays, completion of works expected by beginning of November 2024.	
PE3.1b	Progress availability of land at the Southern Cross Industrial Estate	Civil construction works to create 12 serviced industrial lots have been completed. Plan of subdivision is proceeding through the approval and registration process.	
PE3.2a	Progress development of Wollongbar Residential Land Holding	Construction of 30 residential lots and a childcare lot has been completed and all lots registered and titles issues. The sale of the 30 residential lots is on hold pending Council's decision on proceeding with a medium density housing project on the dedicated lots.	
PE3.2b	Progress development of Lennox Head Residential Land Holding	Draft brief to consultants prepared to undertake site investigations and prepare site layout and building concept plans. A draft brief has been sent to Northern Rivers Reconstruction Authority (NRAA) for review and approval, as they are the funding provider for the studies and concept plans.	


**Communications and Customer Service**

Code	Program Action	Comments	On Target?
CC2.2a	Support Council initiated volunteer programs	Training of environmental volunteer groups occurred in this quarter.	
EL1.1a	Complete review of Community Strategic Plan	The review of the Community Strategic Plan (CSP) is underway, with engagement activities in progress, including a community survey of 500 residents and collaboration with the Advocate for Children and Young People (ACYP) to involve youth in the CSP development.	
EL1.1b	Undertake a community survey to measure perception and importance of Council services and satisfaction levels	Community survey of 500 residents, undertaken by Micromex, will commence in the first week of October 2024.	



9.15 Delivery Program and Operational Plan - 30 September 2024 Review

Code	Program Action	Comments	On Target?
EL1.3a	Approach State and Federal Governments on local issues	<p>Submissions have been made in the quarter to the following:</p> <p>Select Committee on Essential Worker Housing.                      Minister of Police for police resources in Ballina and Lennox Head.                      Minister for Emergency Services on funding for the SES Headquarters and Rotary Shed.                      Several letters to NSW Government Ministers and Member for Ballina on opportunities to activate Crown Land.                      NSW Premier and Member for Ballina on CCTV Funding.</p>	
PE1.1a	Participate in and leverage opportunities to market the Ballina Coast and Hinterland	<p>Updated Destination Brand and Strategy completed and roll out has commenced. Ballina Tourism Team achieved Gold in North Coast Tourism Awards Excellence in Tourism Services and Silver in Excellence in Innovation and Outstanding Young Business Leader - also supported Lennox Head Cultural Centre in winning Gold for Event Venue of the Year along with Local Tourism Operators Sugar Beach Ranch who won Silver in Wellness Experience.</p> <p>Continued social media engagement and promotion STATS: Instagram - 1,200 new followers, 180K accounts reached, 11,125 followers, Facebook 80K reach, 7,935 followers</p>	

9.15 Delivery Program and Operational Plan - 30 September 2024 Review




Code	Program Action	Comments	On Target?
PE1.1b	Implement Destination Management Plan	<p>COM 1 - Developed/distributed regular marketing materials. 600 delegate information packs distributed for conferences and events.</p> <p>COM 3 - Held multiple meetings and site visits with Screen works to ensure the conference would continue in the Shire.</p> <p>COM 5 - Supported local operators and internal staff to enter North Coast Tourism Awards</p> <p>COM 06 &amp; COM 13- Photoshoot conducted to address image and demographic gaps.</p> <p>COM 07 &amp; 09- Creation of tourism content for Community Connect. Stories published via various media outlets.</p> <p>COM 12 -Brand Strategy developed, tourism staff trained.</p> <p>COM 13 - Achieved 38,244 website clicks this quarter.</p> <p>COM 15 - Visitor Centre staff trained in visual brand use and new templates</p> <p>COM 17 &amp; INV 17- Working with local event organisers to determine opportunities for signature event.</p> <p>INV 01 - Enhancing walks with the Sound Trails project.</p> <p>INV 07 - Recorded visitor requests to identify service gaps.</p> <p>MGT 02 - Team Leader attended meetings with industry, government bodies and local chambers to build business relationships.</p> <p>MGT 08 - Completed Sustainability Scorecard Tourism Program for Ballina Visitor Centre.</p> <p>MGT 9 - Hosted work experience student through Tafe NSW.</p> <p>MGT 11 - Continued delivery of Visitor Guide and marketing materials locally and across NSW, QLD and VIC</p> <p>MGT 17 - Working with DRNSW to explore economic development opportunities in the region and Shire</p> <p>MGT 24 - Provided collaborative marketing opportunity through Ballina Coast and Hinterland Map</p>	

Financial Services



Code	Program Action	Comments	On Target?
EL2.1d	Pursue financial sustainability	<p>The 2023/24 Financial Statements shows the General Fund reported a Net Operating Deficit of \$7.2m for the year ended 30 June 2024.</p> <p>The Long-Term Financial Plan (LTFP) outlines the forecast operating results of the general fund for a 10-year timeframe. The current LTFP forecasts indicate the General Fund will reach a break-even operating result in 2027/28. In the longer term, it will continue to be necessary to reduce operating expenditure in real terms, and it may be necessary to consider increased income levels to ensure the General Fund reaches a consistent healthy operating position.</p>	
EL2.1j	Seek approval for a non-compulsory dividend from Wastewater	<p>The adopted budgets for 2023/24 included \$540,000 as a non-compulsory dividend from the Wastewater Fund to the General Fund. This dividend was to be transferred to reserves to fund General Fund stormwater works. The ability to take a non-compulsory dividend is reliant on approval from the Department of Climate Change, Energy, Environment and Water (DCCEEW). To obtain approval, Council is required to meet the DCCEEW's benchmarks for a Strategic Planning Assurance Framework. This framework is extensive and requires Council to provide evidence-based responses for several areas, including how Council understands service needs, system capacity, resourcing needs, and how Council promotes integrated water cycle management.</p> <p>Following initial consultation with DCCEEW in December 2023, Council applied, including detailed supporting evidence, for the dividend approval in mid-March 2024.</p> <p>The assessment process was extensive, including further requests for information and a two-day workshop with Council in June 2024 to interrogate the submission.</p> <p>Council staff were verbally advised in late July 2024, followed by formal notification in August 2024, that the application was unsuccessful.</p> <p>Although the Wastewater Fund is in a financially viable position and can support the proposed dividends, without detriment to the Fund, or the end consumers, several areas within the Strategic Planning Assurance Framework were deemed by DCCEEW's assessment, as not to the required level of maturity. Staff are working through the assessment response received from the department. Based on the requirements that the Department are currently setting, it would currently appear unlikely that Council will be able to obtain this approval for the 2024/25 year.</p>	

9.15 Delivery Program and Operational Plan - 30 September 2024 Review


Governance

Code	Program Action	Comments	On Target?
CC1.2m	Ensure Business Continuity Plans (BCPs) remain contemporary	Business Continuity Taskforce met in September 2024. Confirmation that the Information Services continuity plan has been updated and completed. Risk plans within each asset class's Asset Management Plan are continuing to be developed.	
EL2.3d	Implement Risk Management Framework	Insurance officer working with relevant internal teams on responding to Statewide's Continuous Improvement Pathway (CIP). The three CIPs allocated this year are for footpaths, swimming pools and enterprise risk management compliance. The swimming pools and enterprise risk management compliance CIPs have been progressed. The CIPs are not mandatory. Insurance claim summaries reported to ARIC at the September meeting.	
EL2.3e	Implement pro-active internal audit program	In response to the last internal audit on Data Governance, an internal Data Governance Working Group has been established. The group is chaired by the General Manager and has been established to consider Data Governance issues and includes a Data Governance Framework to be developed. Council's internal auditors conducted an audit on Council's Regulatory Enforcement (Rangers) in August 2024 with an overall rating of "Acceptable". These findings were reported to September's ARIC meeting.	



Information Services

Code	Program Action	Comments	On Target?
EL2.2a	Implement technology to generate productivity gains	Continued review and development of a data warehouse to provide improved capability for field-based assets data capture solutions, and enhanced reporting capability.	
EL2.2b	Continuous improvement of Council's cyber security	Work continues on improving the security of Council's web domains using the Upguard monitoring platform. Council currently sits at a score of 873 out of 950. This is an A rating and above the NSW whole of government average. The development of Council's Security Incident Event Management systems continues, with focus on Essential 8 progress measurement.	

People and Culture

Code	Program Action	Comments	On Target?
CC1.1h	Implement NSW Child Safe Standards across Council	During this quarter, Council completed the following: <ul style="list-style-type: none"> <li>• Review of child safe risk management plan</li> <li>• Development of child safe training material</li> <li>• Child safe working group meetings, increased membership</li> <li>• Updated slide deck to include child safety for the general code of conduct education for staff</li> <li>• PCBU WHS management handbook - draft text prepared</li> <li>• Review of council obligations with Lessees</li> <li>• Attendance at Local Government Child protection Forum</li> </ul>	


9.15 Delivery Program and Operational Plan - 30 September 2024 Review

Code	Program Action	Comments	On Target?
CC2.3a	Implement Equal Employment Opportunity Management Plan	<p>During this quarter, Council completed the following:</p> <ul style="list-style-type: none"> <li>• Attended the Northern Rivers Careers Expo and subsequently received over 60 expressions of interest from local young people</li> <li>• Work experience of a young person at our Nursery</li> <li>• Planning stages of Careers Day in partnership with Training Services NSW to enhance awareness of career pathways and opportunities for year 10 and 11 students.</li> <li>• Planning stages for North Coast Youth Apprenticeship Pathway Program, in partnership with the Department of Employment and Workplace Relations Local Jobs Program, which will focus on disengaged youth from across the region.</li> <li>• Workshop on best practice approaches for Supervising Apprentices and Trainees</li> <li>• Council is taking steps to explore opportunities to diversify our approach for recruiting staff as a part of this announcement and as part of our Attraction and Retention Strategy.</li> <li>• Council continues to assess recruitment strategies and engage in discussions relating to education pathways and Traineeships and Apprenticeships.</li> <li>• Council announced as a finalist for the 2024 apprentice employment network awards - large general training organisation (GTO) host employer of the year.</li> </ul>	
EL3.2d	Implement strategies that increase female participation in the workforce	<p>During this quarter Council completed the following actions:</p> <ul style="list-style-type: none"> <li>• Supporting Novaskill's Tradie Ladies Training, which will take place in October.</li> <li>• A new female horticulture trainee has commenced in Open Spaces.</li> <li>• Connecting with Real Futures for Women regarding opportunities for indigenous women interested in employment / trainee / apprenticeship opportunities.</li> </ul>	




**Civil Services Division**






**Assets Management**

Code	Program Action	Comments	On Target?
EL2.1k	Ensure Asset Management Framework remains contemporary	Actions within the strategic asset management plan continue to be implemented to ensure a contemporary framework. Highlights for this quarter include continued testing and implementation of the pilot asset management module project, revision of the water and wastewater asset hierarchy in preparation for expansion of the works management module into this asset class, inspection of footpath and stormwater asset network to inform the revaluation process for transport and stormwater asset classes and, continued improvement to the capitalisation processes. NSW Public Works have been further engaged to assist in the renewal of the stormwater and transport asset management plans.	


**Engineering Works**

Code	Program Action	Comments	On Target?
CC3.3p	Progress pathways for Lennox Head and Byron Bay and Pearcees Creek Road to Wollongbar Sports Fields	<p>Council has reached agreement with Byron Shire Council to progress the concept design of the pathway that will link the two shires.</p> <p>This project is currently unfunded and will not progress until the funding is secured.</p> <p>Pearces Creek Road footpath design and cost estimates completed up to the Adventist retirement village. The design to link the remaining section of the pathways to the Wollongbar sports fields will be commenced in the second quarter. These designs can be used to seek funding opportunities.</p> <p>The estimate to complete the section from the existing path to the Adventist Retirement Village is \$150,000. This means the estimate for the remaining section will be a significant sum.</p> <p>Council will need to carefully consider the feasibility of this project and even the extent of resources allocated to funding applications, design and approval activities.</p>	







## 9.15 Delivery Program and Operational Plan - 30 September 2024 Review

Code	Program Action	Comments	On Target?
CC3.3q	Implement Pedestrian Access and Mobility Plan (PAMP) and Bike Plan	Footpath works have been completed at Compton Drive. Works are approximately 40% complete at Montwood Drive, Lennox Head. Contract footpath works has been completed at Rubiton Street Wollongbar and Parkland Drive project is underway with contractors due to complete in early October. Recently we have delivered more of this program by contract. The lessons learned from this process and the developing response in the market is helping to optimise the delivery methods going forward.	
EL3.3e	Provide road maintenance intervention actions in accordance with response targets	There were 1,719 pothole defects repaired for the quarter, which is below our long-term average of approximately 2,150 potholes per quarter. We had 22 accomplished P2 Potholes during the last quarter and 1,699 of P1	
EL3.3f	Deliver annual unsealed rural road maintenance program	The unsealed roads team have completed maintenance on 37,374m2. This is below the average of 76,500m2 expected per quarter. This is due to the team completing work on sealing Phillips Lane.	
HE1.1b	Implement Floodplain Management Plans	A grant has been received from the Commonwealth National Emergency Management Agency (NEMA) under the "Preparing Australian Communities - Local Stream" funding program. BMT Pty. Ltd. has continued work with updating our existing flood study, being a significant component of the grant. The updated flood study is expected to be completed in early October.  Updated DCP and LEP mapping will be prepared as part of Strategy 2 of this project with completion anticipated by end of March 2025. Strategy 3 of the project includes additional rainfall gauges and flood warning systems with tenders being called in early October. The Ballina Island and West Ballina (BI&WB) stormwater project has been awarded to a consultant and is in the early phase.	
HE1.2f	Implement Urban Stormwater Management Plan and Programs	As part of the Local Government recovery fund, storm water projects at Alstonville, Wardell and West Ballina designs have been completed. Tender documentation is being prepared to allow construction to commence in early 2025. A State Government rural/agricultural open drain maintenance program (known as Drainage Reset) continues to progress through a total of 16 Council sites. Works are currently underway on several sites along Teven Road. All works as part of this program will need to be completed by end of March 2025.	






## 9.15 Delivery Program and Operational Plan - 30 September 2024 Review

Code	Program Action	Comments	On Target?
PE1.3b	Advocate for the Ballina Marina Master Plan and Martin Street Regatta Ave Boat Harbour Master Plan	The Martin Street Regatta Avenue Boat Harbour Concept design was presented to the August council meeting following public exhibition. Council resolved to not take any further action in respect of the exhibited plan. Council requested a further report to consider options around upgrading the area focused on land improvements. Homes NSW examining options for the Ballina Marina Master Plan.	






### Infrastructure Planning

Code	Program Action	Comments	On Target?
CC1.1.a	Implement Council's Road Safety Plan	The road safety action implements the items raised in the road safety strategy. Discussions with TfNSW outline the preferred projects for this year. A bicycle safety and shared path etiquette program is currently underway with public pop ups to provide community information sessions.	
HE1.1e	Investigate a suitable site to accommodate a disaster recovery shed	Further direction sought on this project through an update in the Council report.	
HE3.3a	Review Water and Wastewater Developer Contribution Plans	Revised plans adopted on 24 June 2024. The plans have been sent to DCCEEW for registration. Implementation date is 1 November 2024.	
HE3.3b	Review car parking Developer Contributions Plan including multi storey car park update	This plan is scheduled for review in 2025. The main components to be assessed relate to Lennox Head parking and the proposed multi storey parking in Ballina.	
HE3.3c	Review Roads Developer Contributions Plan	The plan is under review. Traffic counts are completed and the draft specification for the new plan is being prepared.	
HE3.3d	Maintain Open Spaces and Community Facilities Developer Contributions Plan	Plan will be reviewed once confirmation of Alstonville Cultural Centre redevelopment pricing is known.	




Project Management Office

Code	Program Action	Comments	On Target?
PE3.3a	Progress delivery of Hutley Drive - southern section	Concurrence approval provided by NSW Planning, Fisheries and NSW Heritage. OEH response outstanding. The project team is responding to Council requests for information.	
PE3.3b	Progress River Street Dual Laning	Stage 3 (Fishery Creek Bridge duplication) environmental assessment complete and awaiting determination. Additional geotechnical investigations complete. The following packages have been awarded: Preliminary Road design, artworks, stormwater modelling. Expression of Interest (EOI) for the main Design Development and Construction contractor closed in September, Early tender involvement (ETI) workshops to be held in last quarter of 2024. Construction to commence mid-2025. Land acquisition and licensing underway. Environmental assessment continues as well as development of procurement documentation.	
PE3.3c	Progress Tamarind Drive Dual Laning	The following packages have been awarded: Preliminary Road design, artworks, stormwater modelling, geotech investigations and substructure design. Expression of Interest (EOI) of main Design Development and Construction contractor closed in September, ETI workshops to be held in last quarter of 2024. Construction to commence mid-2025. Negotiations for land acquisition underway.	
PE3.3d	Progress Barlows Road as a connection between Tamarind Drive and River Street	Project in planning and design phase. Final flood and stormwater model complete allowing Review of Environmental Factors to be completed. No further works beyond the above are planned now based on Council's determined priorities for road upgrades, with no capital funding for this project. Currently this project not considered feasible based on the cost estimate following design.	
PE3.3e	Progress design and approvals for North Creek Road Bridge reinstatement	Additional geotech information required to address bridge embankment settlement. Early investigations into heritage, noise, hydrology, ecology and planning pathway completed. Project approved to proceed to detail design and provision of constructability report. Liaison with adjacent landholders continues. Estimated costs has significantly increased.	

Water and Wastewater





Code	Program Action	Comments	On Target?
HE2.1a	Improve quality of water and wastewater data	<p>Progress has been made in improving our data links with GIS. A field app is being used to assist staff collect relevant data in the field and verify existing data for use in the GIS system. The devices used by staff to access and update relevant data are also to be updated.</p> <p>A review of the asset register data for all Wastewater Treatment Plants has commenced with the Alstonville plant.</p>	
HE2.1b	Increase recycled water to dual reticulated properties	<p>Planning is in progress to expand the dual reticulation network to the CURA B and Lennox Rise developments, when they proceed to construction. Work continues on securing the relevant approvals to supply recycled water from the Ballina Wastewater Treatment Plant to our recycled water network</p>	
HE2.1g	Review the Recycled Water Master Plan	<p>Scope development for the review has commenced.</p>	
HE2.1i	Develop an Integrated Water Cycle Management Plan	<p>Response received from the Department of Climate Change, Energy, the Environment and Water (DCCEE) regarding whether Council meets the strategic planning outcomes of the Regulatory and Assurance Framework. Whilst there were many aspects of our processes deemed to meet these requirements, there were some that require improvement and additional work.</p> <p>This included more comprehensive strategic plans for our Wastewater Treatment Plants, more robust data collection and management processes to inform decision making, and additional financial modelling to support decision making.</p> <p>Staff are assessing the responses to determine what work is required and resourcing implications to address the matters raised such that the application can be resubmitted for further consideration.</p>	
HE2.1j	Implement water loss reduction program	<p>Recommendations from the District Metered Area study are being considered for implementation. Staff are working through a priority list of repairs from the acoustic leak detection process completed earlier this year. New leak detection equipment with appropriate training has been rolled out to staff and is now in use.</p>	

9.15 Delivery Program and Operational Plan - 30 September 2024 Review



Code	Program Action	Comments	On Target?
HE2.1k	Minimise the volume of unaccounted water	<p>The volume of unaccounted water for the quarter was 12.6% which is an average annualised amount. A sample of water meters will shortly be sent for accuracy testing. Ongoing water meter replacement program continues.</p> <p>Some new equipment to assist in water leak detection has been purchased and additional training provided for staff.</p> <p>Council is participating in a trial conducted by DCCEEW of some new data management software to improve analysis of existing information from our Telemetry and SCADA systems.</p> <p>The project is aimed at analysing data in different ways to improve detection of unaccounted water.</p>	
HE3.2f	Implement trade waste management program	<p>Trade Waste program is proceeding as normal. A staff member has resigned and a new appointment has been made. Other staff have kept the program on track during the period of the vacancy.</p>	
HE3.2j	Assess options for improved wastewater services for Newrybar	<p>Report presented to Council's Finance Committee earlier this year outlining options.</p> <p>Council has written to Byron Shire Council seeking to explore options to connect into their wastewater system as per the Council resolution from the April 2024 meeting, however no response has been received, yet.</p>	

## Planning and Environmental Health Division










### Development Services

Code	Program Action	Comments	On Target?
CC1.1b	Implement State Government Pool Barrier Inspection Program	102 or 86% of mandatory pools have a current compliance certificate	
CC1.2f	Implement fire safety certificate compliance program	226 or 35% of premises on the Essential Fire Services Register have a current compliant Annual Fire Safety Certificate	
HE3.2h	Implement Biodiversity Strategy	Council noted the report to the July 2024 Ordinary meeting on incentives to support landholders in biodiversity conservation. External consultants will be engaged to undertake validation of threatened ecological community mapping. Educational environmental signage is being prepared with funding support from the State Government. Updating biodiversity provisions in the DCP is underway.	
PE2.1g	Undertake review of the Development Assessment service	External consultant engaged and background review underway. Stakeholder interviews commenced.	

### Open Spaces



Code	Program Action	Comments	On Target?
CC2.3d	Assess accessible entrance options for Seven Mile Beach	Briefing held with previous Council. An updated Councillor briefing to be held to provide an update on the initial project scope.	
CC3.2a	Implement the Sport and Recreation Facilities Plan	Cricket infrastructure upgraded at Kingsford Smith and Geoff Watt Ovals this quarter, prior to commencement of cricket season. Grants awarded to Ballina and Alstonville tennis clubs under the Capital Works assistance program. Procurement approaching completion for Williams Reserve and Saunders Oval works.	

## 9.15 Delivery Program and Operational Plan - 30 September 2024 Review



Code	Program Action	Comments	On Target?
CC3.2b	Implement Playground Upgrade and Management Plan (PUMP)	Design progressing on major upgrade to Missingham Park, consistent with adopted masterplan. Recently upgraded local playgrounds include John Kearney, Chickiba and Madden Parks. Swift Street and Ballina Heights basketball courts completed and well utilised.	
CC3.2c	Investigate options for a skate park in Alstonville	Report being prepared for consideration by Council. Currently scheduled for presentation to the November Ordinary meeting.	
CC3.3o	Investigate feasibility of second croquet court at Gap Road, Alstonville	Project in initiation phase. Correspondence provided to Alstonville Croquet Club regarding timing and scope.	
EL1.2e	Prepare management plan for Lumley Park	Project on hold to consider updated Council action to investigate a Skate Park for Alstonville, as this decision may impact planning options at Lumley Park, noting this site has previously been investigated as a potential site.	
HE1.3a	Implement a proactive street tree planting program	Infill and resident requested tree program progressed this quarter. Additional works undertaken on Lennox Village Vision plantings.	
HE1.3b	Support local environmental groups	New communication framework established with environmental groups, with meeting scheduled for October	
HE3.1h	Implement management plans for Killen and Tosha Falls	Vegetation management works continuing at both sites under long term actions.	
HE3.1i	Implement management plan for Ocean Breeze Reserve	Contractors terminated from project, with procurement progressing to engage new contractors to complete outstanding works	
HE3.2i	Implement Alstonville and East Ballina Cemetery Master Plans	Alstonville beams installation project continuing as key upgrade consistent with master plan. Road improvements recently undertaken at East Ballina Cemetery.	





Public and Environment Health

Code	Program Action	Comments	On Target?
CC1.1f	Implement Proactive Parking Program	<p>Parking patrols now include licence plate recognition through a product called Aero Ranger. The use of this technology, with foot patrols, provides a good balance and improved coverage.</p> <p>59 general parking and 58 unattended vehicles on public land customer requests were received during the quarter, along with routine parking patrols resulting in 624 fines with a combined value of \$104,652.</p> <p>Other offences, such as illegal camping, and illegal land use, resulted in 14 fines, for a combined value of \$14,888.</p> <p>In total, 667 fines were issued by the Ranger team last quarter, with a total value of \$134,805 across a range of non-compliances.</p>	
CC1.2e	Implement a responsive compliance program	<p>For the last quarter there were 17 customer requests relating to illegal works, not complying with development consent and failing to obtain relevant consents.</p> <p>There are also several notices and orders active relating to matters of non-compliance.</p> <p>An audit of the compliance work program is currently being undertaken and all customer requests being reviewed with the aim of developing business processes to improve response times and allocation of the customer requests when first received.</p>	





9.15 Delivery Program and Operational Plan - 30 September 2024 Review

Code	Program Action	Comments	On Target?
CC2.2b	Implement Companion Animals Management Plan	<p>Routine patrols including bike patrols continue to be undertaken, in particular along coastal reserves and beaches for dog management. The works at the Gap Road dog off leash exercise area site have finished and a successful Official Opening was held on 10 August 2024. The day was a great success with many owners with their dogs joining us for the morning and talking with Rangers and the trained dog educator. The new works at the animal shelter are completed and the new outdoor exercise area are a great addition to this facility.</p> <p>\$50 off desexing and or microchipping vouchers launched at the Gap Road Off leash opening and currently available to the first 100 people to apply. This is a proactive step to encourage responsible pet ownership. Patrols will increase now that we are entering our warmer months and day light savings to commence soon.</p> <p>Companion animal related matters for the quarter are as follows.            Dog - Attack / Behaviour - 37            Dog - Barking - 15            Dog - Collections - 50            Dog - Defecation - 4            Dog - Roaming - 62            Dog - Nuisance - 5            Dog - Dangerous - 6            Dog - Menacing - 3            Cat - Nuisance - 5</p> <p>29 fines were issued in relation to companion animals with a combined value of \$15,264.</p>	
HE1.1a	Implement the Coastline Management Plan Ballina	<p>Data gathering has been finalised, and Bluecoast is carrying out coastal hazard studies and shoaling assessments for the CMP. Data sets provided to DPI to collaborate on Riparian and Bank Stabilisation Prioritisation Study, which feeds into the stage 2 studies for the CMP, including the Coastal and Estuary Habitat and Biodiversity Assessment. Initial meeting with AWA, who is undertaking the habitat and biodiversity study is scheduled for 10 October.</p>	


9.15 Delivery Program and Operational Plan - 30 September 2024 Review

Code	Program Action	Comments	On Target?
HE1.2a	Implement Healthy Waterways Strategy	<p>Construction at Teven Reserve is ongoing, with a car park, water access, playground, and paths set for completion in late November. Wetland rehabilitation there is complete.</p> <p>The drone project design is finalized, starting in October to track progress on riparian rehabilitation for Emigrant, Maguires, and Houghlahans Creeks.</p> <p>A large-scale restoration project along Maguires Creek is ongoing. Assisted in reviewing tenders for Richmond River CMP Stage 2 studies and are helping OzFish with the Oyster Reef Rehabilitation Project.</p> <p>Secured \$300k funding from the Richmond River Watershed Initiative (RRWI) for the Kinnane Property project in Teven.</p> <p>Working with Nature Tourism Services on interpretive signage for Healthy Waterways projects.</p> <p>Coast Snap has been installed at Sharpes Beach lookout, and a project plan for tackle bins at various sites is in development. Ongoing involvement in the Tuckean Swamp Steering Committee and the Richmond River Collaborative Partnership continues.</p> <p>In discussions with Jali, Bundjalung Tribal Society (Namabunda Farm), and Jagun Alliance on Healthy Waterways Projects, with a meeting scheduled for October 10. Conversations with the Net Zero team in DEECW focused on carbon offsets for Council sites, including Teven Reserve as a demonstration site, with an initial meeting on October 3.</p> <p>A meeting with the Coastal Council and Regional DEECW occurred in August 2024. Designing a project for nest boxes in riparian areas and have applied for a variation to grant funding.</p>	
HE1.2b	Complete and implement Shaws Bay Coastal Management Plan (CMP)	<p>A tender process for the stage 2 studies is proposed to be carried out in early 2025.</p>	






## 9.15 Delivery Program and Operational Plan - 30 September 2024 Review

Code	Program Action	Comments	On Target?
HE1.2c	Examine options to improve access on the southern side of Shaws Bay	Initial investigations commenced and discussion with consultant to look at 3D imaging of options to construct a new walkway in this area. Consultation to follow.	
HE1.2d	Implement Lake Ainsworth Coastal Management Plan (CMP)	Master plan developed for the precinct to manage rollout of the CMP. The following actions have been completed: 1, 4, 9, 21. The following actions are underway; 3, 5, 6, 10, 14, 15, 17, 20. Other actions are being planned for as funding allows.	
HE1.2e	Complete and implement North Creek Coastal Management Plan (CMP)	Stage 2 of the North Creek CMP was on hold until the release of the CSIRO LiDAR data which became publicly available on 30 June 2024.  We had a meeting with Hydrosphere and regional rep from DEECW in August 2004, to determine the best way forward.  Hydrosphere is currently undertaking collation and review of CSIRO data to identify any data gaps and if we need to complete additional infill surveys so that Stage 2 can be resumed.	
HE3.1j	Develop and implement an illegal dumping strategy	Strategy developed and currently being implemented. Drink bottle refill stations being installed at sports fields. Fishing tackle bin trial about to begin. Resource Recovery implementing construction and demolition recycling process. Illegal dumping processes continues. Grant opportunities being explored. Trend for illegal dumping is heading down at a rate that suggests we will exceed the 30% reduction target ahead of time.	










### Strategic Planning

Code	Program Action	Comments	On Target?
CC1.1g	Prepare a Public Realm Strategy	The scope of the Public Realm Strategy has changed to incorporate 'movement' as a key component of the public realm due to preparation of an Integrated Transport Plan by Transport for NSW, and the potential for confusion about the role of a separate movement and place strategy. Preparation of a Place and Public Realm Framework is now underway, with project scoping completed and the research and analysis phase proceeding.	









9.15 Delivery Program and Operational Plan - 30 September 2024 Review

Code	Program Action	Comments	On Target?
CC2.1a	Implement the Community Gallery Creative Action Plan	Actions implemented this quarter include building and strengthening creative industry capacity and building arts sector relationships through National Film Organisation - Screenworks occupying Studio 1 in Ignite Studios as long-term tenants. NRCG has exhibited over 50 artists works and public programs at Ignite Studios have engaged 90 artists and facilitators, with regular and increasing independent bookings of Workshop spaces and artist-in-residence spaces, continuing to build audience and programs. The 2025-26 Exhibition Call-Out has occurred, including a well-attended information session. 90 exhibition applications were received and were assessed on 25 September.	
CC2.1f	Examine the feasibility of a Sculpture Trail	A report on the feasibility of a Sculpture Trail for Ballina Shire will be presented to the November 2024 Ordinary meeting.	
CC2.1g	Prepare a Movement and Place Strategy	As an Integrated Transport Plan (ITP) is currently being prepared by Transport for NSW in collaboration with Council, a separate movement strategy is considered unnecessary and potentially confusing. Instead, the Public Realm Strategy will incorporate 'movement' as a key component of the public realm, without replicating projects in the ITP. Also refer to the Public Realm Strategy activity (CC1.1g). There will be no further updates on this activity.	
CC2.2a	Support Council initiated volunteer programs	This quarter has seen a very low participation rate from Gallery Volunteer cohort, with several volunteers recovering from severe illness and others travelling. This resulted in low volunteer numbers. A call out to attract new volunteers to the Gallery has occurred along with an active campaign across social media and NRCG platforms. Planning is in place to deliver two end of year events for volunteers including a creative workshop and end of year gathering.	
CC2.3b	Implement Disability Inclusion Action Plan	Council adopted the Diversity, Equity and Inclusion (DEI) Policy at the June 2024 Ordinary meeting. The Policy references the Equal Employment Opportunity Management Plan, which includes strategies to improve options for people with disability to have better access to employment opportunities. Angels Beach access upgraded. Planning for improved beach access at other locations advancing.	






**9.15 Delivery Program and Operational Plan - 30 September 2024 Review**

Code	Program Action	Comments	On Target?
CC2.3c	Develop an Aboriginal partnership agreement	A draft partnership agreement with Burabi Aboriginal Corporation has been prepared and it is anticipated that it will be presented to Council for consideration this year. A draft agreement with the Jali LALC and other Aboriginal stakeholder groups continues to be a priority.	
CC3.1a	Implement Ageing Strategy	The shared pathway network has been upgraded with improved access to the outdoor gym located at Commemoration Park.	
EL1.2a	Prepare management plan for Hampton Park	A Councillor briefing was held in July 2024 to present the outcomes of the first phase of community engagement about the options for Hampton Park. Based on the engagement outcomes and the briefing with Council a draft Master Plan report is in preparation. It is anticipated the draft plan will be reported to the November or December 2024 Ordinary meeting to seek endorsement for public exhibition.	
EL1.2b	Prepare a management plan for Bicentennial Park	A draft master plan is being prepared. The plan is expected to be presented to the December 2024 Ordinary meeting to seek approval to proceed to public exhibition.	
EL1.2c	Prepare management plan for Serpentine/Pioneer Park/Shaws Bay	Heritage Study of the options for management of the Memorial Monument has been completed. Investigation of options for the whole Serpentine / Pioneer Park / Shaws Bay precinct has commenced.	
EL1.2d	Prepare management plan for Spoonbill Reserve	Work will commence on the Spoonbill Reserve Management Plan in the last quarter of 2024/25.	
HE1.1c	Implement Emissions Reduction Plan	An implementation strategy is being developed by Council's internal Climate Change Action Group, which is overseeing the implementation of the Corporate Emissions Reduction Plan.	
HE1.1d	Prepare and implement a Climate Change Adaptation Plan	The Climate Change Risk and Adaptation Plan is nearing completion.	
HE3.1a	Implement Ballina Major Regional Centre Strategy	Review of completed, advancing and planned actions underway.	

## 9.15 Delivery Program and Operational Plan - 30 September 2024 Review

Code	Program Action	Comments	On Target?
HE3.1b	Implement Wollongbar Strategic Plan	Review of completed, advancing and planned actions underway.	
HE3.1c	Implement Wardell Strategic Plan	Review of completed, advancing and planned actions underway.	
HE3.1d	Implement Alstonville Strategic Plan	Review of completed, advancing and planned actions underway.	
HE3.1e	Implement Lennox Head Strategic Plan	Project funded by the Reconstruction Authority to investigate development of Council land in Hutley Drive for medium density housing supports the implementation of actions 25 and 26 in the Lennox Head Strategic Plan commenced.	
HE3.1f	Maintain Local Environmental Plan (LEP)	The general LEP amendments planning proposal was endorsed at Council's August 2024 Ordinary meeting. A gateway determination has been received and public exhibition will commence in October 2024. The Planning Proposal to rezone land for housing on the western edge of Banyan Hill Estate is expected by November 2024. Several other proponent-initiated proposals are also anticipated before the end of 2024.	
HE3.1g	Review Local Strategic Planning Statement to incorporate updated local growth management strategy	The outcomes of the review of the Local Strategic Planning Statement (LSPS) will be reported to the November 2024 Ordinary meeting with a recommendation that an updated LSPS is placed on public exhibition.	
HE3.1k	Complete Streetscape Master Plan for Newrybar Village	Vee Design and Four-Fold Studio have been engaged to prepare the Newrybar Streetscape Plan. Opportunities and constraints and other site analysis is underway and community engagement to inform the design, including workshops with traders and pop-up market stalls, will commence in the third week of October 2024.	
HE3.1l	Undertake a master planning process for Treelands Reserve and the Kentwell Centre	The project has commenced with initial scoping and review of relevant plans.	

9.15 Delivery Program and Operational Plan - 30 September 2024 Review

Code	Program Action	Comments	On Target?
PE1.2a	Support delivery of commercial and retail shops in the Ballina Heights Estate	Assessment of the development application for the Ballina Heights commercial precinct is progressing. A request for Information has been issued to the proponent for stages 1 and 2 of the proposed commercial area and Council is awaiting a response.	
PE1.3a	Implement economic development strategy	Council adopted an updated Developer Contributions Investment Incentive policy at the July 2024 Ordinary meeting. The policy continues to provide an incentive for targeted developments through a waiver of developer contributions.	
PE3.2c	Implement Housing Strategy including local affordable housing framework	Using funding from the Reconstruction Authority (RA) to support implementation of the Housing Strategy, requests for quotations have been drafted to engage consultants to (1) investigate housing options for Council owned land in Hutley Drive, Lennox Head and (2) review high density housing feasibility in the Ballina CBD area.  Council is also collaborating with Homes NSW and the Reconstruction Authority to undertake an audit of social housing to review potential to increase supply in Ballina and review the availability of underutilised crown land sites for housing.	
PE3.3f	Ensure Development Control Plan (DCP) review examines the mandatory provision of footpaths within subdivisions	The requirement for footpaths in subdivisions has been considered in the review of Chapter 3 of the Development Control Plan, a report on which will be presented to the November 2024 Ordinary meeting of Council.	
PE3.3g	Implement Wardell Town Centre Revitalisation Master Plan	Wardell Village Centre Beautification works are underway.  Pavement art on the pathway along Bridge Drive that was designed at the Wonderful Wardell event has been implemented and a mural on the bridge underpass that connects to the designs on the pathway will be completed by the end of October 2024.	





## **Service Delivery Indicators to 30 September 2024**

**Corporate and Community Division**

**Commercial Services (Airport)**

Service Delivery Indicator	20/21	21/22	22/23	23/24	2024/25 Indicator	30 Sept 2024	On Target Y/N	Comments
Number of passengers for Airport (# pa)	588,400	527,600	632,478	620,440	> 600,000	618,479	●	Annualised figure.
Operating revenue for Airport (\$ pa)	\$7,927,000	\$7,025,000	\$8,821,700	\$8,887,000	> \$9,500,000	\$2,580,300	●	Good result given a tightening aviation market in Australia.
Operating surplus for Airport (30% of revenue)	34%	44%	29%	24%	> 30%	36%	●	Based on operating revenue of \$2.58m and operating expenses of \$1.67m.

**Commercial Services (Property)**

Service Delivery Indicator	20/21	21/22	22/23	23/24	2024/25 Indicator	30 Sept 2024	On Target Y/N	Comments
Maximise revenue generated from Councils commercial properties (\$ pa)	\$1,955,000	\$2,488,500	\$2,573,500	\$2,576,000	> \$2,500,000	\$899,700	●	
Monitor capital works to ensure they are completed on time and within budget (within 20% of budget)	73%	121%	50%	92%	≥ 80% ≤ 120%	14%	●	Civil construction land development projects are approaching completion. Runway upgrade project being finalised.
Operating revenue for Flat Rock Tent Park (\$ pa)	\$441,000	\$369,400	\$554,600	\$571,000	> \$550,000	\$160,000	●	Revenue includes prepayments for Christmas bookings.
Vacancy rate for Council owned commercial properties (%)	0%	0%	0%	0%	< 10%	0%	●	100% occupancy.

9.15 Delivery Program and Operational Plan - 30 September 2024 Review

Communications and Customer Service

Service Delivery Indicator	20/21	21/22	22/23	23/24	2024/25 Indicator	30 Sept 2024	On Target Y/N	Comments
Comply with customer service standards for management of complaints within 15 days (%)	80%	82%	81%	85%	> 80%	50%		Six complaints received. Only 50% responded to within 15 working days.
Enquiries to Visitor Information Centre (# pa)	40,000	33,000	33,168	41,400	> 38,000	10,012		Walk in: 7,431 Phone: 483 Email: 528 Airport: 1,570
Lennox Head Community Hall (Hutley Drive) (Target >20% = 1,000hrs p.a.)	N/A	N/A	N/A	N/A	> 1,000	188		A new facility for the Community Facilities which requires further ongoing promotion to raise its profile and availability. Bookings such as the Local Government Elections, help showcase the hall to the broader community.
Minimise operating deficit for Community Facilities (excluding depreciation) (\$ pa)	\$(997,000)	\$(419,600)	\$(76,900)	\$(293,000)	< \$(440,000)	\$(157,900)		Revenue is on track to meet budget, however annual insurance and licence costs impact the operating deficit this quarter.
Northlakes Community Centre Use (Target >20% = 1,000hrs p.a.)	N/A	N/A	N/A	N/A	> 1,000	279		
Number of attendees at library programs (# pa)	6,164	8,463	12,143	20,400	> 20,000	5,911		
Number of bookings for the Ballina Indoor Sports Centre Courts (>50% = 3,500hrs p.a.)	2,876	2,540	3,816	4,109	≥ 3,500	1,246		

9.15 Delivery Program and Operational Plan - 30 September 2024 Review

Service Delivery Indicator	20/21	21/22	22/23	23/24	2024/25 Indicator	30 Sept 2024	On Target Y/N	Comments
Number of bookings for the Ballina Indoor Sports Centre Meeting Rooms (>45% = 2,000hrs p.a.)	1,131	1,522	2,561	1,912	≥ 2,000	602	●	
Number of bookings for the Ballina Surf Club (>40% =2,500hrs pa)	2,523	5,104	3,531	2,641	≥ 2,500	574	●	The removal of the 50% Government agency discount for bookings in 2024/25, has seen a reduction in overall booking. Coupled with this is the absence of a room divider, which is under construction, and set for installation in November. The larger space is less adaptable for smaller bookings. Bookings for smaller spaces have been redirected to other Council owned community facilities, such as the Ballina Indoor Sports Centre (BISC) Meeting Rooms.  Higher bookings anticipated during summer period.
Number of bookings for the Kentwell Centre (>30% =6,000hrs pa)	4,504	5,540	6,884	6,846	≥ 6,000	1,563	●	
Number of bookings for the Lennox Head Cultural Centre - Auditorium (>35% =1,000hrs pa)	674	587	1,406	699	≥ 1,000	172	●	Similar result to the same quarter last year, typically quieter over the winter months. Anticipated to increase during summer period.
Number of bookings for the Lennox Head Cultural Centre Meeting Rooms (>60% = 8,400hrs pa)	3,090	5,396	9,422	8,298	≥ 8,400	2,431	●	

9.15 **Delivery Program and Operational Plan - 30 September 2024 Review**

Service Delivery Indicator	20/21	21/22	22/23	23/24	2024/25 Indicator	30 Sept 2024	On Target Y/N	Comments
Number of bookings for the Richmond Room (>35% =1,500hrs pa)	781	2,092	2,839	1,530	≥ 1,500	414		
Number of enquiries at the library (door count # pa)	13,380	6,995	13,151	187,800	> 180,000	43,717		Slightly below target
Number of grant applications submitted (total Council) (#)	27	23	30	29	> 25	4		Two significant grant applications for a total value of \$52m, have been lodged for the Hutley Drive Extension (South) and the Fishery and Canal Bridge duplications.
Number of visits to Council website (#)	393,000	660,200	489,047	521,000	> 450,000	154,291		Peak period for visits and interactions with the Council website was during the election period, especially 14 September.
Number of visits to tourism website (# pa)	141,000	105,000	119,996	135,000	> 120,000	38,244		.
Percentage of customer requests dealt with effectively and promptly (% within allocated timeframe)	N/A	N/A	N/A	91%	> 90%	94%		Received 3,155 requests with 2,965 actioned within the relevant target timeframes
Proportion of satisfied visitors to Ballina Visitor Information Centre (%)	100%	98%	100%	99%	> 98%	99%		.
Total library loans (# pa)	325,491	237,764	332,741	352,600	> 330,000	92,232		
Total library membership for Ballina Shire (excluding inactive for three years) (#)	19,818	21,251	19,664	19,400	> 20,000	19,496		Improvement on previous year's results.



9.15 Delivery Program and Operational Plan - 30 September 2024 Review

Facilities and Services Management


Service Delivery Indicator	20/21	21/22	22/23	23/24	2024/25 Indicator	30 Sept 2024	On Target Y/N	Comments
Increase renewable energy generated on Council sites (kW pa)	700	956	1,120	1,153	> 1,200	1,153	●	The slight improvement is due to the Ballina War Memorial Swimming pool having the existing 67 kW solar system upgraded to a 99.9 kW system. Plans are currently underway to increase the size of the solar system at the Ballina Wastewater Treatment Plant.
Maximise operating surplus from fleet operations (excluding depreciation) (\$ p.a.)	\$1,881,000	\$2,300,000	\$1,997,200	\$1,532,000	> \$2,000,000	\$314,000	●	Number of annual payments made in first quarter
Minimise light fleet greenhouse gas (CO2) emissions (av. grams per km)	193	192	191	197	< 200	195	●	.
Minimise operating deficit for the swimming pools (excluding depreciation and loan interest) (\$ pa)	\$(289,000)	\$(308,000)	\$287,100	\$(259,000)	< \$(240,000)	\$(188,700)	●	This deficit is due to the servicing of the plant room pool filters at both the Ballina and Alstonville pools.
Number of swimming pool patrons (# per annum)	257,597	228,000	272,495	279,000	> 280,000	49,044	●	On track to meet annual target as numbers increase in warmer months.
Reduce CO2 emissions from Council's built assets (# tonnes)	9,405	8,428	7,385	9,450	< 8,000	1,765	●	Now using a more sophisticated software system for analysing energy data resulting in better data.
Reduce the energy consumption from Council's built assets (MWh)	9,400	9,915	9,348	9,675	< 9,000	2,545	●	

## 9.15 Delivery Program and Operational Plan - 30 September 2024 Review


### Financial Services

Service Delivery Indicator	20/21	21/22	22/23	23/24	2024/25 Indicator	30 Sept 2024	On Target Y/N	Comments
Investment returns greater than 90-day bank bill rate (# basis points above benchmark)	89	31	5	76	> 50	83		
Minimise the value of store stock control bin errors (\$)	\$(3,140)	\$5,860	\$(4,167)	\$(9,121)	< \$500	\$(4,037)		Partial stocktake completed with a write off of \$4,037. Discrepancy mainly due to the receipt of silt bags to an incorrect stock number. Once corrected, the discrepancy was \$132.






### Governance

Service Delivery Indicator	20/21	21/22	22/23	23/24	2024/25 Indicator	30 Sept 2024	On Target Y/N	Comments
Number of insurance claims (# pa)	27	24	19	31	< 30	9		Trending higher although claims are typically not received in a linear form.

### Information Services

Service Delivery Indicator	20/21	21/22	22/23	23/24	2024/25 Indicator	30 Sept 2024	On Target Y/N	Comments
Percentage of employee requests for technology assistance addressed within one working day (%)	87%	81%	81%	80%	> 85%	77%		1,935 out of a total of 2,527 support requests closed with one day.




People and Culture

Service Delivery Indicator	20/21	21/22	22/23	23/24	2024/25 Indicator	30 Sept 2024	On Target Y/N	Comments
Average number of days sick leave per employee (# days pa)	9	9.80	9	10	< 9	10		Cold and flu season contributed to these figures.
Hours of lost time due to workers' compensation claims (# hours pa)	586	781	593	389	< 1,000	457		Majority due to two significant claims. The insurer is still working through their process in relation to making a liability decision for these claims. Without these two claims, where liability has not been decided, the lost time injury hours are 62.
Number of workers' compensation claims (# pa)	19	18	15	23	< 20	4		
Percentage of staff turnover per year (%)	6.02%	12%	17%	13%	< 15%	13%		.
Percentage of staff undertaking formal training per year (%)	100%	94%	96%	89%	> 80%	19%		The corporate training plan is being finalised that includes various corporate, statutory, legislative, work health and safety training.



**Civil Services Division**

**Assets Management and Resource Recovery**

Service Delivery Indicator	20/21	21/22	22/23	23/24	2024/25 Indicator	30 Sept 2024	On Target Y/N	Comments
Increase kerbside recycling diversion rates (%)	56%	60%	58%	57%	> 59%	56%		Seasonal fluctuations in kerbside organics volumes during winter skew the diversion rate lower for this period. We are also seeing an unexplained slow decline in diversion rates which is separate to this seasonal fluctuation. The resource recovery team is currently trialing a reviewed collection service regime in the rural areas by reducing landfill bin collection to a fortnightly service and promoting home composting and improved recycling behaviours. The results of the trial will inform changes to the greater rural collection service in an attempt to improve diversion rates of this sector which has historically shown to deliver poorer diversion result compared to our urban areas.
Reduce missed kerbside bin services (# per month)	24	17	8	8	< 27	8		The performance under the new contract is very favourable compared to the target
100% compliance licence reports for waste submitted within 30 days of quarter (%)	N/A	100%	100%	100%	= 100%	100%		

9.15 Delivery Program and Operational Plan - 30 September 2024 Review

Engineering Works







Service Delivery Indicator	20/21	21/22	22/23	23/24	2024/25 Indicator	30 Sept 2024	On Target Y/N	Comments
Minimise operating deficit for the Burns Point Ferry (excluding depreciation) (\$ pa)	\$(60,000)	\$(460,500)	\$(442,000)	\$(532,000)	< \$(520,000)	\$(31,500)	●	Currently tracking well and limited reactive maintenance required. Slip to occur in November.
Monitor capital works to ensure they are completed on time (within 20% of budget)	80%	80%	95%	82%	≥ 80% ≤ 120%	12%	●	The capital works program is on track with large construction costs expected later in the financial year. Design and preliminary activities have been completed on several large budget projects, with delivery due to commence early in 2025
Monitor operating budgets to comply with approved funding (within 5% of budget)	96%	90%	98%	98%	≥ 95% ≤ 105%	22%	●	Operating costs are tracking under the expected levels for the first quarter

Infrastructure Planning










Service Delivery Indicator	20/21	21/22	22/23	23/24	2024/25 Indicator	30 Sept 2024	On Target Y/N	Comments
Percentage of development application referrals completed within 21 days (%)	63%	70%	76%	64%	> 70%	67%	●	Processing times are good, albeit just below target.

9.15 Delivery Program and Operational Plan - 30 September 2024 Review

Water and Wastewater








Service Delivery Indicator	20/21	21/22	22/23	23/24	2024/25 Indicator	30 Sept 2024	On Target Y/N	Comments
100% compliance licence reports for water and wastewater submitted within 30 days of quarter (%)	100%	100%	100%	100%	= 100%	100%		
Average water consumption per residential connection (# kl/pa)	154	148	139	153	< 160	128		
Level of compliance with Environmental Protection Licence Concentration Limits (%)	99%	98%	97%	100%	= 100%	99%		Lennox Head WWTP - 100%. Wardell WWTP - 100%. Alstonville WWTP - 100%. Ballina WWTP - 96%. One minor instance where sampling for oil and grease exceeded limits.
Maximise percentage of Recycled Water Reticulation Monitoring Compliance in Ballina and Lennox Head (Chemical and Physical) (% with AGWR)	100%	100%	98%	100%	= 100%	100%		
Maximise percentage of Recycled Water Reticulation Monitoring Compliance in Ballina and Lennox Head (Microbial) (% with AGWR)	100%	99%	100%	100%	= 100%	100%		
Minimise number of notifiable pollution incidents triggering formal regulatory response (#)	0	6	0	6	= 0	3		Three rainfall events triggering overflows from the storm ponds at the Wastewater Treatment Plants. Pollution Incident Response Management Plan (PIRMP) prepared for each event and reported to the EPA accordingly.

9.15 Delivery Program and Operational Plan - 30 September 2024 Review

Service Delivery Indicator	20/21	21/22	22/23	23/24	2024/25 Indicator	30 Sept 2024	On Target Y/N	Comments
Minimise number of notifiable Recycled Water Health Incidents at WWTPs (#)	3	1	0	0	= 0	0		
Monitor capital works to ensure they are completed on time and within budget (within 20% of budget)	71%	62%	79%	80%	≥ 80% ≤ 120%	15%		Water at 12% and Wastewater at 16%.
Monitor operating budgets to comply with approved funding (within 5% of budget)	98%	95%	95%	90%	≥ 95% ≤ 105%	23%		Wastewater at 21% and Water at 25%.
Number of unplanned water supply interruptions greater than four hours in duration (#)	1	4	0	0	= 0	1		Significant break in Winton Lane. Six metres of water main had to be replaced to fix the problem.
Percentage of drinking water reticulation monitoring compliance with ADWG (Chemical and Physical) (%)	100%	100%	100%	100%	= 100%	100%		
Percentage of drinking water reticulation monitoring compliance with ADWG (Microbial) (%)	100%	100%	100%	100%	= 100%	100%		
Percentage of fire hydrants inspected per annum (%)	32%	42%	44%	36%	> 50%	6%		240 hydrants inspected out of approx. 4,160. Resourcing to be reviewed.
Recycled water during dry weather (% ADWF)	N/A	13%	9%	3%	> 20%	6%		Ability to produce recycled water impacted by chlorine dosing system.
Reduce water main breaks (# per 30km of main)	1	1	0	1	< 1	0		Actual result was 2 breaks for our 435km of water main = 0.14/30km.

**Planning and Environmental Health Division**

**Development Services**

Service Delivery Indicator	20/21	21/22	22/23	23/24	2024/25 Indicator	30 Sept 2024	On Target Y/N	Comments
Number of Section 68 Approvals issued for plumbing and drainage work (# pa)	521	464	498	320	> 450	102		102 section 68 plumbing and drainage approvals were issued during this period. Most of these approvals for plumbing and drainage work require at least two inspections.
Percentage of applications determined under delegated authority (%)	N/A	99%	99%	98%	> 95%	97%		
Percentage of building information certificates determined within 20 working days (%)	84%	77%	43%	34%	> 90%	26%		8 out 30 building information certificates were issued within 10 working days.
Percentage of complying development certificates issued within 10 working days (%)	35%	40%	0%	87%	> 80%	0%		There were no complying development certificates submitted during this quarter.
Percentage of construction certificates issued by Council (% of market)	46%	42%	30%	31%	> 50%	27%		74 construction certificates were issued during the first quarter. 20 or 27% were issued by Council.
Percentage of Section 10.7 certificates issued within four days of receipt (%)	95%	95%	94%	96%	> 90%	91%		
Time taken to determine development applications (excluding integrated development) (# days)	48	108	172	177	< 60	144		Improved average processing times for development applications, reflecting staff efforts to build capacity and enhance efficiencies, including work with Council's consultants.

## 9.15 Delivery Program and Operational Plan - 30 September 2024 Review

### Open Spaces

Service Delivery Indicator	20/21	21/22	22/23	23/24	2024/25 Indicator	30 Sept 2024	On Target Y/N	Comments
Monitor capital works to ensure they are completed on time and within budget (within 20% of budget)	55%	89%	70%	71%	≥ 80% ≤ 120%	9%	●	Works continuing on NSW Government Capital Assistance Program and Crown Land Flood Recovery Program grant funded projects,
Monitor operating budgets to comply with approved funding (within 5% of budget)	106%	96%	108%	107%	≥ 95% ≤ 105%	24%	●	Expenditure within budget range.
Number of events approved by Council (#)	12	15	22	80	> 40	24	●	Community events successfully held this quarter include Skull Candy OzGrom Surfing, Dragon Boat Regatta and "Folded" skate/music event (Ballina).
Number of filming approvals in accordance with NSW Filming Protocol (# pa)	N/A	4	10	43	> 20	8	●	Minor, small scale approvals only this quarter.


### Public and Environmental Health

Service Delivery Indicator	20/21	21/22	22/23	23/24	2024/25 Indicator	30 Sept 2024	On Target Y/N	Comments
High risk commercial premises audited (> 2 p.a.)	36	25	21	22	≥ 2	4	●	
Non-compliance with National Health and Medical Research Council drinking water standards (#)	0	1	0	0	= 0	0	●	




9.15 Delivery Program and Operational Plan - 30 September 2024 Review

Service Delivery Indicator	20/21	21/22	22/23	23/24	2024/25 Indicator	30 Sept 2024	On Target Y/N	Comments
Number of high-risk school zones patrolled (# pa)	N/A	70	68	60	> 36	51	●	
Number of On-Site Sewage Mgmt (OSSM) System Approvals to Install issued (# pa)	89	69	72	65	> 50	24	●	
Number of On-Site Sewage Mgmt (OSSM) Systems Approvals to Operate issued (# pa)	388	299	202	135	> 150	48	●	
Number of On-Site Sewage Mgmt (OSSM) Systems inspected per annum (# pa)	150	109	298	304	> 200	67	●	
Percentage of barking dog complaints responded to within seven days (%)	100%	98%	96%	97%	= 100%	100%	●	
Percentage of drinking water sites monitored per week (%)	100%	100%	100%	100%	= 100%	100%	●	
Percentage of food premises audited per year (%)	93%	79%	100%	100%	= 100%	25%	●	
Percentage of public pools (as defined in the Public Health Act) monitored for water quality (% pa)	100%	80%	100%	100%	= 100%	0%	●	Program does not commence until October each year.
Percentage of reported dog attacks responded to within 48 hours (%)	95%	96%	98%	99%	= 100%	97%	●	

9.15 Delivery Program and Operational Plan - 30 September 2024 Review

Service Delivery Indicator	20/21	21/22	22/23	23/24	2024/25 Indicator	30 Sept 2024	On Target Y/N	Comments
Percentage of semi-public pools monitored for water quality (% pa)	100%	60%	100%	100%	≥ 33%	0%		Program does not commence until October each year.

**Strategic Planning**

Service Delivery Indicator	20/21	21/22	22/23	23/24	2024/25 Indicator	30 Sept 2024	On Target Y/N	Comments
Level of engagement to Northern Rivers Community Gallery online platforms (# pa)	28,000	24,000	34,000	73,000	> 400,000	53,100		Website visits this quarter are 171% higher than this quarter last year. Analytics indicate high engagement numbers with the exhibition call out on the Gallery website and social media platforms. Instagram numbers are 20% higher than this time last year indicating steady audience growth.
Minimise operating deficit for the Community Gallery (excluding depreciation) (\$ pa)	\$(337,000)	\$264,000	\$(270,500)	\$(310,000)	< \$(350,000)	\$(87,300)		Gallery budgets are 27% higher compared to last year's first quarter due to the \$20K upgrade to CCTV being allocated to Gallery Security budget.
Number of visitors to the Northern Rivers Community Gallery (# pa)	10,976	8,010	11,677	15,100	> 16,000	3,287		Gallery visitation numbers continue to remain constant and a little below target.



# Vegetation Management Plan

## Wollongbar Reserves



Report prepared for Ballina Shire Council

March 2024



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**DOCUMENT CONTROL**

Revision	Date	Description	Prepared	Reviewed
DRAFT	19 October 2022	Draft VMP Wollongbar Reserves	S.Pimm / A. McKinley	R.James
DRAFT 2	19 December 2022	Vegetation Management Plan Wollongbar Reserves	S.Pimm	R.James
FINAL DRAFT	23 May 2023	Vegetation Management Plan Wollongbar Reserves	S.Pimm	R.James
FINAL DRAFT V2	20 March 2024	Vegetation Management Plan Wollongbar Reserves	R.James & V.Lopez	R.James
FINAL	27 March 2024	Vegetation Management Plan Wollongbar Reserves	R. James and V. Lopez	R. James

**DISCLAIMER**

This report is prepared by Bushland Restoration Services Pty Ltd for Ballina Shire Council purposes only. No responsibility is accepted for the use of or reliance upon this report in whole or in part by any third party.

This report is prepared with information supplied by the client and on information obtained using accepted survey and assessment methodology as described in the report.

While due care was taken during field survey and report preparation, no responsibility is accepted for information that is withheld, incorrect or that is inaccurate. This report has been compiled at the level of detail specified in the report and no responsibility is accepted for interpretations made at more detailed levels than so indicated.



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### EXECUTIVE SUMMARY

Ballina Shire Council (BSC) contracted Bushland Restoration Services to prepare a Vegetation Management Plan (VMP) for vegetated public reserves at Wollongbar (**Figure 1**). The overall site is approximately bounded by the Bruxner Highway in the southeast, Sneaths Road in the west and north and Pearces Creek Road in the east (**Figure 2**).

This VMP discusses a variety of previous restoration and offset plans which relate to distinct parts of the overall site. Appropriate actions and recommendations from these previous plans have been incorporated into this current plan. This VMP is intended to be used to guide the restoration of the various bushland reserves, proposed to be implemented using a combination of Landcare volunteers, industry professionals, Council staff and local residents.

The overall site is of high environmental value and includes:

- An Endangered Ecological Community (Lowland Rainforest) listed under the NSW *Biodiversity Conservation Act 2016* and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*, representing part of the former 'Big Scrub' Rainforest.
- Threatened flora species listed under both Acts listed above.
- Mapped 'High Biodiversity Value' on the Biodiversity Values Map (authorised by the *Biodiversity Conservation Act 2016*) along Willowbank Creek (Site 13).
- A wide variety of contiguous and fragmented vegetation and habitat types, ranging from lowland rainforest and riparian zones to managed parkland.

This plan addresses these values and provides details as to restoration actions to be carried out to improve habitat for flora and fauna. It will also add to conservation and restoration information available to local residents.

The subject site is divided into fifteen reserves owned and managed by Ballina Shire Council (primarily as Community Land), with a total area of 20.8ha. The reserves range in size from 169m<sup>2</sup> in Elvery Road Reserve to the 5.2ha Wollongbar Rainforest Reserve.

This plan divides the overall site into management zones and provides detailed vegetation restoration actions and recommendations, including identifying and providing control measures for the invasive weed species throughout the subject site. Subtropical Rainforest is the most prevalent and important vegetation community within the VMP area and rehabilitation planting species lists are provided for revegetation of suitable cleared areas.

## 1. INTRODUCTION

This Vegetation Management Plan (VMP) has been prepared for the management of vegetated public Council-owned reserves at Wollongbar. The overall site is approximately bounded by the Bruxner Highway in the southeast, Sneaths Road in the west and north and Pearces Creek Road in the east.

The area subject to this Vegetation Management Plan is divided into fifteen reserves with a total area of 20.8 hectares. The reserves range in size from 169m<sup>2</sup> in Elvery Road reserve to the 5.2ha Wollongbar Rainforest Reserve. A number of the sites are adjacent sports fields or within drainage reserves. This VMP is an upgrade of several existing vegetation management and rehabilitation plans into the one single plan, with incorporation of additional new sites.

### 1.1 Location

The subject sites are in the town of Wollongbar within Ballina Shire, northwest of Ballina and Alstonville and east of Lismore.

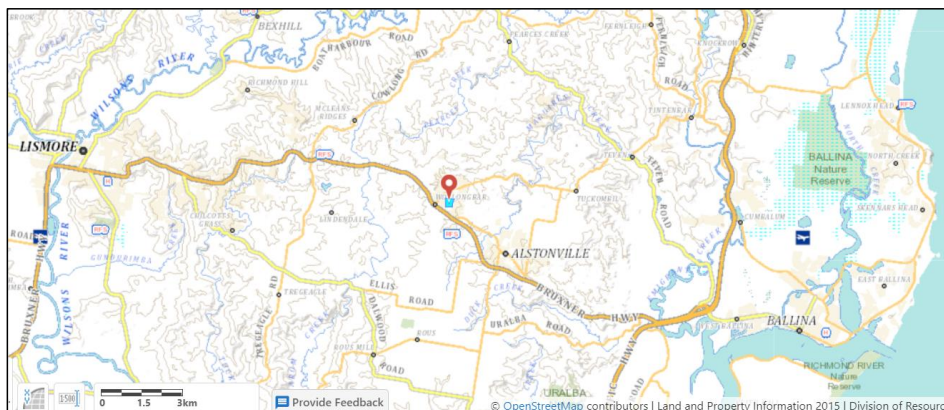


Figure 1: The general location of the reserves is shown by the red arrow above.

### 1.2 Aims and Objectives

The aims of this Vegetation Management Plan are to improve the condition of retained vegetation and fauna habitat, and to inform and educate local residents as to the reserve values.

The primary objectives as detailed in the brief are:

- Conduct a site assessment and an ecological survey for vegetation community boundaries, species and lists/ maps.
- Determine VMP zonings and restoration actions to guide both contractors and volunteers.
- Determine aims and objectives to achieve the established target condition and restoration goals.
- Identify all suitable planting areas including size of area, species and planting list.
- Address fauna habitat improvement considerations for ongoing restoration efforts.
- Address all weed species identification, issues and control measures.
- Address vegetation management and related issues.
- Recommend suitable species for revegetation.
- Address all current and relevant legislation.
- Address Aboriginal cultural heritage management.
- Address infrastructure management, including upgrades and visitor facilities where relevant.



Wollongbar Reserves Vegetation Management Plan

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- *Address track management and pedestrian infrastructure.*
- *Address monitoring and record keeping.*
- *Consider all existing plans and relevant documents.*
- *Consider all public events and other anthropological uses of the sites.*
- *Form the basis for Council planning approval prior to implementation.*

The VMP will be used to guide the restoration of the various bushland reserves with a combination of Landcare volunteers, industry professionals, Council staff and residents implementing the plan. It will also consider public reserve use and infrastructure provisions where appropriate.



**Plate 1:** Remnant and planted vegetation occur amongst residential development.



**2. PROJECT AREA DESCRIPTION**

**2.1 Property Details**

The fifteen reserves which make up the subject site have each been given a number and name for easy identification (see **Table 1** and **Figure 2** below). All sites are on Ballina Shire Council-owned land, classified as Community Land, apart from the drainage reserves (Operational Land) and linear areas along road reserves.

**Table 1 - Site property details**

Map Number	Site name	Area (ha)	Real Property Description	BSC 2012 Local Environment Plan Land Zoning	BSC 1987 Local Environment Plan Land Zoning
1	Site 1: Bruxner Highway Buffer	0.5878	Part Lot 18 DP 1059476 Lot 8 DP 814058 Lot 9 DP 814058	1a, 1c: RE1 Public Recreation. 1b: DM Deferred Matter	Unzoned (UZ)
2	Site 2: Lismore Road/ Kays Lane	1.0471	Part Lot 18 DP 1059476	DM Deferred Matter	7 (i) Environmental Protection – Urban Buffer
3	Site 3: County Court Public Reserve	0.374	Lot 84 DP 810223	RE1 Public Recreation	Non applicable
4	Site 4: Wollongbar Rainforest Reserve	5.1598	Lot 105 DP 807798 Lot 127 DP 814523	RE1 Public Recreation	Non applicable
5	Site 5: Wollongbar Drainage Reserve	1.1241	Part Lot 65 DP 786758	RE1 Public Recreation	Non applicable
6	Site 6: Rubiton Park	0.2426	Part Lot 65 DP 786758 Part Lot 267 DP 1209571	RE1 Public Recreation	Non applicable
7	Site 7: Cerreto Circuit Reserve	0.0631	Lot 113 DP 814523	RE1 Public Recreation	Non applicable
8	Site 8: Lyle Park	1.4984	Part Lot 106 DP 807798	RE1 Public Recreation	Non applicable
9	Site 9: Wollongbar Sports Fields	5.3446	Part Lot 2 DP 1168781	DM Deferred Matter	7(i) Environmental Protection – Urban Buffer
10	Site 10: Elvery Lane Road Reserve	0.1692	Road Reserve Elvery Lane	DM Deferred Matter	7(i) Environmental Protection – Urban Buffer
11	Site 11: Western Reserve Wollongbar Residential Estate (Kurrabri)	3.1227	Lot 94 DP 1262196 Lot 183 DP 1232965 Lot 101 DP 1212282	DM Deferred Matter, R3 Medium Density Residential, RE1 Public Recreation	7(d) Environmental Protection – Scenic/Escarpment.
12	Site 12: North Reserve Wollongbar Residential Estate (Mt Moriah)	1.4045	Lot 182 DP 1232965 Part Lot 21 DP 1203362	R2 Low Density Residential, R3 Medium Density Residential, DM Deferred Matter	7(d) Environmental Protection – Scenic/Escarpment.
13	Site 13: Eastern Reserve Wollongbar Residential Estate	0.3649	DP 1203362	R2 Low Density Residential, DM Deferred Matter,	7(d) Environmental Protection – Scenic/Escarpment.
14	Site 14: South-eastern Reserve Wollongbar Residential Estate	0.1306	DP 1203362	DM Deferred Matter	7(d) Environmental Protection – Scenic/Escarpment.
15	Site 15: Wollongbar District Park	0.1548	Part Lot 45 DP 1242246 Part Lot 130 DP 1276352	15a: R2 Low Density Residential, 15b: RE1 Public Recreation	Non applicable
	<b>TOTAL AREA</b>	<b>20.79ha</b>			





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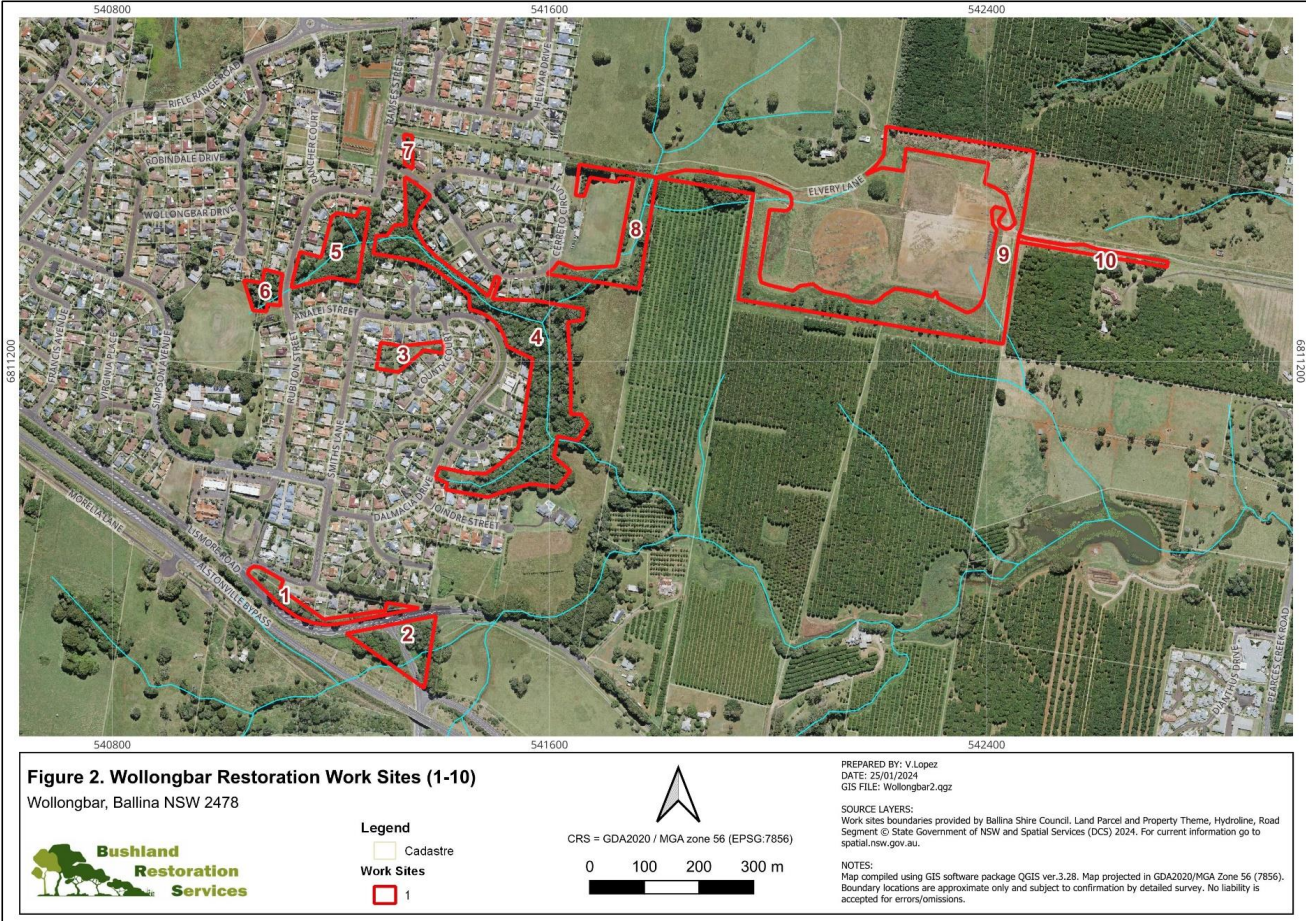


Figure 2. Restoration Work Sites 1 to 10.



Wollongbar Reserves Vegetation Management Plan

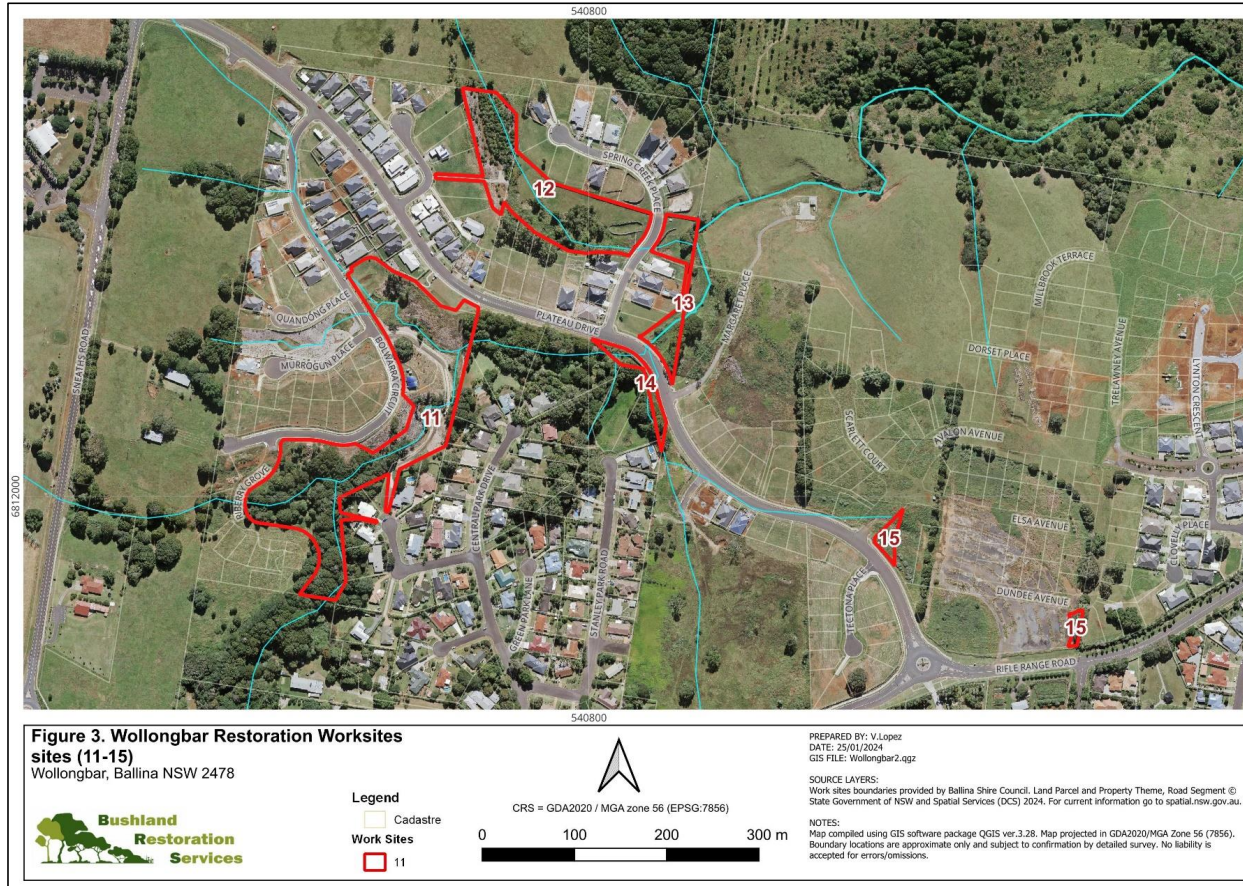


Figure 3. Restoration Work Sites 11 to 15.

### **2.2 Land use zoning**

All land use classifications for sites 1 – 15 are sourced from the Ballina Shire Council Local Environmental Plan (LEP) 2012, which are shown in **Table 1**. Where the lot is classified as DM 'Deferred Matter', the zoning from the BSC Local Environmental Plan 1987 applies.

Under the BSC LEP 1987, the DM parcels were zoned 7(d) Drainage and 7(l) Environmental Protection (Habitat) at the Wollongbar Sports Fields. This latter area is now being used in part to house victims of the 2022 flood.

### **2.3 Site Access**

Sites are easily accessed by a two-wheel drive vehicle to each of the reserves from the adjacent sealed roads.

### **2.4 Topography, Geology and Soils**

The geology of all sites arises from Lismore Basalts of the Lamington Volcanics, being Tertiary basalt with bole and minor agglomerate, giving rise to fertile red ferrosol soils with a high clay content. Topography of the area consists of low rolling hills within the Alstonville Plateau.

Soils found in all sites are considered Ferrosols under the Australian Soil Classification. Most of the area of sites 1, 2, 3, 6, 9 and 15 occur on the Wollongbar soil landscape of Morand (1996). Soils are mostly deep (>200 cm), well-drained Ferrosols (Gn3.11, Gn4.11, Uf5.22) with shallower (80 -150 cm), stonier Ferrosols (Gn3.11, Gn4.11, Uf5.22) on crests and upper slope boundaries and wet alluvial Ferrosols (Uf5, Uf6) in drainage lines.

All other sites are located on the Bangalow soil landscape with moderately deep to deep (100->200 cm), well drained Ferrosols and brownish red Ferrosols (Uf5.21, Uf5.22, Gn3.11, Gn4.11), with poorly drained alluvial Ferrosols in drainage lines.

### **2.5 Vegetation Overview**

The work sites show four primary vegetation types:

1. Subtropical Rainforest
2. Established rainforest plantings
3. Planted Rainforest
4. Garden Plantings/ lawn

Detailed vegetation descriptions are contained in **Section 7** and illustrated on **Figure 11**.

Additional planted species and garden beds occur around the boundaries with residential dwellings.



Wollongbar Reserves Vegetation Management Plan

**3. RELATED ENVIRONMENTAL LEGISLATION**

**3.1 Federal Legislation - Environmental Protection and Biodiversity Conservation Act (EPBC) 1999**

The Protected Matters Search Tool under the *Environmental Protection & Biodiversity Conservation Act 1999 (EPBC Act)* for an area of 10km x 10km centred on the subject site indicates potential for 4 threatened ecological communities and 56 threatened species.

<a href="#">World Heritage Properties:</a>	None
<a href="#">National Heritage Places:</a>	None
<a href="#">Wetlands of International Importance (Ramsar)</a>	None
<a href="#">Great Barrier Reef Marine Park:</a>	None
<a href="#">Commonwealth Marine Area:</a>	None
<a href="#">Listed Threatened Ecological Communities:</a>	4
<a href="#">Listed Threatened Species:</a>	56
<a href="#">Listed Migratory Species:</a>	15

One Critically Endangered Ecological Community (CEEC) listed under the EPBC Act occurs on site, being:

- *Lowland Rainforest of Subtropical Australia*. The large Rainforest remnant known as Wollongbar Rainforest Reserve (Site 4) is likely to meet the guidelines for the Commonwealth EPBC Act listing.

EPBC-listed Threatened Flora recorded within the subject site include:

- The Critically Endangered Scrub Turpentine *Rhodamnia rubescens* (Site 4, 11 and 12).
- The Critically Endangered Smooth Scrub Turpentine *Rhodamnia maideniana* (Site 4 and 12).
- The Endangered Davidson’s Plum *Davidsonia jerseyana* (Site 9).
- The Vulnerable species Coolamon *Syzygium moorei* (Site 4).
- The Vulnerable species Magenta Lilly Pilly *Syzygium paniculatum* (Site 4).
- The Vulnerable species Red Lilly Pilly *Syzygium hodgkinsoniae* (Site 2).
- The Vulnerable species Rough-shelled Bush Nut *Macadamia tetraphylla* (Site 4).

Both of the Critically Endangered species listed above were affected by Myrtle Rust. One other Critically Endangered species Native Guava *Rhodomyrtus psidioides* previously recorded in Sites 11 and 12 was not found within either site, and is assumed to have succumbed to the rust fungus.

Fauna species listed under the EPBC Act previously recorded in the study area are:

- The Koala *Phascolarctos cinereus* (combined populations of Queensland, New South Wales and the Australian Capital Territory) - listed as Endangered. Given that each of the sites investigated for this plan consisted of rainforest species, the Koala is not likely to rely on any of the sites.

**3.2 NSW Biodiversity Conservation Act 2016 (BC Act)**

A small part of the sites along Willowbank Creek (Sites 13 and 14) is mapped as **High Biodiversity Value** (purple on the map below representing 'biodiverse riparian land') on the Biodiversity Values (BV) Map. Removal of native vegetation in the mapped area would require entry into the NSW Biodiversity Offsets Scheme. No clearing of native vegetation is proposed within the mapped BV area. The site is not within an Area of Outstanding Biodiversity Value.

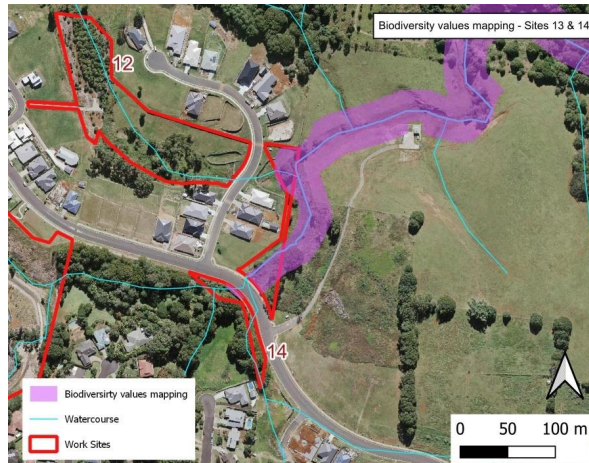


Figure 4: Biodiversity Values map extract. Purple shading indicates 'biodiverse riparian land'.

**Endangered Ecological Communities**

One Endangered Ecological Community (EEC) listed under the BC Act is present on site:

- *Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions* is listed as an Endangered Ecological Community and occurs at Sites 2, 4, 11 and 12. Any removal of native vegetation would require an Assessment of the Significance of the loss. Bush regeneration works concentrate on removal of exotic species and such work is exempt.

**Threatened Flora**

Six threatened flora species were recorded during current survey of the project area – Rough-shelled Bush Nut, Davidson’s Plum *Davidsonia jerseyana*, Magenta Cherry *Syzygium paniculatum*, Arrowhead Vine *Tinospora tinosporoides*, Scrub Turpentine *Rhodamnia rubescens* and Smooth Scrub Turpentine *Rhodamnia maideniana* - within rainforest communities on the site. One threatened species Fine-leaved Tuckeroo *Lepiderema pulchella* has been planted within the biological buffer to Wollongbar Sports Fields and is outside the known range of the species, which is found north of Brunswick Heads, with most records in NSW from the Tweed Valley.

**Threatened Fauna**

The VMP project area provides vegetation community types dominated by rainforest that together support a range of habitat types for native fauna, including threatened species. Movement opportunities for fauna through the study area are limited by fragmentation of native vegetation, cleared lands, residential development and roads. Nectivores and frugivores such as Rose-crowned Fruit Dove *Ptilinopus regina* and Superb Fruit Dove *Ptilinopus superbus* and Grey-headed Flying-fox *Pteropus poliocephalus* are likely to use Subtropical Rainforest.





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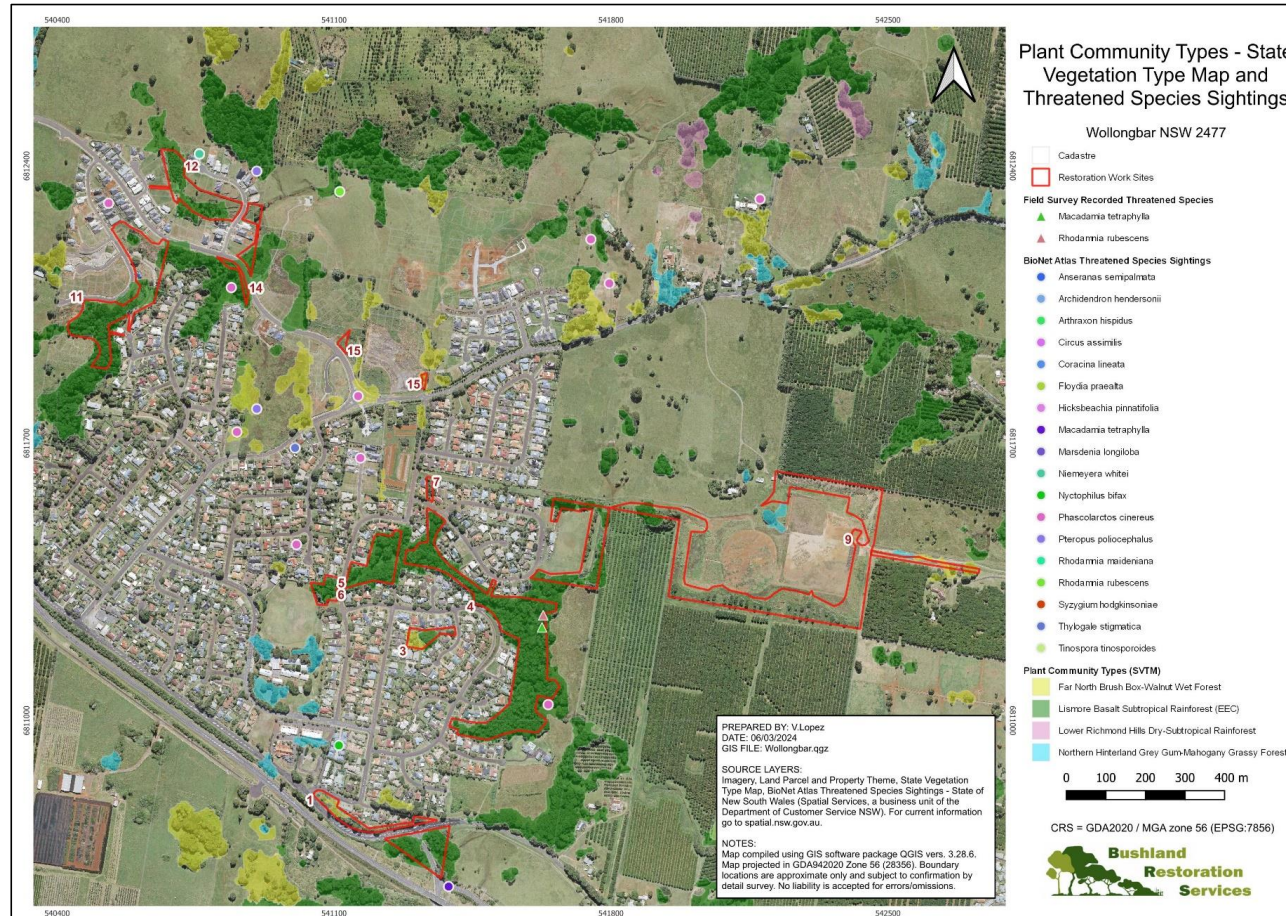


Figure 5: Plant Community Types and Threatened Species Sightings Map.

**3.3 State Environmental Planning Policy (Resilience and Hazards) 2021**

The site does not include any vegetation mapped as 'Coastal Wetland', 'Littoral Rainforest' or 'proximity areas'.

**3.4 State Environmental Planning Policy (Environment and Conservation) 2022**

Chapter 4 Koala Habitat Protection 2021 applies to development applications in urban and environmental zones, including Recreation, Residential zones and Environmental Protection zones, which includes 'Deferred Matter' areas not yet defined as an LEP zone. Where the land parcel has an area of at least 1 hectare (including adjoining land within the same ownership) and does not have an approved koala plan of management applying to the land, assessment to determine whether any development is likely to have any impact on koalas or koala habitat is required.

Although scattered BioNet records of Koalas occur in the local Wollongbar area, only Site 5 contained a Preferred Koala Food Tree, being Swamp Mahogany *Eucalyptus robusta* and this had been planted at the site. The reserves generally do not include any trees belonging to the koala use tree species listed in Schedule 3 for the North Coast koala management area and the subject site is not core koala habitat.

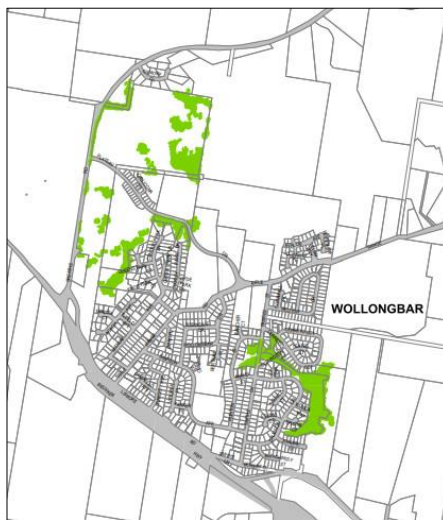
**3.5 Ballina Local Environmental Plan**

The sites are variously zoned as RE1 Public Recreation and Deferred Matter under Ballina LEP 2012, reverting to 7(d) Scenic Escarpment under Ballina LEP 1987. None of the subject sites are currently included in the draft Conservation zones proposed as LEP updates.

**3.6 Ballina Development Control Plan 2012 (DCP)**

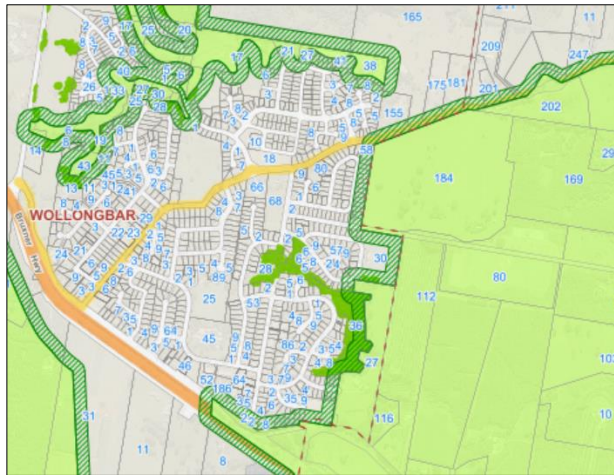
Ballina DCP 2012 maps parts of the subject site as:

- Significant Urban Bushland – to be protected. This is mapped over Sites 4, 5, 11, 12 and 13.
- Natural Areas and Habitat - where any development must demonstrate a net environmental benefit. This is mapped over sites 1, 2, 11, 12, 13 and 14, along with 50m buffers surrounding the native vegetation on these sites. It is also mapped over Site 4 (buffer on the eastern side), Site 8 (buffer surrounding Lyle Park), Site 9 (Natural Area now sports fields with planted vegetation) and 10 (Natural Area now a road reserve).



**Figure 6:** Significant Urban Bushland is mapped as lime green and includes Sites 4, 5, 11, 12 and 13.

Wollongbar Reserves Vegetation Management Plan



**Figure 7:** Natural Area and Habitat is mapped as light green, with the 50m buffer shown as green hatching.

**3.7 Ballina Koala Plan of Management**

The project area is not mapped as any of the following categories under the *Ballina Shire Council Koala Management Strategy 2016* – Important population, Core Koala Habitat or Preferred Koala habitat.



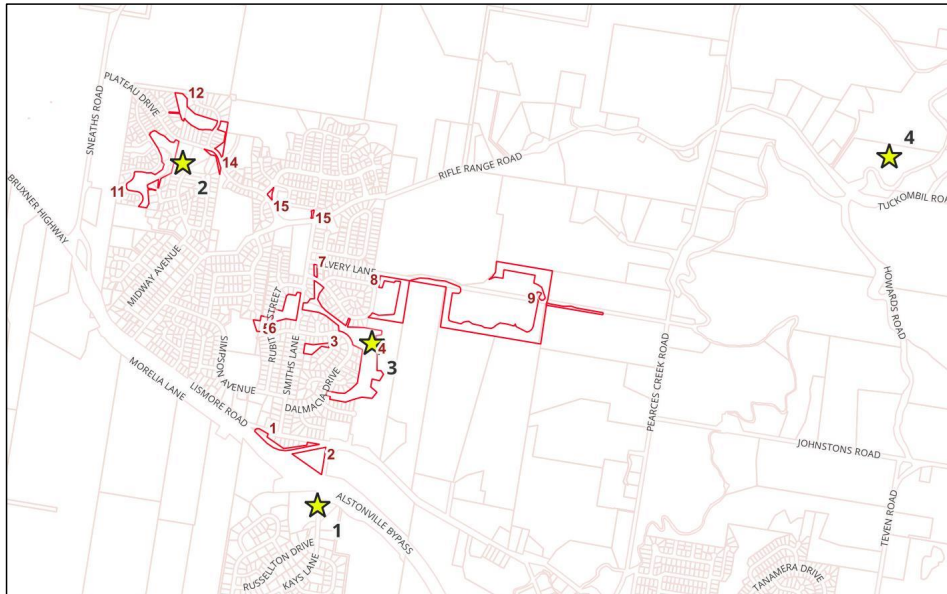


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**4. ABORIGINAL CULTURAL HERITAGE**

An extensive Aboriginal Heritage Information Management System (AHIMS) search was undertaken in October 2022 and returned 4 sites of importance within the local Wollongbar area. They include two archaeological sites containing artifacts and two water holes, the latter including Site 4 Wollongbar rainforest remnant. They can be found in **Appendix 3**.

The area is of significance to local Aboriginal people. Works proposed in this plan will improve the condition of local remnant vegetation, improve habitat value for local native fauna species and preserve the integrity of the area. Refer to Wollongbar Planning and Environmental Study 2019 on Ballina Council's website for more detailed information on Wollongbar aboriginal cultural heritage.



**Figure 8:** Four sites of significance to Aboriginal people have been recorded close to the subject site. Locations are approximate.

**4.1 Cultural Heritage Act 2018**

Jali Local Aboriginal Land Council (LALC) is the consultative body for indigenous related matters within Ballina Shire. Consultation with the Jali LALC should occur prior to undertaking any works that involve disturbance of the ground surface (with the exception of planting works) to ensure protection of cultural objects or sites.

While the proposed works will create minimal disturbance, artefacts could be encountered during restoration works. In the event that any Aboriginal artefacts, skeletal remains or shell midden materials are encountered, works are to stop, and local Jali Local Aboriginal Land Council is to be notified immediately. Works are not to commence until Jali LALC gives approval. In some cases, an Aboriginal Heritage Impact permit may be required before works can continue.

## 5. EXISTING RESTORATION PLANS and WORKS

The following plans have been previously prepared for some of the sites included within this Plan. The plan extents are illustrated on **Figure 10**.

### 5.1 *Bushland Rehabilitation and Management Plan for 7(d) zoned land Wollongbar Urban Expansion Zone*

This plan by Aspect North was written in 2005. At that time, the future population of Wollongbar was estimated to increase significantly, and the area known as the Wollongbar Urban Expansion Area (WUEA) was selected over rural farmland to accommodate this growth in residential development. The area was generally north of Bruxner Highway, east of Sneaths Road and north-west of Rifle Range Road. Ballina Shire Council rezoned the area to accommodate residential development within 2(b) Village Area zoned land, protect environmentally significant land within 7(d) Environmental Protection (Scenic/Escarpment) and provide open space and community facilities within 6(a) Open Space zoned land.

The BRMP proposed restoration measures to rehabilitate specific areas of the study site that were degraded but had regeneration potential and were rezoned to 7(d) Environmental Protection (Scenic/ Escarpment), including Willowbank Creek and its tributaries. The Plan outlined detailed actions, timetables, responsibilities, monitoring and reporting mechanisms and costing over a ten-year planning timeframe for each of the eleven work zones.

The Wollongbar Urban Expansion Area has now been developed through residential subdivisions and exists as the area surrounding Plateau Drive and north of Rifle Range Road. Zones 8 and 9 of the BRMP are generally included in this VMP as **Site 11**, while Zone 7 is included as **Sites 12, 13 and 14**. Recent analysis of the sites indicates that weeds are still problematic in those zones. Zones 1 to 6 and 11 of the BRMP along Willowbank Creek in the north are outside the currently developed area and are not included in this plan. Zone 10 is west of the current residential footprint.

A Revised Rehabilitation Action Plan- Wollongbar Park Estate was produced by LandPartners in 2010 which made amendments to the areas of the zones now known as **Sites 11 and 12**.

### 5.2 *Amended Rehabilitation Action Plan for 7(d) Zoned Land – Wollongbar Park Estates*

This plan by Land and Fire Assessments reviewed and updated the above plans in 2015 as it affected the Wollongbar Park Estate, including **Site 11**, the western end of **Site 12** and **Site 14**. It amended the area of Site 12 to reduce the area of public reserve and retain some cleared land in private ownership. Weeds along the drainage line were to be controlled, including Camphor Laurel removal or treatment, native sedge species were to be retained and the area enhanced with Mat-Rush. Lilly Pilly and Sandpaper Fig were to be planted not closer than 2m from the footpath. Additional dense mixed rainforest plantings were required in parts of Site 11, 12 and 14.

Untreated Camphor Laurel trees remain in Sites 11, 12 and 14, and the drainage lines have very few native sedges or riparian species present as Broad-leaved Paspalum and annual weeds predominate.

This plan applied bushfire protection buffers to neighbouring residential land which had not had asset protection zones imposed on the residential lots. Planting of tree species was not closer than 8m from the neighbouring properties.

### 5.3 *Vegetation Management Plan Proposed Residential Development Plateau Drive, Wollongbar*

This plan was written by Ardill Payne and Partners in 2012 and relates to the Mount Moriah subdivision north of Plateau Drive. It proposes the rehabilitation and vegetation management of designated areas within lands zoned 7(d) Environmental Protection (Scenic/ Escarpment) of the development site. The plan divides this area into areas suitable for assisted regeneration, infill planting, open space and stormwater infrastructure. The plan aims to establish 80% cover of native subtropical rainforest species in the rehabilitation zones, which equate to **Sites 12 and 13** (in part) of



Wollongbar Reserves Vegetation Management Plan

this VMP. Site 13 does not appear to have been planted as expected, or else plants have been subsequently lost. Site 12 contains dense weed growth within the drainage line.

**5.4 Wollongbar Drainage Reserve Restoration Plan**

This plan by Bob Moffatt written in 2001 referred to the northern part of **Site 4**, north-east of the original Wollongbar Rainforest Reserve. It proposed restoration actions within the drainage reserve, which was dominated by invasive weeds at the time, particularly Camphor Laurel and Large-leaved Privet. Planting was undertaken to expand remnant vegetation and remains at present, but little weed control has been done since, apart from mowing/ slashing of the drainage area.

**5.5 HCV Vegetation Restoration Action Plan – Wollongbar Rainforest Reserve**

The Restoration Action Plan was written by EnviTE in 2005 and funded by the Natural Heritage Trust. It refers to the southern portion of **Site 4**, the largest rainforest remnant in the subject site, situated off Dalmatia Drive. Wollongbar Rainforest Reserve represents a true urban remnant of the Big Scrub, as the surrounding areas have been progressively cleared of native vegetation for logging, farming and residential development. The Action Plan divided the area into eight zones for restoration actions and one of the objectives was to encourage community participation in care of the reserve.

A Landcare Group was subsequently formed and worked in the reserve for some years but have now disbanded. The reserve requires maintenance to control weeds and repair infrastructure, including a walking track and creek crossing.

**5.6 Planting and Maintenance Plan for the Biological Buffer Wollongbar Sports Field**

The sports field site is located in Elvery Lane, off Ramses Street in Wollongbar. At the time of development, a Land Use Conflict Risk Assessment (LUCRA) was prepared, which identified potential conflicts arising in relation to adjoining land use practices. Horticultural land (macadamia cropping) directly adjoins the sportsfield site to the east and south (**Figure 15**). Spray drift from adjoining properties was identified as an issue to be addressed using vegetative 'biological' buffers. The plan was written by EnviTE in 2011 when a 30m buffer (shown below prior to development) was planted with local native rainforest species.

The site was maintained for five years until the trees and shrubs established, but little maintenance work has occurred since. This plan considers this area and future maintenance recommendations under **Site 9**. The planting was successful and a low canopy exists with few weeds present.



**Figure 9:** Biological buffer planted around the area that is now Wollongbar Sports Field. Large Moreton Bay Fig trees were retained.





Wollongbar Reserves Vegetation Management Plan

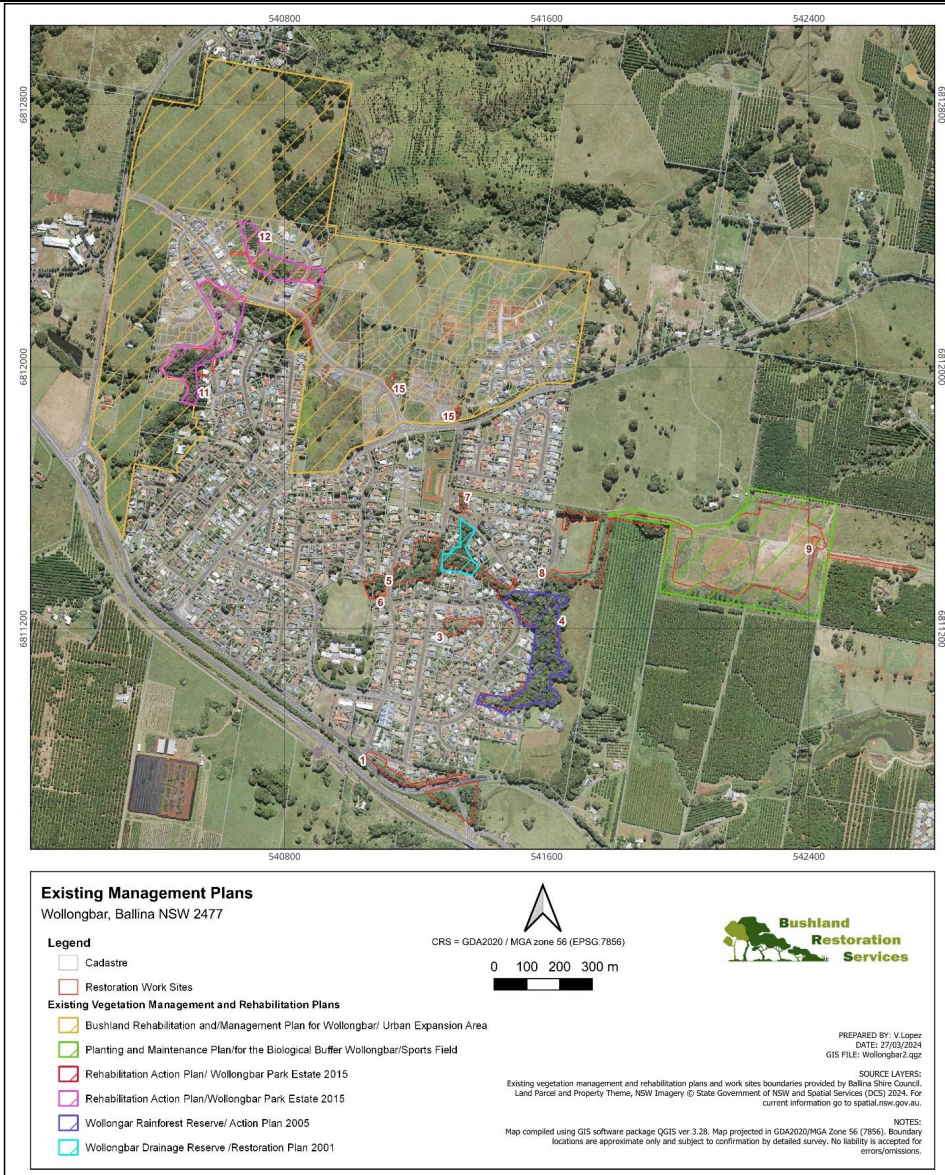


Figure 10. Existing vegetation management and rehabilitation plans in relation to proposed restoration work sites.

## 6. EXISTING INFRASTRUCTURE and CONSTRAINTS

Existing assets and potential constraints to restoration actions are listed below and discussed within the individual site descriptions in Section 3.

### 6.1 Sportsfields

Ballina Shire Council managed sports fields occur at Lyle Park and Wollongbar Sports Fields. Additional pressure may arise from human visitation; however, the fields and carparks are well -defined and remnant vegetation is not likely to be subject to damage or removal as a result. Enhancement of vegetated buffer areas is proposed by this plan.

### 6.2 Walkways

Walkways between residential dwellings provide pedestrian access to Sites 4, 11 and 12. Parks are public use areas and various pathways and facilities occur within the recreational zone of Wollongbar District Park.

Site 10 is a formed road reserve managed by Ballina Shire Council.

### 6.3 Residential housing

Apart from Sites 2, 8, 9 and 10, all of the sites are adjacent to residential housing allotments. Some inappropriate plantings have been undertaken on Council land, with weed encroachments occurring from garden escapees. Restoration work will focus on removal of exotics. The main threat to the reserves is environmental weed encroachment. Residential encroachment, exotic planting, garden dumping and stormwater discharge are also issues. Some clearing is noted behind houses, apparently to form fire protection zones.

It is recommended to erect signage at strategic locations to indicate 'bush regeneration works in progress – please keep out/ no garden dumping' and to hold workshops to educate local residents as to the reserve values as natural areas.

### 6.4 Pipelines

Water, sewer and recycled water supply pipelines run near or through a number of the reserves subject to this VMP. Where services occur within reserves, they are noted in the individual site details in **Section 8**. Any future plantings should be avoided within 3 metres of pipeline and infrastructure locations due to the need for maintenance access. Lomandra can be planted as a ground cover within the buffer zone up to the pipelines. For maps of pipelines, wastewater and stormwater assets please refer to Ballina Shire Council.

### 6.5 Bushfire Management

Much of the Wollongbar residential area was constructed prior to the introduction of the Rural Fire Service *Planning for Bushfire Protection Guidelines* requirement for asset protection zones to be wholly provided on residential land, or else the APZ's were not applied. Sites containing natural or planted bushland or regrowth generally have no separation from residential backyards and this has led to some clearing and mowing of Council-owned reserves, as well as planting of formerly cleared land. Bushfire-prone land is indicated on **Figure 11**; however, this mapping is due to be updated.

Orange is Category 1 (highest risk) vegetation, yellow is Category 2 and the green line is the bushfire buffer. Site 4 and parts of sites 8 and 11 are mapped as Category 1. The buffer area partially affects site 4, 5, 8, 11 and 12.

While mapped Site 1 contains some planted non-native Eucalypts, mapped sites 4, 11 and 12 are riparian rainforest considered better described as Category 2 vegetation. This mapping is yet to be updated to reflect revised guidelines. Sites 11 and 12 provided unplanted buffers of 8 metres on the edges of reserve land where residential properties abutted the boundaries. This represented an 8m separation at the mature stage of any species.



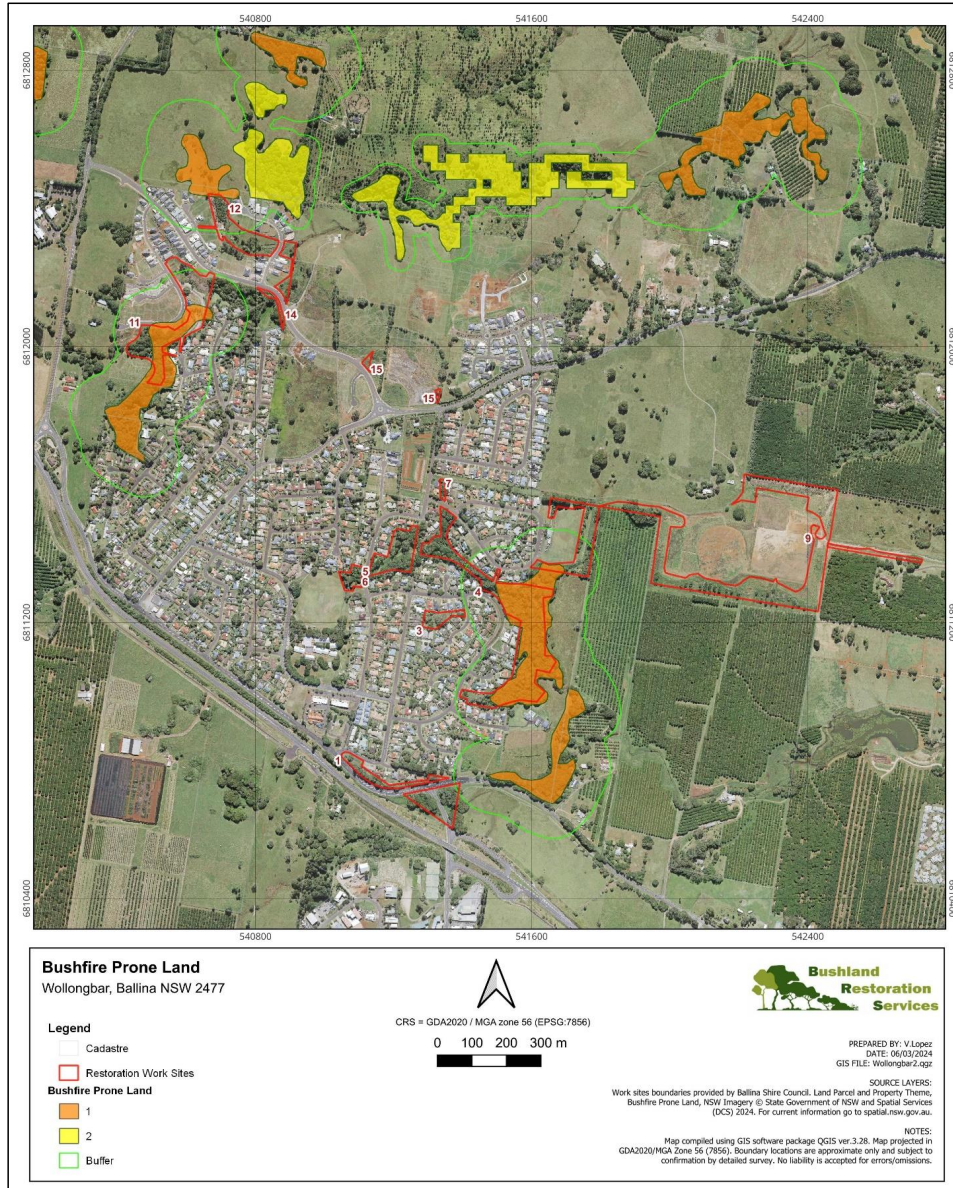


Figure 11: Bushfire prone land and restoration work sites.

## 7. FLORA SURVEY

Site survey was undertaken in August and September 2022 and again in January 2023 to ascertain vegetation community types, condition, dominant weed species, and habitat values. Surveyed flora was classified into vegetation communities by dominant species, vegetation height, percentage vegetation cover (%) and structural formation.

A description of all surveyed vegetation communities is provided below and a comprehensive list of all flora species by site recorded during field survey has been compiled in **Appendix 1**.

### 7.1 Vegetation Communities

A total of four vegetation community (VC) types were recorded during field survey within the subject sites as listed below (See **Figure 19**):

1. Remnant Subtropical Rainforest including Blue Quandong *Elaeocarpus grandis*, Red Apple *Acmena ingens*, Red Cedar *Toona ciliata*, Hoop Pine *Araucaria cunninghamii*, Cudgerie *Flindersia schottiana*, White Booyong *Argyrodendron trifoliolatum* and Strangler Fig *Ficus watkinsiana*.
2. Regrowth Subtropical Rainforest including Guioa *Guioa semiglaucula*, Red Kamala *Mallotus philippensis*, Native Elm *Aphananthe philippensis*, Bangalow Palm *Archontophoenix cunninghamiana*, and Foambark *Jagera pseudorhus* var. *pseudorhus*.
3. Established Rainforest plantings including Hoop Pine and Rosewood *Dysoxylum fraserianum*.
4. Garden Plantings including native, non-local native and exotic species.

Remnant Subtropical Rainforest is the primary vegetation community within the sites surveyed. While the Wollongbar Rainforest Reserve (Site 4) consists of remnant vegetation with old-growth trees and threatened flora species, the remainder of the sites containing rainforest are represented by regrowth vegetation or established native plantings. The description below is for Site 4, while the latter are described under Vegetation Community 2. Each of the sites is invaded by exotic species.

#### Vegetation Community 1: Remnant Subtropical Rainforest – Site 4

Description: White Booyong/ Blue Quandong/ Rosewood/ Hoop Pine/ Cudgerie Tall Closed Forest.

Equivalent Plant Community Type: PCT 3001: Lismore Basalt Subtropical Rainforest.

Wollongbar Rainforest Reserve contains a very tall dense rainforest on fertile soils derived from basalt. Tree species richness is very high, and the tree canopy is of variable composition, however White Booyong *Heritiera trifoliolata* is among the tree species with the highest foliage cover. Other very frequent canopy trees include Black Bean *Castanospermum australe*, Blue Quandong, Rosewood, Red Apple, Bangalow, Red Cedar, Hoop Pine, Cudgerie, Strangler Fig, Native Tamarind *Diploglottis australis*, Maidens Blush *Sloanea australis*, Pepperberry *Cryptocarya obovata*, and Myrtle Ebony *Diospyros pentamera*. A wide range of other rainforest tree species occur with lower frequency. Canopy weeds include Queensland Umbrella Tree and Camphor Laurel, with Coral Tree present on edges.

The mid-stratum is of very mixed composition with no single species dominant, however it includes Veiny Wilkiea *Wilkiea huegeliana*, Twin-leaved Coogera *Arytera distylis*, Red Kamala, Guioa, Brush Bloodwood *Baloghia inophylla*, Peanut Tree *Sterculia quadrifida*, Red-barked Sassafras *Cinnamomum virens*, Red-fruited Laurel *Cryptocarya laevigata*, Breyntia *Breyntia oblongifolia* and Red-fruited Palm-lily *Cordylina rubra*. Vines are abundant and include Lawyer Vine *Calamus muelleri*, Water Vine *Cissus antarctica*, White Supplejack *Ripogonum album*, Burny Vine *Trophis scandens*, Whip Vine *Flagellaria indica*, Common Silkpod *Parsonsia straminea* and the Richmond Birdwing Butterfly Vine *Pararistolochia praevenosa*. The climbing epiphyte Pothos *Pothos longipes* is abundant and Staghorn *Platynerium superbum*, Elkhorn *Platynerium bifurcatum* and Birds Nest Fern *Asplenium australasicum* are common in parts. Weeds include Golden Rain Tree, Large-leaved and Small-leaved Privet, Ochna, Queensland Umbrella Tree, Cocos Palm,



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Lantana, and Murraya, with Winter Senna on edges. Climbing Asparagus is dense in part.

The ground stratum contains Basket Grasses *Oplismenus imbecillis*; *O. aemulus* and *Ottochloa gracillima*, *Aneilema Aneilema biflorum*, *Plectranthus Plectranthus graveolens*, *Polia Polia crispata*, the Mat-rushes *Lomandra hystrix* and *Lomandra longifolia*, *Dianella Dianella caerulea* and Kidney Weed *Dichondra repens*. Ferns are common and include Binung *Christella dentata* Harsh Ground Fern *Hypolepis muelleri*, Rough Maidenhair Fern *Adiantum hispidulum*, Soft Bracken *Calochlaena dubia* and Bracken Fern *Pteridium esculentum*. Weeds include Green and Silver-leaved Desmodium, Crofton Weed, Mist Flower, Blue Billygoat Weed, Impatiens, Freckle Face, Hairy Commelina and Trad. Vines include *Pandorea pandorana* and Slender Grape *Cayratia clematidea*.

Threatened species *Acalypha eremorum*, *Macadamia tetraphylla*, *Rhodamnia rubescens*, *Rhodamnia maideniana*, *Syzygium moorei* and *Tinospora tinosporoides*.

*Pararistolochia pravenosa* is a food plant for the threatened Richmond Birdwing Butterfly and *Carronia multisepealea* is a larval food plant for the threatened Pink Underwing Moth.

Condition summary: Mature community with good canopy coverage (apart from edges), four vegetation layers including emergent trees, abundant vines, ferns and epiphytes and significant regeneration evident in lower stratum. Weed infiltration is moderate in all layers, particularly in canopy gaps.

Focus areas: Control woody weeds and vines in the upper and mid layers and ground covers in the lower layer. Control current areas of Mistflower and Crofton Weed infiltration near Camphor Laurel stand and forest edges. Drainage line is open where stormwater drainage occurs in the upper Site 4 and 5 and could be planted with sedges and rushes within the flow channel and species such as Creek Sandpaper Fig *Ficus coronata*, Giant Water Gum *Syzygium francisci* Black Bean and Bangalow Palm to reduce erosion and the mown area.

#### **Vegetation Community 2: Regrowth Subtropical Rainforest – Sites 2, 5, 6, 11, 12, 13 and 14**

Description: Guioa/ Foambark/ Rose Walnut/ Red Kamala Riparian Closed Forest.

Closest Plant Community Type: PCT 3148: Far North Brushbox Walnut Wet Forest.

This vegetation community is a tall, mid-dense rainforest, where a dense mixed mesic sub-canopy or mid-storey has become dominant in the absence of the former Camphor Laurel canopy. The canopy generally lacks Brushbox or sclerophyll species. It includes the small trees Guioa, Red Kamala, Rough-leaved Elm, Bangalow Palm, Foambark, Veiny Wilkiea, Cudgerie and Scentless Rosewood *Synoum glandulosum*. Native Sarsparilla *Smilax australis*, Sweet Morinda *Gynochthodes jasminoides* and Scrambling Lily *Geitonoplesium cymosum* are present, commonly with *Endiandra* and *Cryptocarya* species.

Threatened species *Rhodamnia rubescens*, *Rhodamnia maideniana*, *Macadamia tetraphylla*.

Condition summary: Immature regenerating and planted community with good canopy coverage (apart from wet drainage lines), three vegetation layers, occasional vines, ferns and epiphytes and minor regeneration evident in lower stratum. Weed infiltration is high in all layers, particularly in canopy gaps. Camphor Laurel remains in the canopy in many sites and drainage lines are dominated by Broad-leaved Paspalum and annual weeds.

Focus areas: Control woody weeds in the upper and mid layers and grasses and ground covers in the lower layer. Stormwater drainage lines could be planted with sedges and rushes within the flow channel and species such as Sandpaper Fig, Giant Water Gum, Black Bean and Bangalow Palm to reduce erosion and the mown area.

#### **Vegetation Community 3: Established Planted Rainforest – Site 6, 9 and 10.**

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Rainforest plantings have been undertaken surrounding Site 6 Rubiton Park, Site 9 Wollongbar Sports Fields and Site 10 along the road reserve beyond the sports fields. These are generally established native species and are described in more detail for the individual sites in **Section 8**, with species lists in **Appendix 1**.

### **Vegetation Community 4: Other Plantings – Sites 1, 3, 7, 8 and 15.**

Plantings within parkland are of mixed native and exotic origin as described for the individual sites in **Section 8**. While vegetation buffer plantings around Site 15 Wollongbar District Park consist of local native rainforest species, they are yet to become established.

### **7.2 Weeds / Introduced Plants**

A wide range of exotic and non-endemic weed species of all growth forms, tree, shrub, vine, groundcover and grass, were recorded during the vegetation survey (**Appendix 1**, listed per site).

A total of eighty-two (82) weeds species were recorded during the survey and included all growth forms (i.e. tree, shrub, vine, groundcover / grass). The dominant weed species in each vegetation type are included above.

### **Biosecurity Act (NSW) 2015**

The *Biosecurity Act 2015* and Regulations streamline the way weeds are managed in NSW, with specific legal requirements for State level priority weeds and Regional high risk priority weeds. In keeping with its premise that biosecurity is a shared community responsibility, the 2015 Act introduces the legally enforceable concept of a General Biosecurity Duty.

For weeds *'the General Biosecurity Duty means that any person dealing with plant matter must take measures to prevent, eradicate or minimise / contain the biosecurity risk as far as reasonably practicable'*.

Plant matter includes plants, parts of plants and seeds. Dealing has a broad definition in the Act and includes (but is not limited to) activities such as grazing, cropping, fodder production, horticulture, weed control, seed and other plant production, as well as carrying, sale and distribution of these products as part of a commercial, professional, volunteer or recreational activity or lifestyle.

### **North Coast Regional Strategic Weed Management Plan 2023-2027**

The *North Coast Regional Strategic Weed Management Plan 2023-2027*, while not a regulatory document, plays an important role in articulating the shared responsibility principle of the *Biosecurity Act 2015* (the Act) to regulators, stakeholders, public agencies and the wider community. It provides necessary information to enable people to effectively meet the requirements of the General Biosecurity Duty and discharge their obligations under the Act.

The State level priority and Regional high risk priority weeds identified in the sites within each Vegetation Management Site during field survey are listed in **Table 2** alongside the applicable management category stipulated in the *North Coast Regional Strategic Weed Management Plan 2023-2027*. The weed control strategy and methods for the removal of these priority weeds are detailed in **Section 8** of this plan.



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**Table 2**– State level priority (annotated “S”) and Regional high-risk priority (annotated “R”) weeds

Common Name	Scientific Name	Management Category				
		PREVENT	ERADICATE	CONTAIN	ASSET PROTECTION	WATCH
Camphor Laurel	<i>Cinnamomum camphora</i>				R	
Cecropia	<i>Cecropia peltata</i>		R			
Cocos Palm	<i>Syagrus romanzoffianum</i>				R	
Coral Berry	<i>Rivina humilis</i>				R	
Crofton Weed	<i>Ageratina adenophora</i>				R	
Giant Devils Fig	<i>Solanum chrysotrichum</i>			R		
Climbing Asparagus	<i>Asparagus africanus</i>				S	
Indian Coral Tree	<i>Erythrina sykesii</i>				R	
Lady of the Night	<i>Cestrum nocturnum</i>				R	
Lantana	<i>Lantana camara</i>				S	
Mickey Mouse Plant	<i>Ochna serrulata</i>				R	
Mock Orange	<i>Murraya paniculata</i>				R	
Passionfruit	<i>Passiflora</i> spp.				R	
Small-leaved privet	<i>Ligustrum sinense</i>				R	
Umbrella Tree	<i>Schefflera actinophylla</i>				R	

Source: North Coast Regional Strategic Weed Management Plan 2023-2027

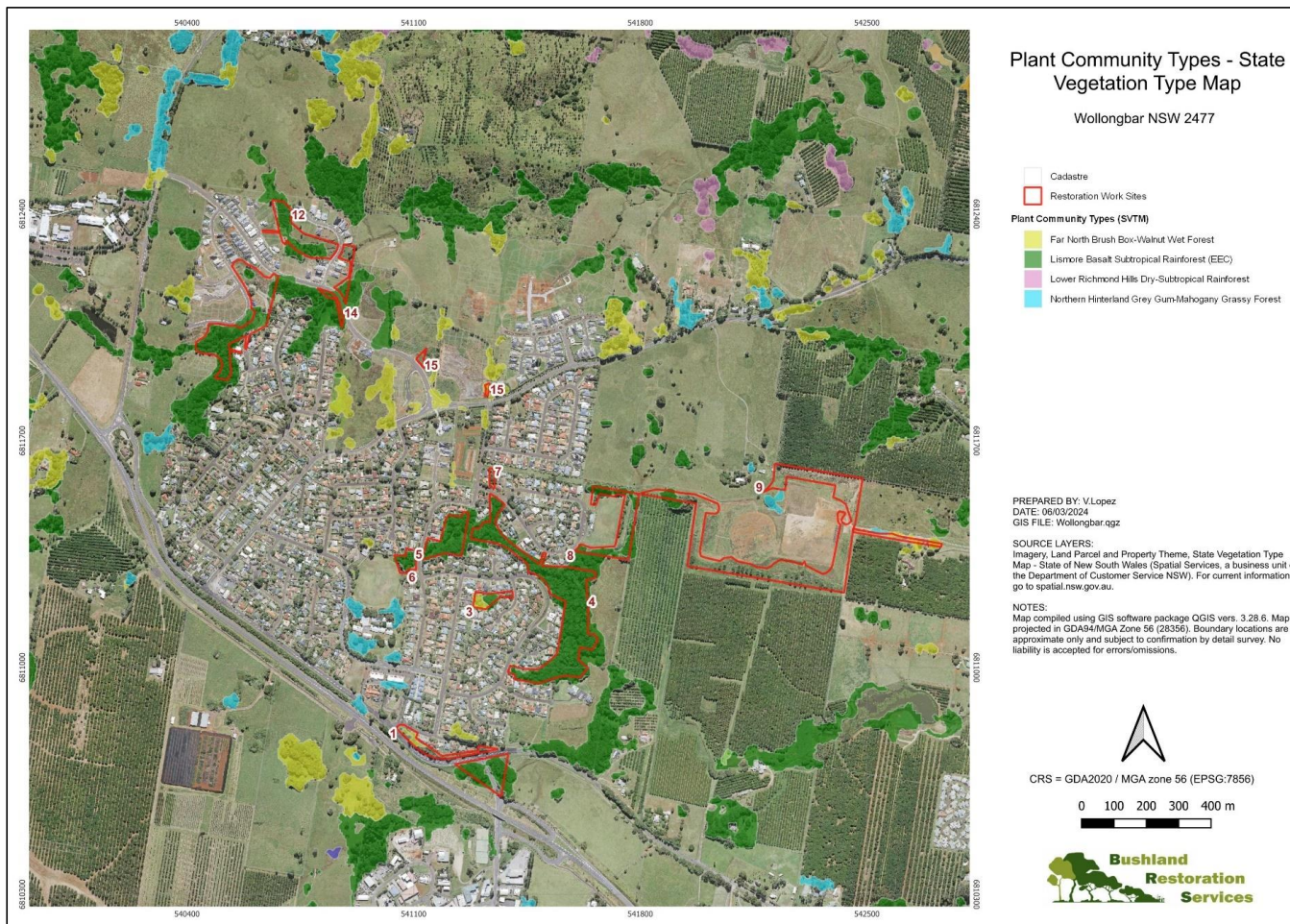


Figure 12: Plant Community Types (State Vegetation Type Map).





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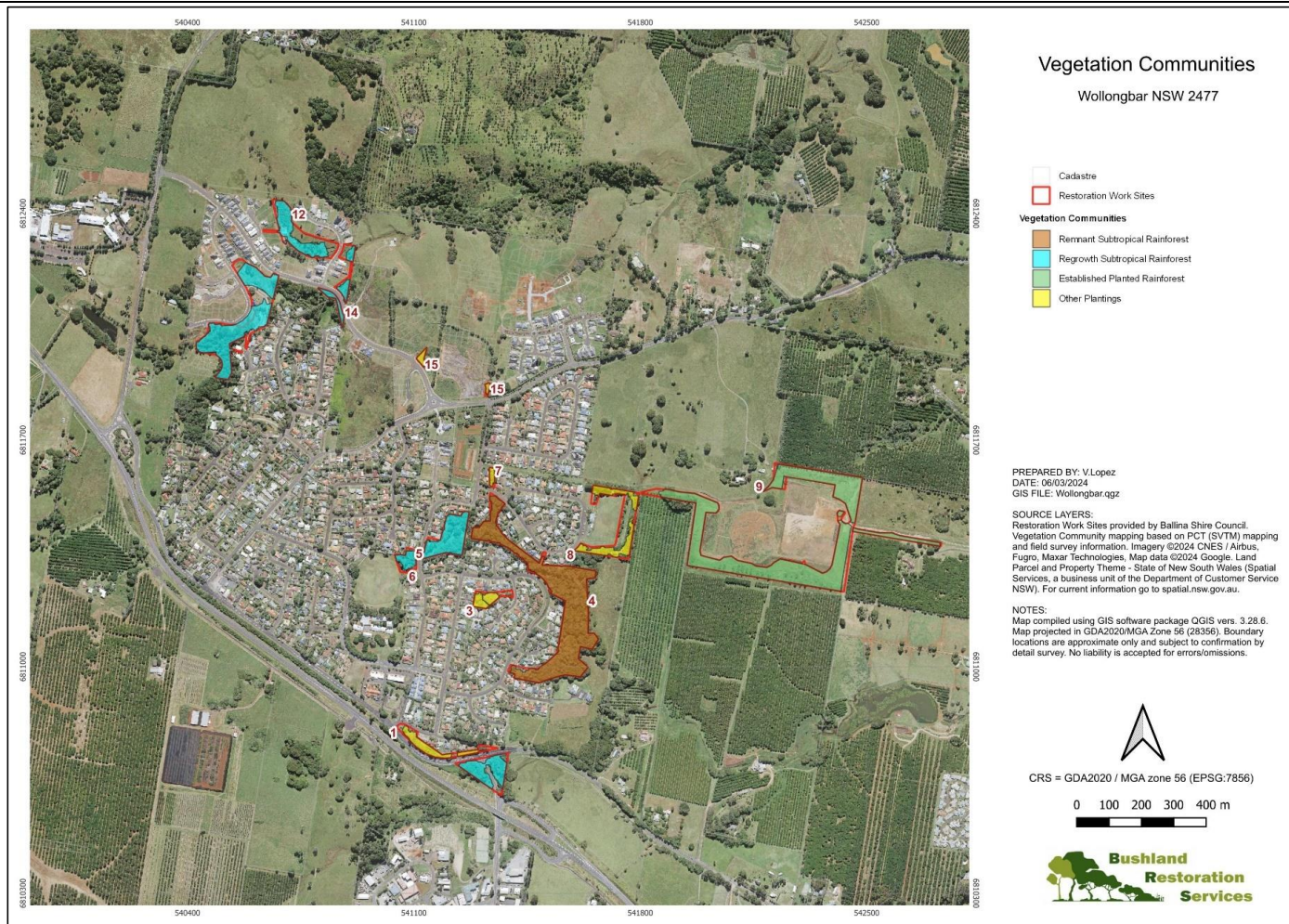


Figure 13. Vegetation Communities.



Wollongbar Reserves Vegetation Management Plan

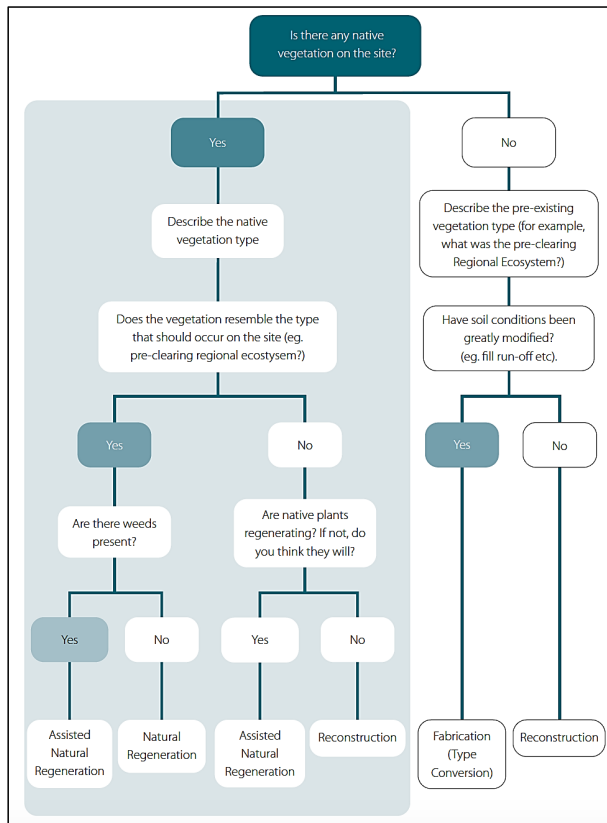
**8. RESTORATION STRATEGY**

**8.1 Restoration Approach**

The rehabilitation strategy in this plan is derived from the common approaches described below in **Table 3**. The selection of a suitable approach depends on the degree of resilience that is present in the existing native vegetation and/or seed bank, as well as the nature and extent of disturbance including weed infestation. A flow chart has been used to guide the selection of a suitable ecological restoration approach for each management zone. See Figure 14.

**Table 3 – Common ecological restoration approaches**

Restoration Approach	Application
Natural Regeneration	Where resilience is intact, and recovery is automatic with the removal of the cause of damage.
Assisted Natural Regeneration	Where degrees of resilience exist and "triggered" interventions (either disturbance or resource provision) can affect recovery by natural regeneration.
Reconstruction (Revegetation)	Where resilience is depleted, and abiotic or biotic elements need wholesale importation or major amendment before recovery can commence.
Fabrication (Type Conversion)	Where conditions are permanently changed and better-adapted local systems can be regenerated or constructed to restore integrity to the landscape.



**Figure 14:** Selection of restoration approach. Source: Chenoweth EPLA & BRS 2012





Figure 15: Aerial view of sites 1 to 10.





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Figure 16: Aerial view of sites 11 to 15.

**8.2 Restoration Works**

The following section includes maps, descriptions, photographs, recommendations and restoration activities proposed for the fifteen subject sites to be restored. A full species list for each site is included in **Appendix 1**. Proposed species for planting and specifications for weed control are contained in **Section 8.3**.

**8.2.1 Site 1: Bruxner Buffer (0.5878ha)**



Figure 17: Site 1.

**Description**

This site is located between Lismore Road and the rear of residences in Smiths Lane and Bewers Close in Wollongbar. It consists of mown grassland parks at either end (Zones 1a and 1c), which then run to weedy rainforest regrowth occupying the majority of the site in between (Zone 1b). The Bruxner Highway frontage is Operational Land while the mown parkland is Community Land. The site includes a small rock-edged garden bed planted with Grevillea cultivars and currently has advertising signage at the corner of Lismore Road. A concrete footpath extends past the eastern park and joins to a shared pathway connecting to Alstonville. An overhead power line runs through the northeast corner of the site.

Features of this site include large Hoop Pines and a large Rosewood within the western mown park, along with a patch of Camphor Laurel-dominated regrowth rainforest occupying the western half of the reserve. The site contains many more weed species than natives, with the rainforest regrowth dominated by Camphor Laurel, Large-leaved Privet, Lantana and Passionfruits. A line of the North Queensland species Cadaghi has been planted approximately 10m from rear fences. Evidence of dumping of garden waste is present in the west.





Plate 2: Large Hoop Pines (left) and Rosewood (right) are features of Site 1.



Plate 3: Line of planted Cadaghi (left) and advertising signage (right) near Smith Lane entrance.



Plate 4: Weeds amongst scattered native trees in the western half of the reserve.

### Recommendations

- Zones 1a, 1c (mowed grass areas) – Retain the open parkland with scattered trees. Plant with subtropical rainforest species, leaving a 10m unplanted zone adjacent rear and side fences to act as a bushfire asset protection zone.
- Site 1b has high weed infestation and therefore Assisted Natural Regeneration is the recommended ecological restoration approach, along with revegetation to reduce mown areas and increase connectivity. Significant bush regeneration work is required in the west where Camphor Laurel dominates the canopy and Large-leaved Privet dominates the understorey.



Wollongbar Reserves Vegetation Management Plan

- As it is a highly visible site, planting of small and colourful or feature local rainforest species in Zone 1c up to 10m from rear boundaries is recommended using species listed in **Table 5**, for example: Flame Tree *Brachychiton acerifolius*, Native Frangipani *Hymenosporum flavum*, Firewheel Tree *Stenocarpus sinuatus*, Tree Waratah *Alloxylon pinnatum*. Ensure buffer from vegetation to power line is maintained with any new plantings.
- Felling, and chipping or removal of semi-mature non-local Eucalypts, *Corymbia torelliana* and *Corymbia maculata* in Site 1 is recommended due to their potential to increase fire risk, potential risk from limb drop in a public area used as parkland, and their unsuitability for the regrowth rainforest community on the site. Stem injection is not recommended here due to risk of fall in proximity to adjoining residences and community use.
- Commence work in Site 1c along the roadside strip, working into 1b and to the 1c, controlling all weeds encountered.

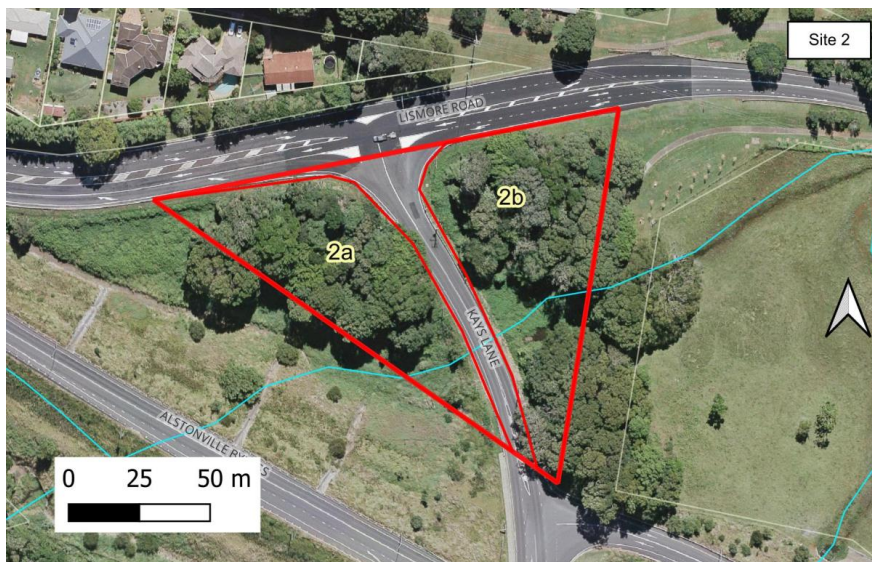
**Table 4 – Summary of restoration actions for Site 1**

Work Sequence	Dominant Weed Species	Actions	Work Area
Primary Work Zone 1b (Year 1)	Cocos Palm Camphor Laurel Slash Pine Murraya Lantana Lady-of-the-night Privet species Metrosideros Tibouchina	<ul style="list-style-type: none"> <li>▪ Work systematically and comprehensively through the zone commencing from the west and continue work following this line eastwards to complete the zone.</li> <li>▪ Cut, scrape and paint (CSP) woody weeds such as Lantana, Privet, Camphor Laurel, and other woody weeds encountered.</li> <li>▪ Lop cut stems to reduce trip hazard or allow access for bush regen team if necessary.</li> <li>▪ Leave treated Lantana frames and other woody weeds in place to break down gradually.</li> <li>▪ Smaller plants can be hand pulled.</li> <li>▪ Drill and inject larger exotic trees such as Camphor Laurel.</li> </ul>	0.5ha
	Morning Glory Passionfruit species	<ul style="list-style-type: none"> <li>▪ Cut Morning Glory and other exotic vines at shoulder height, cut, scrape and paint the base of the plant with herbicide. Dense leafy stems can be pulled down or cleared from native shrubs intact and bundled to spray. Small or shallow rooted specimens can be hand pulled.</li> </ul>	
	Exotic grasses Crofton Weed Blue Billygoat Weed	<ul style="list-style-type: none"> <li>▪ Clear exotic grasses and groundcovers around small native plants prior to spray to prevent off-target damage.</li> <li>▪ Spot spray all exotic grasses, herbs and groundcover weeds throughout the zone, working thoroughly and systematically as described in primary work above. Follow up the spot spray every 3 months depending on season and prevailing weather conditions.</li> </ul>	
Follow Up (Years 2 & 3)	Regrowth of woody weeds, exotic vines, grasses and groundcovers	<ul style="list-style-type: none"> <li>▪ Follow up spot spray (approx. 4 visits / year depending on season and prevailing weather conditions). Encourage recruitment of native species by well-timed control of weeds.</li> </ul>	0.5ha
Maintenance (Years 4 & 5)	Regrowth of woody weeds, exotic vines, grasses and groundcovers	<ul style="list-style-type: none"> <li>▪ Follow up spot spray (approx. 2-3 visits / year depending on season and prevailing weather conditions).</li> <li>▪ Encourage recruitment of native species by well-timed control of weeds.</li> </ul>	0.5ha

**Table 5 – Suggested species for planting in Site 1**

Scientific Name	Common Name
<i>Alloxylon pinnatum</i>	Tree Waratah
<i>Archidendron grandiflorum</i>	Pink Laceflower
<i>Atractocarpus charteus</i>	Narrow-leaved Gardenia
<i>Brachychiton acerifolius</i>	Flame Tree
<i>Cryptocarya laevigata</i>	Glossy Laurel
<i>Cupaniopsis flagelliformis</i> var. <i>australis</i>	Brown Tuckeroo
<i>Diploglottis australis</i>	Native Tamarind
<i>Ficus fraseri</i>	Forest Sandpaper Fig
<i>Gossia bidwillii</i>	Python Tree
<i>Homalanthus populifolius</i>	Bleeding Heart
<i>Hymenosporum flavum</i>	Native Frangipani
<i>Stenocarpus sinuatus</i>	Firewheel Tree
<i>Pararchidendron pruinosum</i> var. <i>pruinoseum</i>	Snow Wood
<i>Ptilidostigma glabrum</i>	Plum Myrtle
<i>Syzygium leuhmannii</i>	Riberry

**8.2.2. Site 2: Lismore Road/Kays Lane (1.0471ha)**



**Figure 18: Site 2.**

**Description**

Site 2 is a triangle of Operational Land fronting Lismore Road and bisected by Kays Lane. An overhead powerline runs along the eastern side of Kays Lane. The site contains subtropical rainforest dominated by Camphor Laurel, with planted Eucalypt species on part of the Lismore Road frontage.

Rainforest species present at this site are generally pioneer or early secondary species including Sally Wattle *Acacia melanoxylon*, Red Ash *Alphitonia excelsa*, Bangalow Palm, Straw Tree Fern *Cyathea cooperi*, Brown Kurrajong *Commersonia bartramia* and Foambark.



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Weed species dominate the site in all strata, with Camphor Laurel the main canopy species, Privet species and Umbrella Tree in the mid-storey and exotic grasses and Morning Glory dominant in the ground layer.



**Plate 5:** The eastern side of Site 2 looking from Lismore Road (Zone 2b).



**Plate 6:** The western side of Site 2 (Zone 2a).



**Recommendations**

- Commence work in Site 2 from Kays Lane west and complete Zone 2a before moving to Zone 2b.
- Significant bush regeneration work is required to control weeds. Weed control should concentrate on invasive species such as Trad, Blue Butterfly Bush and African Iris.
- Planting is not recommended until the response to weed control is realised. If insufficient native species recruit, planting as per **Table 7** is recommended. For the eastern road edge under powerline, planting of low-growing species should follow weed control to avoid future problems or tree loss.
- Ensure a buffer between any new plantings and the power line is maintained.

**Table 6 - Summary of restoration actions for Site 2**

Work Sequence	Dominant Weed Species	Actions	Work Area
Primary Work (Year 1)	Umbrella Tree Camphor Laurel Winter Senna Murraya Lantana Large-leaved Privet Jacaranda Tobacco Bush	<ul style="list-style-type: none"> <li>▪ Work systematically and comprehensively through Zone 2a and continue work in Zone 2b.</li> <li>▪ Cut, scrape and paint (CSP) woody weeds such as Lantana, Privet, Camphor Laurel, Winter Senna and other woody weeds encountered.</li> <li>▪ Lop cut stems to reduce trip hazard or allow access for bush regen team if necessary.</li> <li>▪ Leave treated Lantana frames and other woody weeds in place to break down gradually.</li> <li>▪ Smaller plants can be hand pulled.</li> <li>▪ Drill and inject larger exotic trees such as Camphor Laurel, Umbrella Tree and Lantana.</li> </ul>	1.05ha
	Morning Glory Madeira vine	<ul style="list-style-type: none"> <li>▪ Scrape and Paint Morning Glory and other exotic vines. Dense leafy stems can be pulled down or cleared from native shrubs intact and bundled to spray. Small or shallow rooted specimens can be hand pulled.</li> </ul>	
	Exotic grasses	<ul style="list-style-type: none"> <li>▪ Clear exotic grasses and groundcovers around small native plants prior to spray to prevent off-target damage.</li> <li>▪ Spot spray all exotic grasses, herbs and groundcover weeds throughout the zone, working thoroughly and systematically as described in primary work above. Follow up the spot spray every 3 months depending on season and prevailing weather conditions.</li> </ul>	
Follow Up (Years 2 & 3)	Regrowth of woody weeds, exotic vines, grasses and groundcovers	<ul style="list-style-type: none"> <li>▪ Follow up spot spray (approx. 4 visits / year depending on season and prevailing weather conditions). Encourage recruitment of native species by well-timed control of weeds.</li> </ul>	1.05ha
Maintenance (Years 4 & 5)	Regrowth of woody weeds, exotic vines, grasses and groundcovers	<ul style="list-style-type: none"> <li>▪ Follow up spot spray (approx. 2-3 visits / year depending on season and prevailing weather conditions).</li> <li>▪ Encourage recruitment of native species by well-timed control of weeds.</li> </ul>	1.05ha

**Table 7 – Species recommended for planting under powerline Site 2**

Scientific name	Common name
<i>Alpinia caerulea</i>	Native Ginger
<i>Dianella caerulea</i>	Dianella
<i>Lomandra hystrix</i>	Mat Rush
<i>Lomandra longifolia</i>	Spiny-Headed Mat Rush
<i>Harpulia alata</i>	Wing-leaved Tulip
<i>Pandorea pandorana</i> subsp. <i>pandorana</i>	Wonga Vine
<i>Panicum pygmaeum</i>	Dwarf Panic
<i>Pittosporum revolutum</i>	Hairy Pittosporum
<i>Ptilidostigma glabrum</i>	Plum Myrtle
<i>Sambucus australasica</i>	Native Elderberry

**8.2.3. Site 3: County Court Public Reserve (0.374ha)**



**Figure 19: Site 3.**

This park is located between Smiths Lane, County Court and Dalmatia Drive. Site 3 is accessed from County Court and is surrounded by houses on three sides. Neighbouring residents use the park, and some have planted fruit trees, exotics and non-local native species beyond their boundaries and within the park.

The feature of this park is a large Moreton Bay Fig *Ficus macrophylla* with native and exotic species beneath. Other natives include a Red Bean *Dysoxylum mollissimum*, Silky Oak *Grevillea robusta*, Guioa, Brush Cherry *Syzygium australis*, Riberry *Syzygium leuhmannii* and Burrawang *Lepidozamia peroffskyana*.

Exotic species include Trad, Umbrella Tree, Mango and Orange trees, Golden Cane *Dypsis lutescens* and Kentia *Howea forsteriana* Palms, Norfolk Pine *Araucaria heterophylla*, Blue Butterfly Bush *Rothea myricoides*, African Iris *Diets grandiflora*, Frangipani *Plumeria rubra* and Eumundi Quandong *Elaeocarpus eumundi*.

**Recommendations**

- Further planting is not recommended due to the potential to increase bushfire hazard; except where local rainforest species could replace non-local species (in consultation with neighbours) or where trees are sufficiently spaced apart so that mature canopies do not touch. However, the latter would make park mowing more difficult.



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- Weed control should concentrate on invasive species such as Trad, Blue Butterfly Bush and African Iris.
- Further use could be encouraged through improvements such as adding clear signage indicating a public park and adding tables and chairs under the large shady fig tree.



**Plate 7:** A large Moreton Bay Fig tree is a feature of Site 3.



**Plate 8:** Park entry sign and site boundaries with residential interfaces.



**Plate 9:** Many non-local and exotic trees have been planted.

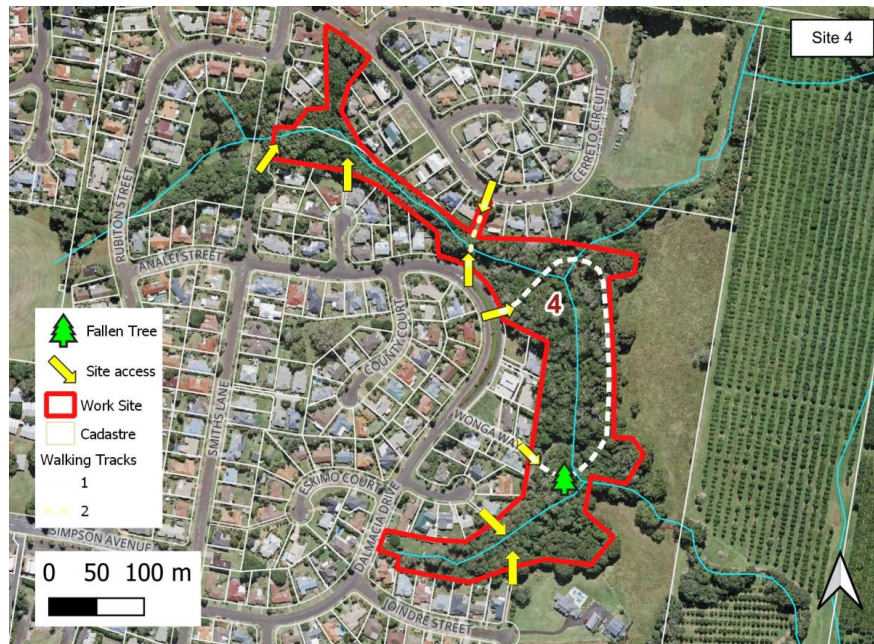
**8.2.4. Site 4: Wollongbar Rainforest Reserve (5.1598ha)**

Figure 20. Site 4.

**Description**

Site 4 is the most significant Council reserve in Wollongbar in terms of conservation value, as it contains remnant and old growth subtropical rainforest. The reserve is mapped as 'significant urban bushland' under Ballina Shire Development Control Plan 2012. It is located off Dalmacia Drive, close to the boundary between Wollongbar and Alstonville. Access is available from Dalmacia Drive, Wonga Way, Vain Court and Smiths Lane.

This site contains the threatened flora species Rough-shelled Bush Nut *Macadamia tetraphylla*, *Acalypha eremorum*, Arrow-head Vine *Tinospora tinosporoides*, Basket Fern *Drynaria rigidula* Scrub Turpentine *Rhodamnia rubescens* and Smooth Scrub Turpentine, along with planted Coolamon *Syzygium moorei*. Common canopy species include Blue Quandong, Red Apple, Red Cedar *Toona ciliata*, Hoop Pine, White Booyong, Cudgerie and Yellow Wood *Flindersia xanthoxyla*. Common mid-storey species include Brush Bloodwood, Red Ash, Twin-leaved Coogera and Guioa. Swamp Water Fern *Telmatoblechnum indicum* is common in the ground layer.

An initial Site Action Plan was produced for the northern section of this reserve *Wollongbar Drainage Reserve Restoration Plan* (Moffatt 2001) and the *High Conservation Value Vegetation Restoration Action Plan: Wollongbar Rainforest Reserve* (EnviTE 2005) intended for the main rainforest and riparian zone. Both plans concentrated on weed control and planting native species, with the intent to guide volunteer works on the site by a local Landcare group. The rainforest/riparian zone was subject to initial ecological restoration by qualified bush regenerators in 2006, followed by ongoing work through the Landcare group. Landcare work ceased more than ten years ago, and the site is now very weedy. The far southern end is dominated by Camphor Laurel, and parts of the site contain the invasive species Madeira Vine *Anredera cordifolia* and Urena Burr *Urena lobata* at high densities. Lady-of-the-night *Cestrum nocturnum* is the most prevalent weed on edges and Large-leaved Privet *Ligustrum lucidum* is worst in understorey, with Trad and Broad-leaved Paspalum *Paspalum mandiocanum* patchily dominant in the ground layer. Lantana occurs right up into the canopy in some sections.



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Some gully erosion is visible along the small creek running through the centre of the site, which connects to Maguires Creek downstream. This creek had a septic smell (near the southern tarred entranceway) at the time of survey and Council sewer maintenance could be needed. The former creek crossing was washed away in the 2022 Northern Rivers flood event, and needs replacing, along with track upgrading for public safety reasons. A small bike track has been constructed by members of the public in the north-east of this site off Cerreto Circuit and minor earthworks (hand-dug) and felling of saplings is evident.



Plate 10: Southern Dalmatia Drive entrance (left) unappealing and Drawn Court entrance planted with palm trees (right).



Plate 11: Joindre Street entrance (left) is formalised but leads only to a steep overgrown bank and Wonga Way entrance (right) is overgrown and appears as private land.



**Plate 12:** The main reserve entrance (left) is overgrown and not clearly visible. Rubbish is piled against the reserve on neighbouring lot (right).



**Plate 13:** The only available creek crossing is unsafe and a tree has fallen on a rotten picnic table and platform.



**Plate 14:** Large areas of the reserve where canopy cover is absent are overgrown with weeds (left), but parts of the reserve contain high conservation value rainforest (right).





**Plate 15:** Constructed bike tracks off Cerreto Circuit.

### Recommendations

This site has been neglected for some time and requires significant investment if public use is to be encouraged. The existing walking track is poorly defined with numerous trip hazards, unsteady rocks and abrupt level changes, as well as overhanging branches and vines. A large fallen tree is blocking the track at one point and requires removal to regain access. Old platforms, bridge, fencing and timber tables are rotting in place and should be removed from the reserve as soon as practical. The bridge across the second-order stream is absent and the creek can only be crossed through difficult rock-hopping.

Creek erosion is evident following flooding in 2022 and part of the steeper banks require stabilisation through planting or engineering solutions.

Designated accesses are available into this reserve from Joindre Street, Drawn Court, Wonga Way, two entrances on Dalmacia Drive, Vain Court, Cerreto Circuit and the road reserve beyond Smith Lane. Many of the accesses are overgrown or apparently incorporated into private lots.

- It is recommended that bushland track and trail specialists be engaged to advise and plan the track and creek crossing for longevity and ease of access. Additionally, the track vegetation requires heavy pruning and defining.
- New reserve infrastructure such as tables, chairs and viewing platforms.
- New bridge crossings should be investigated on the main walking track and between Dalmacia Drive and Cerreto Circuit/ Lyle Park.
- Maintenance is required at all access points to Wollongbar Rainforest Reserve to remove and prune overgrown vegetation. Improved signage and formalized walking tracks are recommended at entrances to avoid informal tracks and trampling.
- The central Dalmacia Drive entrance is overgrown, looks dark and uninviting and signage is not obvious. The primary rainforest reserve signage and educational/ interpretative signage is recommended at the central Dalmatia Drive entrance.
- Significant weed control is required, and the upper open drainage area is recommended to be rock-lined to prevent further erosion and planted with species such as Sandpaper Fig, Water Gum *Tristaniopsis laurina* and Giant Water Gum on edges, with *Lomandra* and water tolerant sedges such as *Juncus usitatus* and *Ficinia nodosa* along the drainage channel.
- Removal of illegally dumped waste as per **Plate 12** and general site clean-up is required.
- Removal / chopping of fallen tree to reinstate track access (location shown in **Figure 20**).



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**Table 8 – Summary of restoration actions for Site 4**

Work Sequence	Dominant Weed Species	Actions	Work Area
Primary Work (Year 1)	Camphor Laurel Murraya Ochna Privet Senna Lantana Coral Berry Urena Burr Cocos Palm	<ul style="list-style-type: none"> <li>▪ Work systematically and comprehensively through the zone commencing from the upstream end in the north and continue work following this line southwards to complete the zone.</li> <li>▪ Cut, scrape and paint (CSP) woody weeds such as Lantana, Winter Senna, Camphor Laurel, and other woody weeds.</li> <li>▪ Lop cut stems to reduce trip hazard or allow access for bush regen team if necessary.</li> <li>▪ Leave treated Lantana frames and other woody weeds in place to break down gradually.</li> <li>▪ Smaller plants can be hand pulled.</li> <li>▪ Drill and inject larger exotic trees such as Camphor Laurel.</li> </ul>	5.2ha
	Climbing Asparagus Madeira Vine	<ul style="list-style-type: none"> <li>▪ Cut Climbing Asparagus and other exotic vines at shoulder height, cut, scrape and paint the base of the plant with herbicide. Scrape and paint Madeira Vine stems. Dense leafy stems can be pulled down or cleared from native shrubs intact and bundled to spray. Small or shallow rooted specimens can be hand pulled. Juvenile Asparagus fern to be spot sprayed.</li> </ul>	
	Exotic Grasses Freckle Face Hairy Commelina Trad Crofton Weed Mist Flower Blue Billygoat	<ul style="list-style-type: none"> <li>▪ Clear exotic grasses and groundcovers around small native plants prior to spray to prevent off-target damage.</li> <li>▪ Spot spray all exotic grasses, herbs and groundcover weeds (overspray dense areas) throughout the site, working thoroughly and systematically as described in primary work above. Follow up the spot spray every 2 months depending on season and prevailing weather conditions.</li> </ul>	
Follow Up (Years 2 & 3)	Regrowth of woody weeds, exotic vines, grasses and groundcovers	<ul style="list-style-type: none"> <li>▪ Follow up spot spray (approx. 4-6 visits / year) depending on season and prevailing weather conditions. If natural regeneration of wetland groundcovers in the north of Zone 2 does not occur, then consider plantings.</li> <li>▪ Encourage recruitment of native species by well-timed control of weeds.</li> </ul>	5.2ha
Maintenance (Years 4 & 5)	Regrowth of weeds	<ul style="list-style-type: none"> <li>▪ Follow up spot spray (approx. 2-3 visits / year) depending on season and prevailing weather conditions.</li> <li>▪ Encourage recruitment of native species by well-timed control of weeds.</li> </ul>	5.2ha

**8.2.5. Site 5: Wollongbar Drainage Reserve (1.1241 ha)**



Figure 21: Site 5.

Site 5 is Community Land with the main purpose as a drainage reserve. Stormwater empties into this site from Rubiton Street and a sewerage pipe runs through the reserve. It is surrounded by houses on three sides and neighbours maintain reserve edges as lawn with a variety of exotic plants. The reserve contains two small first-order drainage lines joining to form a second-order stream at the eastern end of the reserve, which then joins another second order stream to form a third-order creek in the lower part of Site 4, eventually becoming Maguires Creek.

Site 5 is linked to Site 4 by an unformed road reserve, which extends between Ramses Street and Smiths Lane and contains water supply infrastructure. Although not part of either site, the road reserve contains bushland of conservation value. The eastern half is mapped as 'significant urban bushland' under Ballina DCP 2012 and follows the drainage channel.





**Plate 16:** Much of Site 5 is an open channel amongst grassland requiring maintenance mowing.



**Plate 17:** The eastern area is higher conservation value.



**Plate 18:** Neighbours gardens with exotic species occur in the reserve.



**Recommendations**

- The stormwater channel/ drainage line to maintained to allow free flow of stormwater.
- A 6m machinery access occurs adjacent to 34 Rubiton Street and this is to be maintained to enable continued access to stormwater, sewerage and utilities infrastructure within the reserve.
- Zone 5a (8000m<sup>2</sup>) - weed control is required and it is recommended that the reserve boundaries be defined, and neighbours consulted with regard to replacing exotic species with natives. Reserve signage would improve recognition of the site as a public reserve.
- Zone 5b (4250m<sup>2</sup>) - Large open areas of grassland/groundcover weeds occur in this area. Revegetation is recommended along the channel banks with species such as Creek Sandpaper Fig, Water Gum *Tristaniopsis laurina* and Giant Water Gum *Syzygium francisci*, Lomandra and water tolerant sedges such as *Juncus usitatus* and *Ficinia nodosa*. The suggested species can be found in **Table 10**.

**Table 9 - Summary of restoration actions for Site 5**

Work Sequence	Dominant Weed Species	Actions	Work Area
Primary Work Zone 5a (Year 1)	Cadaghi Cocos Palm Camphor Laurel Norfolk Pine African Tulip Tree Murraya Winter Senna Ochna Castor Oil Others	<ul style="list-style-type: none"> <li>▪ Work systematically and comprehensively through the zone commencing from the west and continue work following this line eastwards to complete the zone.</li> <li>▪ Cut, scrape and paint (CSP) woody weeds such as Lantana, Winter Senna and Murraya.</li> <li>▪ Lop cut stems to reduce trip hazard or allow access for bush regen team if necessary.</li> <li>▪ Smaller plants can be hand pulled.</li> <li>▪ Drill and inject Ochna and larger exotic trees such as Camphor Laurel.</li> </ul>	0.8ha
	<i>Ipomoea</i> species Passionflowers	<ul style="list-style-type: none"> <li>▪ Scrape and paint <i>Ipomoea</i> species and pull other exotic vines to be sprayed at shoulder height, cut, scrape and paint the base of the plant with herbicide. Dense leafy stems can be pulled down or cleared from native shrubs intact and bundled to spray. Small or shallow rooted specimens can be hand pulled.</li> </ul>	
	Exotic grasses Crofton Weed Blue Billygoat Weed Trad	<ul style="list-style-type: none"> <li>▪ Clear exotic grasses and groundcovers around small native plants prior to spray to prevent off-target damage.</li> <li>▪ Spot spray all exotic grasses, herbs and groundcover weeds throughout the zone, working thoroughly and systematically as described in primary work above. Follow up the spot spray every 3 months depending on season and prevailing weather conditions.</li> </ul>	
Follow Up (Years 2 & 3)	Regrowth of woody weeds, exotic vines, grasses and groundcovers	<ul style="list-style-type: none"> <li>▪ Follow up spot spray (approx. 4 visits / year depending on season and prevailing weather conditions). Encourage recruitment of native species by well-timed control of weeds.</li> </ul>	0.8ha
Maintenance (Years 4 & 5)	Regrowth of woody weeds, exotic vines, grasses and groundcovers	<ul style="list-style-type: none"> <li>▪ Follow up spot spray (approx. 2-3 visits / year depending on season and prevailing weather conditions).</li> <li>▪ Encourage recruitment of native species by well-timed control of weeds.</li> </ul>	0.8ha





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**Table 10 - Suggested species for planting in Zone 5b**

Scientific Name	Common Name
<b>Species that can withstand inundation and drying in drainage line</b>	
<i>Alocasia brisbanensis</i>	Cunjevoi
<i>Crinum pedunculata</i>	River Lily
<i>Ficinia nodosa</i>	Knobby Club Rush
<i>Fimbristylis dichotoma</i>	Common Fringe-sedge
<i>Juncus usitatus</i>	Common Rush
<i>Lomandra hystrix</i>	Mat Rush
<i>Lomandra longifolia</i>	Spiny-Headed Mat-rush
<i>Machaerina rubiginosa</i>	Twig Rush
<i>Paspalum distichum</i>	Water Couch
<i>Persicaria decipiens</i>	Slender Knotweed
<i>Persicaria hydropiper</i>	Water Pepper
<b>Riparian rainforest species for edge of stream</b>	
<i>Archontophoenix cunninghamiana</i>	Bangalow Palm
<i>Castanospermum australe</i>	Blackbean
<i>Cyperus tetraphyllus</i>	Rainforest Sedge
<i>Ficus coronata</i>	Creek Sandpaper Fig
<i>Elaeocarpus grandis</i>	Blue Quandong
<i>Syzygium francisci</i>	Giant Water Gum

**8.2.6. Site 6: Rubiton Park (2426m<sup>2</sup>)**



Figure 22. Site 6.

Site 6 is next to a sports field known as Hill Park Oval, primarily used for cricket, with some children’s play equipment and a toilet block adjacent. The area for consideration is a patch of planted vegetation containing local native species, non-local natives, exotic species and fruit trees (Zone 6a), as well as a small open drainage line running to a stormwater outlet on Rubiton Street (Zone 6b). The lot includes a 5m wide unformed pathway running behind houses fronting Bertram Street and Wollongbar Drive to the west, and Rubiton St and Rancher Court to the east, providing an easy accessway to the park for nearby residents.

Native species include Water Gum, Black Bean, Maidens Blush, Rosewood, Blue Quandong, White Booyong, Native Tamarind, Brushbox, Blue Lilly Pilly, Cunjevoi and Sweet Pittosporum. Exotic species include Mango, Avocado, a large Camphor Laurel, African Tulip Tree, Golden Rain Tree, Travellers Palm, Sequoia, Murraya, Grass Tree, Dracaena, Crucifix Orchid, Clivea, Lady-of-the-Night and Trad - the latter covering the ground over a third of the site.

The patch of bushland provides welcome shade and a quiet place to sit, with a small unformed path meandering through. Existing seating is old and apparently little used.



**Plate 19:** The planted bushland section (left) and the playground (right).



**Plate 20:** Drainage channels are eroding and require protection and edge plantings.



**Plate 21:** The extension of the park as an access lane behind houses (left) and weed encroachment (right).



**Recommendations**

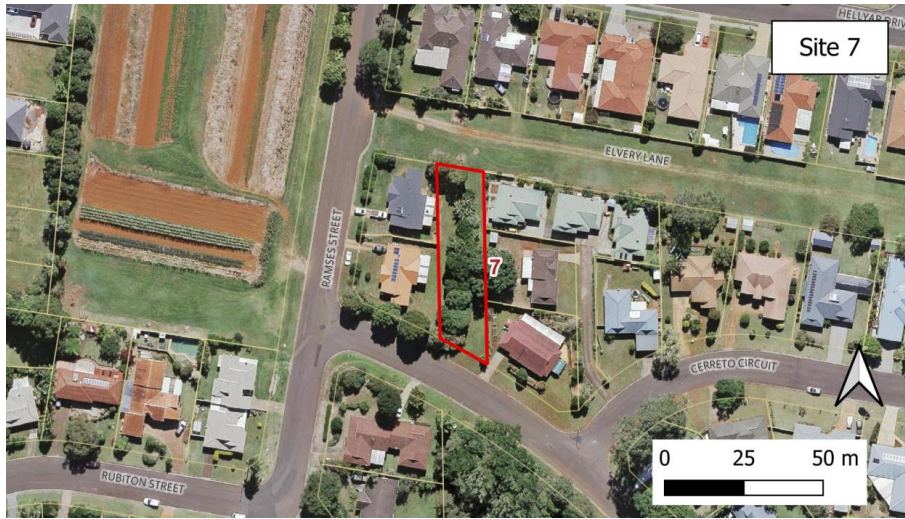
- Since the site is primarily an urban park, it is recommended that existing trees remain and weed control in Zone 6a be limited to invasive species only – such as Golden Rain Tree and Trad.
- Additional revegetation could be undertaken on parts of the adjacent open mown areas and around the playground to increase shade while still enabling overlooking from the adjacent street and oval for safety reasons.
- The drainage line (Zone 6b) is eroding and could be rock lined to prevent sediment export to the stormwater drain and thence the local creek, ideally with edges planted with sedges/ Lomandra.
- Opportunities exist for updated seating and picnic tables, with the existing requiring removal due to some rot.

**Table 11 - Summary of restoration actions for Site 6**

Work Sequence	Dominant Weed Species	Actions	Work Area
Primary Work Zone 6a (Year 1)	Golden Rain Tree African Tulip Tree Camphor Laurel	<ul style="list-style-type: none"> <li>▪ Work systematically and comprehensively through the zone.</li> <li>▪ Cut, scrape and paint (CSP) woody weeds.</li> <li>▪ Lop cut stems to reduce trip hazard or allow access for bush regen team if necessary.</li> <li>▪ Smaller plants can be hand pulled.</li> <li>▪ Drill and inject larger exotic invasive species.</li> </ul>	0.3ha
	Exotic Grasses Trad	<ul style="list-style-type: none"> <li>▪ Clear exotic grasses and groundcovers around small native plants prior to spray to prevent off-target damage.</li> <li>▪ Spot spray invasive grasses, herbs and groundcover weeds throughout the zone, working thoroughly and systematically as described in primary work above. Follow up the spot spray every 3 months depending on season and prevailing weather conditions.</li> </ul>	
Follow Up (Years 2 & 3)	Regrowth of woody weeds, exotic vines, grasses and groundcovers	<ul style="list-style-type: none"> <li>▪ Follow up spot spray (approx. 4 visits / year depending on season and prevailing weather conditions). Encourage recruitment of native species by well-timed control of weeds.</li> </ul>	0.3ha
Maintenance (Years 4 & 5)	Regrowth of woody weeds, exotic vines, grasses and groundcovers	<ul style="list-style-type: none"> <li>▪ Follow up spot spray (approx. 2-3 visits / year depending on season and prevailing weather conditions).</li> <li>▪ Encourage recruitment of native species by well-timed control of weeds.</li> </ul>	0.3ha



**8.2.7. Site 7: Cerreto Circuit Reserve (853m<sup>2</sup>)**



**Figure 23.** Site 7.

Site 7 is a small reserve connecting Cerreto Court with Elvery Lane. This reserve is approximately 15m wide x 60m long and it is fringed by two houses to the west and three houses to the east. The linear reserve provides a pedestrian walkway connection between Cerreto Court and Elvery Lane. From the streets, it looks like private land (without signage) and neighbours have planted exotic species as a visual barrier to opposite backyards, possibly with some minor building /fencing encroachments. Planted species include Hibiscus, Murraya, Brunfelsia, Bananas, Travellers Palm, Crepe Myrtle, Duranta, Poinciana and Magnolia. Occasional native species include Callistemon, a Silky Oak and a Lilly Pilly. Invasive weeds include Golden Rain Tree, Lady-of-the-Night, Large-leaved Privet and Trad. A vegetable garden and swing set are present within the reserve.

A narrow strip some 4m wide is available as a through route of mown grassland or bare dirt (apparently mown by neighbours as an extension of their backyards), with the remainder crowded with overgrown vegetation and adjacent unkempt rear fences.

**Recommendations**

- It is recommended the walkway be formalised, reserve signage provided, and discussions held with neighbours regarding removal of exotic species and private recreation/gardens/fences from the reserve.
- Revegetation with local native species is possible but methods to avoid increasing bushfire risk to adjoining properties would have to be considered, such as spaced or clumped trees.



**Plate 23:** The narrow walkway is unformed and overgrown.



**Plate 24:** The park contains public infrastructure and is overgrown and encroached on by private backyards (right).



**Plate 25:** Planted hedgerows divide the park and create unusable area.



**Plate 26:** Park view from Cerreto Circuit.



**8.2.8. Site 8: Lyle Park (1.4984ha)**



**Figure 24.** Site 8.

Lyle Park is the home of the Wollongbar/Alstonville Rugby Club and contains a large oval with goal posts, open and closed stadium bench seating, and a clubhouse with amenities. Site 8 refers to the outer edges of the playing field area and includes a second-order stream and stream banks along the southern, western and northern edges. Erosion and siltation are significant along the reserve edges, arising from unlined stormwater channels (Zone 8b) and an unvegetated part of the steep creek bank (Zone 8c) and impacting the creek. Some recent Lantana control is evident in the southwest.

Overall, the site contains few natives and many weeds. Regenerated native tree species in zone 8a include Sally Wattle, Forest Oak, Red Ash, White Booyong, Sandpaper Fig, Guioa, Bleeding Heart and Pink Euodia. Understorey species include Soft Bracken, Common Rush, Cunjevoi, and Slender Knotweed. Weed species include Blue Billygoat Weed, Alexander Palm, Cobbler’s Pegs, Cecropia, Lady-of-the-night, Camphor Laurel, Duranta, Golden Cane Palm, Lantana, Large-leaved Privet, Murraya, Cocos Palm, Slash Pine, Fishbone Fern, Broad-leaved Paspalum, Philodendron, Arrowhead Vine, Castor Oil and Singapore Daisy. Exotic palm trees and planted Jacarandas (Zone 8d) along the eastern field boundary provide a colourful shade corridor.



**Plate 27:** The SW corner is dominated by Singapore Daisy (left) and the southern bank to be expanded by planting (8c).



**Plate 28:** Looking down into the weedy creek from the southern edge of the oval (left) and bank erosion (right).



**Plate 29:** The western drainage line and swale area (8b).



**Plate 30:** The stormwater channel from Elvery Lane requires rock lining (left) and the northern bank area (right).





### Recommendations

- Engage a surveyor to confirm the southern boundary of the site.
- Significant weed control is required in Zone 8a here to remove mature Camphor Laurel, Privet, Lantana, Tobacco Bush, Singapore Daisy and Arrowhead Vine. Work systematically and comprehensively through the zone commencing from the southwest corner and continue work following this line east and then north and west to complete Site 8. Retain Jacarandas in 8d for shade and amenity, and remove the exotic palms in this area.
- Stabilise the open sections of the southern bank down to the drainage line with Spiny-headed Mat-rush and riparian rainforest species such as Sandpaper Fig, Giant Water Gum and Black Bean. Plant a 10m strip at the top of the bank (Zone 8c) using rainforest species from **Table 15** including occasional large trees such as Blue Quandongs for shade. Revegetate the eastern boundary of the reserve between the drainage line and the Jacaranda trees to include further colourful flowering and fruiting rainforest species such as Flame Tree, Native Frangipani, Glossy Laurel, White Laceflower, Bleeding Heart and Tulipwood. Space plants to enable continued pedestrian access along the drainage line. Plant in-stream and edge of channel with species that can withstand inundation and drying, such as Common Rush *Juncus usitatus*, Knobby Club Rush *Ficinia nodosa*, Twig Rush *Machaerina rubiginosa*, Common Fringe-sedge *Fimbristylis dichotoma*, River Lily *Crinum pedunculata* and Mat Rush *Lomandra hystrix*.
- Maintain the eastern drainage line through de-silting in the north. Rock line the drainage channel below the large stormwater pipe outlet in the north adjacent Elvery Lane to slow flow and capture sediment (northern section of Zone 8b). Plant the northern hill with rainforest trees spaced or clumped to provide shade for sitting on the bank.

**Table 12 - Summary of restoration actions for Site 8**

Work Sequence	Dominant Weed Species	Actions	Work Area
Primary Work Zone 8a (Year 1)	Alexander Palm Slash Pine Duranta Murraya Castor Oil Camphor Laurel Lantana	<ul style="list-style-type: none"> <li>▪ Work systematically and comprehensively through the zone.</li> <li>▪ Cut, scrape and paint (CSP) weeds such as Alexander Palm, Castor Oil and Murraya.</li> <li>▪ Lop cut stems to reduce trip hazard or allow access for bush regeneration team if necessary.</li> <li>▪ Smaller plants can be hand pulled.</li> <li>▪ Drill and inject larger exotic trees such as Camphor Laurel Duranta.</li> </ul>	0.8ha
	Exotic grasses Singapore Daisy	<ul style="list-style-type: none"> <li>▪ Clear exotic grasses and groundcovers around small native plants prior to spray to prevent off-target damage.</li> <li>▪ Spot spray all exotic grasses, herbs and groundcover weeds throughout the zone, working thoroughly and systematically as described in primary work above. Follow up the spot spray every 3 months depending on season and prevailing weather conditions.</li> </ul>	
Primary Work Zone 8d (Year 1)	Exotic palms	<ul style="list-style-type: none"> <li>▪ Cut and paint palm trees and retain Jacarandas for visual amenity.</li> </ul>	0.1ha
Follow Up (Years 2 & 3)	Regrowth of woody weeds, exotic vines, grasses and groundcovers	<ul style="list-style-type: none"> <li>▪ Follow up spot spray (approx. 4 visits / year depending on season and prevailing weather conditions). Encourage recruitment of native species by well-timed control of weeds.</li> </ul>	0.9ha
Maintenance (Years 4 & 5)	Regrowth of woody weeds, exotic vines, grasses and groundcovers	<ul style="list-style-type: none"> <li>▪ Follow up spot spray (approx. 2-3 visits / year depending on season and prevailing weather conditions).</li> <li>▪ Encourage recruitment of native species by well-timed control of weeds.</li> </ul>	0.9ha

## 8.2.9. Site 9: Wollongbar Sports Fields (5.3446ha)

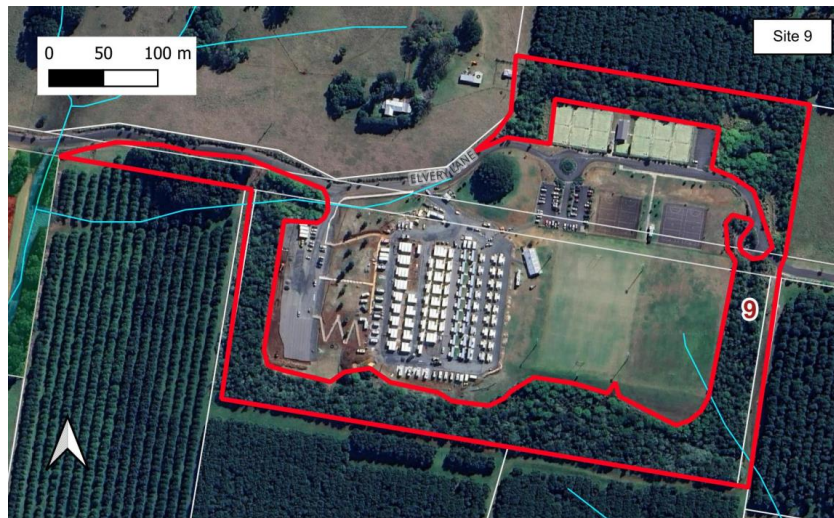


Figure 25: Site 9.

Wollongbar Sports Fields provides the grounds for the Wollongbar Warriors Football Club, six tennis courts and four basketball courts available for public use, amenities and public carparking. It is presently the site of temporary housing to assist victims of the February/March 2022 floods. Site 9 represents a 30-80m densely vegetated buffer surrounding the sports field and tennis courts and is the subject of a previous plan entitled *Planting and Maintenance Plan for the Biological Buffer: Wollongbar Sports Field* (EnviTE 2011).

Buffer planting was undertaken in summer of 2015/2016 using subtropical rainforest species (see species list in **Appendix 1**). The plantings are doing well, have achieved a low canopy cover at approximately 8m height and consist of appropriate local native species (apart from Fine-leaved Tuckeroo which naturally occurs only within Tweed Shire and further north). Minimal weeds are present within the planting, with weeds are present only on edges and in canopy gaps, however, occasional occurrences of Madeira Vine, Moth Vine Climbing Nightshade, Large-leaved Privet, Corky Passionfruit and White Passionflower should be controlled to avoid future invasion. The site is now reaching a self-sustaining stage as natural regeneration of many species was evident at the time of survey.

#### **Recommendations**

The vegetated buffer requires a spray run as soon as practical to reduce weeds on edges and in gaps. A regular schedule for weed control is recommended at least annually to ensure further progression to a fully functioning rainforest.



Plate 31: View of the buffer plantings adjacent the sports field



Plate 32: Weeds occur on edges and in canopy gaps.



Plate 33: A few trees removed for the new carpark have been replaced recently (left) and the bank adjacent the tennis courts (right).





**Plate 34:** A large Moreton Bay Fig tree is a feature of this site.

**8.2.10. Site 10: Elvery Lane Road Reserve southern side (1692m<sup>2</sup>)**



Figure 26. Site 10.

Site 10 is an elongated section of planted road reserve including a mature Moreton Bay Fig. It occurs north of a private Macadamia plantation and it is a section of road reserve to the immediate east of the Wollongbar sports field buffer area. It has been planted adjacent a mature Moreton Bay Fig with native species including Bleeding Heart, Mat Rush, Prickly-leaved Paperbark, Brown Kurrajong and a Bottle Brush cultivar, and is generally in good condition. Weeds are primarily annuals and occur on edges and where planting have failed. They include Blue Billygoat Weed, Cobbler's Pegs, Paddy's Lucerne and Broad-leaved Paspalum, with occasional Large-leaved Privet, Corky Passionfruit, Tobacco Bush and Climbing Nightshade.



Plate 35: Some bare patches occur around Lomandras, apparently eroded during flood rain (left), and stormwater channel (right).

**Recommendations**

- The site requires weed control and is best scheduled along with Site 9.
- Minor additional planting required to replace lost plants, with the species suggested in **Table 15**.
- Stormwater infrastructure as a concrete channel runs along the southern side of Elvery Lane and must be protected and maintained.

**8.2.11. Site 11: Western Reserve Wollongbar Residential Estate (Kurrabri) (3.1227ha)**



Figure 27: Site 11.

The reserve runs between Plateau Drive and Bolwarra Circuit/Riberry Grove, with pedestrian and vehicular access available from Queens Park Court in the south to Bolwarra Circuit in the north as a 4m wide well-formed concrete/bitumen drive with a culvert crossing over the drainage line. A children’s playground is included within the reserve off Bolwarra Circuit. A formed walking path in the north of the reserve links Plateau Drive with Bolwarra Circuit, near a bus stop on Plateau Drive. Stormwater infrastructure from Plateau Drive empties into the reserve and a sewer pipe runs through part of the site in the southeast.

Site 11 is part of the area covered by the *Bushland Rehabilitation and Management Plan for 7(d) zoned land - Wollongbar Urban Expansion Area (Aspect North 2005)* prior to residential development in the northwest of the current Wollongbar suburb extent. This plan was amended by Land Partners in 2010. A new *Rehabilitation Action Plan Wollongbar Park Residential Estate* was prepared by Land and Fire Assessment in 2015 and required planting and weed control to be undertaken by the developer until handover to Council. Not all the actions required by this plan have been achieved to date. This area has now been handed over with extra works undertaken but will require ongoing maintenance. This site has been subject to assisted regeneration and in-fill planting over a five-year period.

Site 11 follows two second-order streams forming the headwaters of Willowbank Creek and is linked to two drainage reserves upstream. It contains regrowth riparian rainforest vegetation as well as rainforest plantings from 2015-16, now largely established (Zone 11a). The plant community here is regrowth and planted rainforest, regarded as the Endangered Ecological Community Lowland Rainforest. Weeds are now encroaching on the creek area and additional primary and maintenance weed control is required. Camphor Laurel and Taro are present. The northern section of the reserve is open mown grassland (Zone 11b) which would be more easily maintained by planting out, with the exception of the drainage infrastructure.



**Recommendations**

- Analysis of the management plans for the site indicates that the restoration goal – to achieve 80% native vegetation canopy cover and control of all noxious and environmental weeds – has not yet been achieved. Specific areas of concern are:
  - Weeds formerly regarded as ‘noxious and environmental’ (now classified as weeds requiring Prevention, Eradication, Containment or Asset Protection under the *NSW Biosecurity Act 2015*, with individual weed categories listed in the *North Coast Regional Strategic Weed Management Plan 2023-2027*) are Camphor Laurel (including mature trees that have not been stem-injected), mature Slash Pines (potentially these occur on private land as the boundary is unclear), Broad-leaved Privet, Cocos Palm, Lady of the Night, Corky Passionfruit and White Passionflower.
  - Additional known environmental weeds in local bushland areas include Broad-leaved Paspalum and Taro (*Colocasia esculenta*) occurring within the creek. Taro requires treatment through spraying or hand pulling to avoid choking the drainage line. A large part of the low drainage area is covered by Broad-leaved Paspalum – this should be planted out with native sedges/ rushes and riparian species as slasher access appears unavailable.
  - A number of the semi-mature palms present are Alexander Palms rather than the local native Bangalow Palm.
- Zone 11a is to be subject of assisted regeneration, while zone 11b could potentially be planted out with rainforest species from **Table 15**, with the exception of the drainage infrastructure.
- Barbwire is present across the creek near the culvert. This should be removed for public safety reasons.
- Reserve signage is required at the Queens Park Court entrance to signify public access to the reserve.



**Plate 36:** The upper drainage line consists of Broad-leaved Paspalum and other weed species. Access is limited or unavailable for slashing. The zone should be planted with native sedges and rushes and riparian edge plants.





**Plate 42:** Bolwarra Circuit entrance (left) and playground with the reserve in the background (right).



**Plate 43:** The creek line needs a spray run for weed control and barb-wire fence removed.



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**Table 13.** Summary of restoration actions for Site 11

Work Sequence	Dominant Weed Species	Actions	Work Area
Primary Work Zone 11a (Year 1)	Lantana Privet Lady-of-the-Night	<ul style="list-style-type: none"> <li>Work systematically and comprehensively through the zone.</li> <li>Cut, scrape and paint (CSP) weeds such as Lady-of-the-Night and Lantana.</li> <li>Lop cut stems to reduce trip hazard or allow access for bush regeneration team if necessary.</li> <li>Smaller plants can be hand pulled.</li> <li>Drill and inject larger exotic trees.</li> </ul>	2.4ha
	Exotic grasses Singapore Daisy	<ul style="list-style-type: none"> <li>Clear exotic grasses and groundcovers around small native plants prior to spray to prevent off-target damage.</li> <li>Spot spray all exotic grasses, herbs and groundcover weeds throughout the zone, working thoroughly and systematically as described in primary work above. Follow up the spot spray every 3 months depending on season and prevailing weather conditions.</li> </ul>	
	Taro	<ul style="list-style-type: none"> <li>Spray or hand pull and bag Taro plants along the creek line.</li> </ul>	0.2ha
Follow Up (Years 2 & 3)	Regrowth of woody weeds, exotic vines, grasses and groundcovers	<ul style="list-style-type: none"> <li>Follow up spot spray (approx. 4 visits / year depending on season and prevailing weather conditions). Encourage recruitment of native species by well-timed control of weeds.</li> </ul>	2.4ha
Maintenance (Years 4 & 5)	Regrowth of woody weeds, exotic vines, grasses and groundcovers	<ul style="list-style-type: none"> <li>Follow up spot spray (approx. 2-3 visits / year depending on season and prevailing weather conditions).</li> <li>Encourage recruitment of native species by well-timed control of weeds.</li> </ul>	2.4ha

**8.2.12. Site 12: North Reserve Wollongbar Residential Estate (Mt Moriah) (1.4045ha)**



Figure 28: Site 12.

Site 12 is a drainage reserve containing the headwaters of Willowbank Creek, to the west and south of Spring Creek Place. It includes adjoining vegetated riparian land and cleared open space and stormwater infrastructure, developed as part of the Mount Moriah residential estate. Vehicular access is available from Spring Creek Place



### Wollongbar Reserves Vegetation Management Plan

off Plateau Drive, with pedestrian access available from Callicoma Court. The reserve has been subject to assisted regeneration and infill planting works in Zone 12a by the developer of Mount Moriah estate, and open space is managed as sloping mown grassland.

The site is part of the area covered by previous plans including:

- *Bushland Rehabilitation and Management Plan for 7(d) zoned land - Wollongbar Urban Expansion Area*, written in 2005 (Aspect North, amended by Land Partners in 2010).
- *Vegetation Management Plan Mt Moriah Residential Development* produced by Ardill Payne & Associates in 2012 includes the lower part of the reserve off Spring Creek Place. This plan required a constructed concrete access path which has not been built, although the grassed area is hardened and driveable. Camphor Laurel is still present in parts and the creek area is covered in annual weeds and Broad-leaved Paspalum, possibly indicating previous sedimentation.
- *Rehabilitation Action Plan Wollongbar Park Residential Estate* prepared by Land and Fire Assessment in 2015 includes the upper section of the drainage line below Callicoma Court, which required 80% native vegetation canopy cover and all noxious and environmental weeds controlled. This has largely been achieved in this upper section, though the site requires follow-up weed control.

### Recommendations

- The site needs further weeding in Zone 12a to control semi-mature Camphor Laurel, Cadaghi, Cocos Palm, Privet, Passionfruit, Singapore Daisy and Setaria on the creek edge; and Taro, Broad-leaved Paspalum and annual weeds in the creek bed.
- Reserve edges are undefined adjacent houses and some exotic garden species could be on the edge of neighbouring properties.
- No concrete access pathway has been provided as originally planned within the Mount Moriah VMP.
- Expand riparian edges over the steepest grassed area to reduce mowing (Zone 12b). Plant Giant Water Gum on low grass area that remains unplanted.



**Plate 44:** Overview of drainage reserve taken from Callicoma Court (left) and creek bed overgrown with weeds (right).





**Plate 45:** Looking northwest from Spring Creek Place (left) and grassed accessway adjacent creek (right).



**Plate 46:** Camphor Laurel remains untreated in parts (left) & electricity infrastructure at the upper end of the reserve.

**Table 14.** Summary of restoration actions for Site 12

Work Sequence	Dominant Weed Species	Actions	Work Area
Primary Work Zone 12a (Year 1)	Lantana Privet Lady-of-the-Night Camphor Laurel Cocos Palm Tobacco Bush Cadaghi	<ul style="list-style-type: none"> <li>Work systematically and comprehensively through the zone.</li> <li>Cut, scrape and paint (CSP) weeds such as Lady-of-the-night and Lantana.</li> <li>Lop cut stems to reduce trip hazard or allow access for bush regeneration team if necessary.</li> <li>Smaller plants can be hand pulled.</li> <li>Drill and inject larger exotic trees.</li> </ul>	1ha
	Exotic grasses Singapore Daisy	<ul style="list-style-type: none"> <li>Clear exotic grasses and groundcovers around small native plants prior to spray to prevent off-target damage.</li> <li>Spot spray all exotic grasses, herbs and groundcover weeds throughout the zone, working thoroughly and systematically as described in primary work above. Follow up the spot spray every 3 months depending on season and prevailing weather conditions.</li> </ul>	
	Taro	<ul style="list-style-type: none"> <li>Spray or hand pull and bag Taro plants along the creek line.</li> </ul>	0.2ha
Follow Up (Years 2 & 3)	Regrowth of woody weeds, exotic vines, grasses and groundcovers	<ul style="list-style-type: none"> <li>Follow up spot spray (approx. 4 visits / year depending on season and prevailing weather conditions). Encourage recruitment of native species by well-timed control of weeds.</li> </ul>	1ha
Maintenance (Years 4 & 5)	Regrowth of woody weeds, exotic vines, grasses and groundcovers	<ul style="list-style-type: none"> <li>Follow up spot spray (approx. 2-3 visits / year depending on season and prevailing weather conditions).</li> <li>Encourage recruitment of native species by well-timed control of weeds.</li> </ul>	1ha



## 8.2.13. Site 13: Eastern Reserve Wollongbar Residential Estate (0.3649ha)



Figure 29: Site 13.

Site 13 is a drainage reserve including the lower portion of Willowbank Creek to the east of Spring Creek Place and downstream of Site 12. It consists of a section of land adjacent Spring Creek Place and another section adjoining Plateau Drive, connected by a narrow 3m wide strip behind numbers 2 to 10 Spring Creek Place. This site has been subject to assisted regeneration over a five-year period. Taro occurs in this site.

The site is part of the area covered by previous plans including:

- *Bushland Rehabilitation and Management Plan for 7(d) zoned land - Wollongbar Urban Expansion Area*, written in 2005 (Aspect North, amended by Land Partners in 2010).
- The initial portion adjacent Spring Creek Place (zone 13b and part of zone 13a) is contained within the *Vegetation Management Plan Mt Moriah Residential Development* produced by Ardill Payne & Associates in 2012. Zone 13b required infill planting on a 3mx3m grid and zone 13a, assisted regeneration. This work does not appear to have been completed.
- Zone 13a is infested with Singapore Daisy, Taro along the riparian section and Golden Raintree, Lantana, Camphor Laurel and Broad-leaved Privet and other woody weeds through the vegetated area.

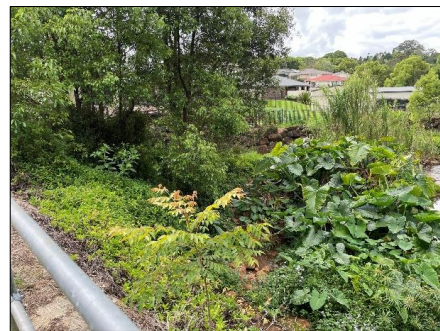
### Recommendations

- Maintain drainage line and access to stormwater infrastructure.
- Zone 13b requires planting of native species from **Table 15**.
- Assisted regeneration is required in Zone 13b, as by the Mount Moriah VMP.
- The southern part of Zone 13a adjoining Plateau Drive requires significant weed control.

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**Plate 47:** View from Plateau Drive looking upstream (left) and looking downstream from Spring Creek Place (right).



**Plate 48:** Dense Singapore Daisy infestation (left) and Taro and Golden Rain Tree near Plateau Drive.

7.4.14. Site 14: South Eastern Reserve Wollongbar Residential Estate (0.1306ha)



Figure 30: Site 14.

Site 14 is a narrow riparian strip of vegetation along the south side of Plateau Drive. It is heavily weed infested and does not appear to have been worked previously. Native species are limited to common regrowth edge species such as Guioa, Sally Wattle and Macaranga. Exotic vegetation dominates with Camphor Laurel in the canopy, Singapore Daisy in the ground layer and Privet, Lantana, Passionfruits and Setaria in the midstorey.

This site was included as part of Zone 8 within the *Bushland Rehabilitation and Management Plan for Wollongbar Urban Expansion Area 2005* which required primary weed treatment and enhancement planting. The site has been subject to assisted regeneration over a five-year period.

**Recommendations**

- Maintain drainage line and access to stormwater infrastructure.
- Significant weed control required.

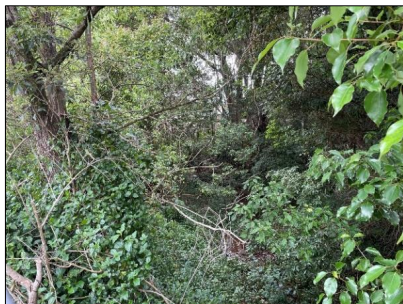


Plate 49: Site 14 is heavily weed infested.





**Plate 50:** The site is adjacent Plateau Drive.

**7.4.15. Site 15: Wollongbar District Park (0.1548ha)**



**Figure 31:** Site 15.

Site 15 consists of garden beds planted with native rainforest species in 2022 to form vegetation buffers in the western and eastern corners of Wollongbar District Park. The park contains the Wollongbar Alstonville Skate Park as well as a half basketball court, children’s playground, toilet facilities, walking paths, picnic shelters and bar-be-que facilities. The garden beds are contained within garden edging and well mulched, with no weeds present at the time of inspection, and several of the tree species are labelled with ground level plaques.



The western bed occurs at the corner of Plateau Drive and Avalon Avenue, while the eastern bed is located between Rifle Range Road and Dundee Avenue. The site is within the area encompassed by the *Bushland Rehabilitation and Management Plan for Wollongbar Urban Expansion Area 2005*.



**Plate 51:** The western planted vegetation buffer (15a).



**Plate 52:** The planted vegetation buffer eastern side (15b).



**Plate 53:** Park and playground facilities.



### **8.3 Proposed Planting List – Subtropical Rainforest**

Plant selection is to be guided by the occurrence of species in the adjacent remnants or those that are included in Subtropical Rainforest on basalt soils and have successfully established in the previous plantings. The density of planting is to range from 1.5 to 3m or in clumps, depending on the location.

Prior to planting, ensure that the Work Zone has been prepared by controlling weeds so that they do not inhibit the establishing plants once planted. Preparation can be the control of all weeds, generally mown grass, or sprayed circles of approximately 1m diameter.

Holes to be dug using a motorised auger, ensuring that hole is deeper and wider than the plant container. Holes to be dug on the day of planting so that the soil has not dried out. Prior to planting soak the plants in water with added seaweed fertiliser. Slow-release fertiliser suitable for native plants to be added and mixed with the soil to assist in plant establishment. Water is to be added to the hole before and after planting. The amount of water will depend on the soil moisture. Mulch to be placed around the plant if soil is bare.

Fencing or guards may be required if planting is likely to be impacted by browsing by wallabies or rabbits. Water and maintenance frequency will depend on weather conditions. The proposed rainforest planting list is contained in **Table 15** below. Additional lists for feature plants in public areas and plants suitable for planting under powerlines is contained in **Table 7**, and for wetland and riparian edge planting (if required) is contained in **Table 10**.



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**Table 15 - Subtropical Rainforest species suitable for planting if required**

Scientific Name	Common Name
<i>Acacia melanoxylon</i>	Sally Wattle
<i>Acmena smithii</i>	Common Lilly-pilly
<i>Alphitonia excelsa</i>	Red Ash
<i>Apananthe phillipensis</i>	Rough-leaved Elm
<i>Archonotophoenix cunninghamiana</i>	Bangalow Palm
<i>Argyrodendron trifoliolatum</i>	White Booyong
<i>Breynia oblongifolia</i>	Breynia
<i>Bridelia exaltata</i>	Brush Ironbark
<i>Castanospermum australe</i>	Black Bean
<i>Commersonia bartramia</i>	Brown Kurrajong
<i>Cryptocarya laevigata</i>	Glossy Laurel
<i>Cryptocarya obovata</i>	Pepperberry
<i>Cupaniopsis anarcardiodes</i>	Tuckeroo
<i>Diploglottis australis</i>	Native Tamarind
<i>Dysoxylum mollissimum</i>	Red Bean
<i>Eleocarpus grandis</i>	Blue Quandong
<i>Glochidion ferdinandi</i>	Cheese Tree
<i>Guioa semiglauca</i>	Guioa
<i>Homalanthus populifolius</i>	Bleeding Heart
<i>Jagera pseudorhus</i> var. <i>pseudorhus</i>	Foambark
<i>Mallotus phillippinensis</i>	Red Kamala
<i>Melicope elleryana</i>	Pink Euodia
<i>Myrsine howittiana</i>	Brush Muttonwood
<i>Neolitsea australiensis</i>	Green Bolly Gum
<i>Olea paniculata</i>	Native Olive
<i>Sarcopteryx stipata</i>	Steelwood
<i>Sloanea woollsii</i>	Yellow Carabeen
<i>Sterculia quadrifida</i>	Peanut Tree
<i>Synoum glandulosum</i>	Scentless Rosewood
<i>Syzygium francisci</i>	Giant Water Gum
<i>Trema tomentosa</i>	Poison Peach



**8.4 Schedule of Works**

This plan does not specify a particular duration for restoration works. Works may be undertaken by Council, contractors or volunteers such as Landcare members. However, where funds become available for new projects, a five (5) year duration for the weed control program is recommended and described in **Table 16**; comprising primary weed control and planting if required (Year 1), then follow-up weed control (Year 2 & 3) followed by maintenance (Year 4 & 5).

**Table 16 – Five (5) year implementation schedule for restoration works**

Year	Activity
1	<ul style="list-style-type: none"> <li>▪ Two (2) monitoring photo-points to be set up within each vegetation management zone and baseline monitoring data recorded prior to commencement of any habitat restoration works.</li> <li>▪ Primary weed control in all sites.</li> <li>▪ Planting if required.</li> <li>▪ Follow up weed control in all sites every 2 months or as required.</li> <li>▪ Replace any failed plants.</li> <li>▪ Repeat photo point monitoring at the end of Year 1.</li> <li>▪ Submit annual progress report with monitoring results to Ballina Shire Council.</li> </ul>
2 & 3	<ul style="list-style-type: none"> <li>▪ Maintenance weed control in all zones (approx. 6 visits/year).</li> <li>▪ Repeat photo point monitoring at the end of Year 2 &amp; 3.</li> <li>▪ Submit annual progress report with monitoring results to Ballina Shire Council.</li> </ul>
4 & 5	<ul style="list-style-type: none"> <li>▪ Maintenance weed control in all zones (approx. 3 visits/year).</li> <li>▪ Repeat photo point monitoring at the end of Year 4 &amp; 5.</li> <li>▪ Submit final evaluation report with all monitoring results to Ballina Shire Council.</li> </ul>

**8.5 Weed Control Methods**

Weeds must be controlled in such a way that they are replaced by native species. Weed control in this context consists of several stages including (a) primary weed control, (b) follow up weed control, and (c) maintenance of the restoration work sites. The sequence of proposed works is based upon the need to arrest the degradation factors while maximising the regeneration potential in the vegetation management zone. Seasonal weather conditions and the need to systematically follow up weed control are also important considerations. Weed control methods are provided in **Appendix 2**.





## 9. GENERAL RESTORATION GUIDELINES

### 9.1 *Bush Regenerators*

On ground weed control works and maintenance may be undertaken by qualified bush regeneration contractors or staff, or Landcare Volunteers. Contractors working on site should holding TAFE Conservation and Ecosystem Management (CEM) Certificate III and supervisor holding CEM Certificate IV or equivalent, and with minimum 3 years' experience working in local rainforest and wetland/ riparian forest vegetation communities. A qualified bush regenerator will be capable of advising on the extent and timing of works, record keeping, selected locations and appropriate species for planting, and work site maintenance program.

The bush regeneration team must hold an appropriate licence (issued under the *Biodiversity Conservation Act 2016*) to work in the habitat of threatened species and endangered ecological communities prior to commencing on ground weed control works. Ballina Shire Council holds a Scientific Licence which authorises approved bush regeneration contractors and Landcare volunteers to undertake such work.

Hygiene protocol activities are required for working with specific threatened species within restoration sites, moving from identified infected work zones to a sensitive work zone and for off-road trail and track movement, in accordance NSW Government *Hygiene Guidelines for Wildlife*, accessed on the link below:

<https://www.environment.nsw.gov.au/research-and-publications/publications-search/hygiene-guidelines>

### 9.2 *Pesticide Application*

Use of chemicals such as herbicides and their additives must only be carried out by personnel who hold current chemical users' certificates. These chemicals must be used in accordance with label directions unless an off-label use permit is procured from the Australian Pesticides and Veterinary Medicines Authority (APVMA).

Chemical use records must also be kept and include weather conditions, areas treated, amounts used and application rates in accordance with the NSW Pesticides Act 1999.

Bush regenerators working in any Work Zones on public land must comply with Ballina Shire Council's current Pesticide Use Notification Plan and Policy

### 9.3 *Workplace Health and Safety*

All works are to adhere to the relevant industry standards, permits, certificates and regulations. In accordance with the Work Health and Safety Act 2011 and Work Health and Safety Regulations 2017 workers will comply to ensure safety in the workplace. Contractors are also required to provide WorkCover for employees or ensure sub-contractors hold individual personal insurance for bush regeneration work.

Contractors and Landcare volunteers approved by Ballina Shire Council need to ensure they have submitted and adhere to an approved current Work Health and Safety System as per Council requirements.



### 10. MONITORING AND RECORD KEEPING

#### 10.1 *Monitoring Requirements*

A monitoring program measures Key Performance Indicators (KPIs) designed to gauge, progressively, the success of the program and allow for the early detection of risk factors to achieving the aims and objectives of the restoration project. This provides an opportunity for adaptive management and improves the chances for success of the project.

#### 10.2 *Monitoring Methodology*

Any new habitat restoration or reconstruction program will be monitored annually using photo points. Two (2) photo points are to be set up within each restoration zone prior to commencement of work. The photo point location should be determined using a GPS, with point coordinates recorded in the work diary or Daily Record Sheet and marked on a map of the site. The compass orientation of each photo should also be noted. The photo points are to be set up as follows:

- Photo point location marked using a star picket with protective cap on the top.
- The marker to be located in the centre of the photo to provide a reference point.
- Photos to be taken in the same direction and time of day each time.
- The camera lens, angle and height to be the same for each photo.

For each photopoint describe the vegetation as follows:

- Species richness for each forest layer (no. of species weeds and native).
- Height and Foliage cover for each forest layer (%).
- Exotic vegetation cover in each layer (%).
- For the planting areas record survival rate and growth rate of plants (5 plants in each planting to be flagged and measured on annual basis)

The photo points are to be repeated on an annual basis for five (5) years and photos included within annual progress reports to Ballina Shire Council.

#### 10.3 *Key Performance Indicators*

- Primary treatment of all weeds in the work zone to achieve environmental weed cover of less than 10% ground cover and less than 1% shrub and tree layer species at completion of year one (establishment period).
- During years 2-5 (maintenance period) environmental weeds are to be progressively treated to ensure no weeds are present at completion of year five.
- Planting stock to achieve a survival rate of 90%.
- Achievement of 80% closed native canopy cover.
- During the establishment and maintenance period increased recruitment of native species and percentage cover of native species to be achieved.

Monitoring of KPIs and repeat photographs to be undertaken on an annual basis. Adaptive management may be required as a recommendation after monitoring. This adaptive management approach is especially important in relation to the control of weeds and the species selection and survival rates for planting programs. Regular monitoring is to be used to assess the effectiveness of management strategies and provide the basis for adaptation of the implementation schedule.



### **10.4 Reporting**

Any bush regeneration contractor undertaking the weed control or planting works must provide an annual progress report to Ballina Shire Council for the duration of the five (5) year habitat restoration program. The annual report is to include:

- A brief discussion of works completed to date, including an update on the progress of plantings, weed control and assisted natural regeneration works.
- A description of project issues and potential resolution (i.e. adaptive management).
- A self-assessment against the Performance Indicators provided in this plan.
- Repeat photo point monitoring.
- Recommendations for future vegetation management works.
- Copies of Daily Record Sheets.

In addition to progress reports, a final evaluation report is to be prepared at the end of any five-year program. The evaluation report will summarise the monitoring data over the five-year period, discuss findings and provide recommendations for future management of the Work Zone.

### **10.5 Adaptive Management**

A key factor for any project success will be the ability of those implementing the plan to respond to changing Work Zone conditions. The purpose of regular monitoring, recording and reporting is not only to document the progress of the project, but also to respond to unanticipated circumstances, provide feedback on the success or failure of the plan, and allow adaptation of the management actions and implementation measures to achieve maximum effectiveness in vegetation and fauna management.

Where necessary, an adaptive management statement should be prepared and detail the nature of any issues that may threaten the achievement of project objectives as well as appropriate corrective actions, for review and endorsement by Ballina Shire Council.



Wollongbar Reserves Vegetation Management Plan

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**APPENDIX 1: SPECIES LISTS BY SITE**

Species in bold are listed threatened species under the Biodiversity Conservation Act 2016.

**Site 1: Native species**

Scientific Name	Common Name
<i>Araucaria cunninghamii</i>	Hoop Pine
<i>Blechnum indicum</i>	Harsh Ground Fern
<i>Cupaniopsis anacardioides</i>	Tuckeroo
<i>Dysoxylum fraserianum</i>	Rosewood
<i>Eucalyptus siderophloia</i>	Grey Ironbark
<i>Guioa semiglauc</i>	Guioa
<i>Litsea reticulatis</i>	Bolly Gum
<i>Macadamia integrifolia</i>	Macadamia (planted)
<i>Pittosporum undulatum</i>	Native Daphne

**Site 1: Exotic and non-local species**

Scientific Name	Common Name
<i>Agapanthus praecox</i>	Agapanthus
<i>Ageratina adenophora</i>	Crofton Weed
<i>Cestrum nocturnum</i>	Lady-of-the-night
<i>Cinnamomum camphora</i>	Camphor Laurel
<i>Corymbia torelliana</i>	Cadaghi (planted)
<i>Corymbia maculata</i>	Spotted Gum (planted)
<i>Cupressus</i> spp.	Conifer (planted)
<i>Guzmania lingulata</i>	Bromeliad
<i>Ipomoea indica</i>	Morning Glory
<i>Lantana camara</i>	Lantana
<i>Ligustrum lucidum</i>	Large-leaved Privet
<i>Metrosideros queenslandica</i>	Metrosideros
<i>Murraya paniculatum</i>	Murraya (planted as hedge)
<i>Paspalum mandiocanum</i>	Broad-leaved Paspalum
<i>Passiflora subpeltata</i>	White Passionflower
<i>Pinus ellioti</i>	Slash Pine
<i>Setaria palmifolia</i>	Palm Grass
<i>Syragrus romanzoffiana</i>	Cocos Palm
<i>Tibouchina urvilleana</i>	Tibouchina
<i>Washingtonia robusta</i>	Fan Palm



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**Site 2: Native species**

Scientific Name	Common Name
<i>Acacia melanoxylon</i>	Sally Wattle
<i>Acmena smithii</i>	Creek Lilly Pilly
<i>Alphitonia excelsa</i>	Red Ash
<i>Commersonia bartramia</i>	Brown Kurrajong
<i>Cupaniopsis anacardioides</i>	Tuckeroo
<i>Ficus obliqua</i>	Small-leaved Fig
<i>Jagera pseudorhus</i>	Foambark
<i>Pittosporum undulatum</i>	Native Daphne

**Site 2: Exotic and non-local species**

Scientific Name	Common Name
<i>Anredera cordifolia</i>	Madeira Vine
<i>Cinnamomum camphora</i>	Camphor
<i>Corymbia citriodora</i>	Lemon-scented Gum
<i>Duranta erecta</i>	Duranta
<i>Eucalyptus smithii</i>	Ironbark Peppermint
<i>Ficus bejamina</i>	Weeping Fig
<i>Ipomoea indica</i>	Morning Glory
<i>Jacaranda mimosifolia</i>	Jacaranda
<i>Lantana camara</i>	Lantana
<i>Ligustrum lucidum</i>	Large-leaved Privet
<i>Murraya paniculatum</i>	Murraya
<i>Paspalum mandiocanum</i>	Broad-leaved Paspalum
<i>Pennisetum clandestinum</i>	Kikuyu
<i>Senna pendula</i>	Winter Senna
<i>Solanum mauritianum</i>	Tobacco Bush
<i>Schefflera actinophylla</i>	Umbrella Tree



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**Site 3: Native species**

Scientific Name	Common Name
<i>Brachychiton acerifolius</i>	Flame Tree
<i>Cordyline congesta</i>	A Palm-lily
<i>Dianella caerulea</i>	Dianella
<i>Dysoxylum mollissimum</i>	Red Bean
<i>Ficus macrophylla</i>	Moreton Bay Fig
<i>Grevillea robusta</i>	Silky Oak
<i>Guioa semiglauca</i>	Guioa
<i>Lepidozamia peroffskyana</i>	Burrawang (planted)
<i>Syzygium australis</i>	Brush Cherry
<i>Syzygium leuhmannii</i>	Riberry

**Site 3: Exotic and non-local species**

Scientific Name	Common Name
<i>Araucaria heterophylla</i>	Norfolk Pine
<i>Archontophoenix alexandrae</i>	Alexander Palm
<i>Citrus x sinensis</i>	Orange Tree
<i>Cordyline australis</i>	Cabbage Tree
<i>Corymbia citriodora</i>	Lemon-scented Gum
<i>Dietes grandiflora</i>	African Iris
<i>Doryanthes excelsa</i>	Giant Lily
<i>Dracaena marginata</i>	Dracena
<i>Dracaena sanderiana</i>	Lucky Plant
<i>Dyopsis lutescens</i>	Golden Cane
<i>Elaeocarpus eumundi</i>	Eumundi Quandong
<i>Hedychium gardnerianum</i>	Ginger Lily
<i>Howea forsteriana</i>	Kentia Palm
<i>Jacaranda mimosifolia</i>	Jacaranda
<i>Libidibia ferrea</i>	Leopard Tree
<i>Mangifera indica</i>	Mango
<i>Plumeria rubra</i>	Frangipani
<i>Philodendron hederaceum</i>	Philodendron
<i>Rotheca myricoides</i>	Blue Butterfly Bush
<i>Schefflera actinophila</i>	Umbrella Tree
<i>Tradescantia fluminensis</i>	Trad



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**Site 4: Native species**

Scientific Name	Common Name
<i>Acacia melanoxylon</i>	Sally Wattle
<b><i>Acalypha eremorum</i></b>	<b>Acalypha</b>
<i>Acmena smithii</i>	Creek Lilly Pilly
<i>Actephila lindleyi</i>	Actephila
<i>Alectryon tomentosus</i>	Hairy Alectryon
<i>Alphitonia excelsa</i>	Red Ash
<i>Alpinia caerulea</i>	Native Ginger
<i>Aneilema biflorum</i>	Aneilema
<i>Archidendron muellerianum</i>	Veiny Lace Flower
<i>Archontophoenix cunninghamii</i>	Bangalow Palm
<i>Argyrodendron trifoliolatum</i>	White Booyong
<i>Artera distylis</i>	Twin-leaf Coogera
<i>Asplenium australasicum</i>	Bird's Nest Fern
<i>Austrocallerya megasperma</i>	Native Wisteria
<i>Austrosteenisia blackii</i>	Blood Vine
<i>Breynia oblongifolia</i>	Breynia
<i>Briedelia exaltata</i>	Brush Ironbark
<i>Calamus muelleri</i>	Lawyer Vine
<i>Capparis arborea</i>	Brush Caperberry
<i>Carronia multisejala</i>	Carronia
<i>Castanospermum australe</i>	Black Bean
<i>Cayratia clematidea</i>	Slender Grape
<i>Celastrus subspicatus</i>	Large-leaved Staff Vine
<i>Cinnamomum virens</i>	Red-barked Sassafras
<i>Cissus antarctica</i>	Water Vine
<i>Citrus australasicus</i>	Finger Lime
<i>Clerodendrum floribundum</i>	Smooth Clerodendrum
<i>Commelina cyanea</i>	Blue Commelina
<i>Commersonia bartramia</i>	Brown Kurrajong
<i>Cordyline petiolaris</i>	Broad-leaved Palm Lily
<i>Cordyline rubra</i>	Red-fruited Palm Lily
<i>Cryptocarya obovata</i>	Pepperberry
<i>Deeringia arborescens</i>	Climbing Deeringia
<i>Derris involuta</i>	Native Derris
<i>Dianella caerulea</i>	Blue Flax Lily
<i>Dichondra repens</i>	Kidney Weed
<i>Dioscorea transversa</i>	Native Yam
<i>Diospyros pentamera</i>	Myrtle Ebony
<i>Diplocyclos palmatus</i>	Native Bryony
<i>Diploglottis australis</i>	Native Tamarind
<i>Duboisia myoporoides</i>	Duboisia
<i>Dysoxylum fraserianum</i>	Rosewood
<i>Dysoxylum mollissimum</i>	Red Bean
<i>Dysoxylum rufum</i>	Hairy Rosewood





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Scientific Name	Common Name
<i>Elaeocarpus grandis</i>	Blue Fig
<i>Elaeocarpus obovatus</i>	Hard Quandong
<i>Elatostachys nervosa</i>	Green Tamarind
<i>Embelia australiana</i>	Embelia
<i>Endiandra pubens</i>	Hairy Walnut
<i>Eupomatia bennettii</i>	Small Bolwarra
<i>Ficus coronata</i>	Creek Sandpaper Fig
<i>Ficus fraseri</i>	Forest Sandpaper Fig
<i>Ficus watkinsiana</i>	Nipple Fig
<i>Flagellaria indica</i>	Whip Vine
<i>Flindersia schottiana</i>	Cudgerie
<i>Flindersia xanthoxyla</i>	Yellow Wood
<i>Geitonoplesium cymosum</i>	Scrambling Lily
<i>Glochidion ferdinandi</i>	Cheese Tree
<i>Guioa semiglauc</i>	Guioa
<i>Hibbertia scandens</i>	Guinea Flower
<i>Hymenosporum flavum</i>	Native Frangipani
<i>Jagera pseudorhus</i>	Foambark
<i>Litsea australis</i>	Brown Bolly Gum
<i>Maclura cochinchinensis</i>	Cockspur
<i>Mallotus discolor</i>	Yellow Kamala
<i>Mallotus philippensis</i>	Red Kamala
<i>Marsdenia rostrata</i>	Common Milk Vine
<i>Morinda jasminoides</i>	Morinda
<i>Neolitsea australiensis</i>	Green Bolly Gum
<i>Neolitsea dealbata</i>	White Bolly Gum
<i>Oplismenus imbecilis</i>	Basket Grass
<i>Oplismenus aemulus</i>	Basket Grass
<i>Palmeria scandens</i>	Anchor Vine
<i>Pandorea baileyana</i>	Long-leaved Wonga Vine
<i>Pandorea pandorana</i>	Wonga Vine
<i>Pararchidendron pruinosum</i>	Snow Wood
<i>Pararistolochia praevenosa</i>	Richmond Birdwing Butterfly Vine
<i>Parsonsia straminea</i>	Common Silkpod
<i>Pentaceras australis</i>	Bastards Crow's Ash
<i>Ptilidostigma glabrum</i>	Plum Myrtle
<i>Piper noahollandiae</i>	Giant Pepper Vine
<i>Pittosporum multiflorum</i>	Orange Thorn
<i>Pittosporum revolutum</i>	Hairy Pittosporum
<i>Pittosporum undulatum</i>	Sweet Pittosporum
<i>Platycerium bifurcatum</i>	Elkhorn
<i>Platycerium superbum</i>	Staghorn
<i>Plectranthus graveolens</i>	Plectranthus
<i>Pollia crispata</i>	Pollia
<i>Pothos longipes</i>	Pothos
<i>Pseuderanthemum variabile</i>	Pastel Flower



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Scientific Name	Common Name
<i>Quassia</i> sp. <i>Mt Nardi</i>	Southern Quassia
<b><i>Rhodamnia rubescens</i></b>	<b>Scrub Turpentine</b>
<b><i>Rhodamnia maideniana</i></b>	<b>Smooth Scrub Turpentine</b>
<i>Ripogonum album</i>	White Supplejack
<i>Ripogonum discolor</i>	Prickly Supplejack
<i>Rubus rosifolius</i>	Native Raspberry
<i>Sarcomelicope simplicifolia</i>	Bauerella
<i>Sarcopteryx stipata</i>	Steelwood
<i>Sloanea australis</i>	Maiden's Blush
<i>Smilax australis</i>	Native Sarsparilla
<i>Stephania japonica</i> var. <i>discolor</i>	Snake Vine
<i>Synoum glandulosum</i>	Scentless Rosewood
<i>Syzygium australe</i>	Brush Cherry
<i>Syzygium oleosum</i>	Blue Lilly Pilly
<i>Tabernaemontana pandacaqui</i>	Banana Bush
<b><i>Tinospora tinosporoides</i></b>	<b>Arrowhead Vine</b>
<i>Toechima dasyrrhache</i>	Blunt-leaved Steelwood
<i>Toona ciliata</i>	Red Cedar
<i>Trophis scandens</i>	Burny Vine
<i>Viola hederacea</i>	Native Violet
<i>Wilkiea huegeliana</i>	Veiny Wilkiea
<i>Wilkiea macrophylla</i>	Large-leaved Wilkiea

**Site 4: Planted native species**

Scientific Name	Common Name
<i>Acmena smithii</i>	Creek Lily Pilly
<i>Agathis robusta</i>	Kauri Pine
<i>Alectryon tomentosus</i>	Hairy Alectryon
<i>Araucaria cunninghamii</i>	Hoop Pine
<i>Archontophoenix cunninghamiana</i>	Bangalow Palm
<i>Arytera distylis</i>	Twin-leaved Coogera
<i>Austromyrtus lasioclada</i>	Velvet Myrtle
<i>Brachychiton acerifolium</i>	Illawarra Flame-Tree
<i>Castanospermum australe</i>	Black Bean
<i>Cinnamomum virens</i>	Red Barked Sassafras
<i>Commersonia bartramia</i>	Brown Kurrajong
<i>Cordyline petiolaris</i>	Broad-leaved Palm Lily
<i>Cordyline rubra</i>	Red-fruited Palm Lily
<i>Cryptocarya glaucescens</i>	Jackwood
<i>Cryptocarya obovata</i>	Pepperberry
<i>Cryptocarya rigida</i>	Velvet Laurel
<i>Diploglottis australis</i>	Native Tamarind
<i>Diploglottis campbellii</i>	Small-leaved Tamarind
<i>Dysoxylum fraserianum</i>	Rosewood
<i>Dysoxylum mollissimum</i>	Red Bean



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Scientific Name	Common Name
<i>Euroschinus falcata</i>	Ribbon Wood
<i>Ficus coronata</i>	Creek Sandpaper Fig
<i>Ficus fraseri</i>	Forest Sandpaper Fig
<i>Ficus macrophylla</i>	Moreton Bay Fig
<i>Flindersia australis</i>	Australian Teak
<i>Flindersia schottiana</i>	Cudgerie
<i>Flindersia xanthoxyla</i>	Yellow Wood
<i>Glochidion ferdinandi</i>	Cheese Tree
<i>Guioa semiglauca</i>	Guioa
<i>Harpullia pendula</i>	Tulip Wood
<i>Herietiera trifoliolata</i>	White Booyong
<i>Hymenospermum flavum</i>	Native Fragipani
<i>Jagera pseudorhus</i>	Foam Bark
<i>Lomandra hystrix</i>	Mat Rush
<i>Lomandra longifolia</i>	Spiny-headed Mat-rush
<i>Macadamia tetraphylla</i>	Rough-shelled Bush Nut
<i>Macaranga tanarius</i>	Macaranga
<i>Mallotus discolor</i>	Yellow Kamala
<i>Mallotus philippensis</i>	Red Kamala
<i>Melicope elleryana</i>	Pink Euodia
<i>Neolitsea australiensis</i>	Green Bolly Gum
<i>Neolitsea dealbata</i>	White Bolly Gum
<i>Pararchidendron pruinatum</i>	Snow Wood
<i>Pittosporum revolutum</i>	Hairy Pittosporum
<i>Pittosporum undulatum</i>	Sweet Pittosporum
<i>Podocarpus elatus</i>	Plum Pine
<i>Polyscias elegans</i>	Celery Wood
<i>Premna lignum-vitae</i>	Lignum Vitae
<i>Rhodamnia rubescens</i>	Scrub Turpentine
<i>Sarcomelicope simplicifolia</i>	Baurella
<i>Sarcopteryx stipata</i>	Steel Wood
<i>Sloanea australis</i>	Maiden's Blush
<i>Stenocarpus sinuatus</i>	Firewheel Tree
<i>Sterculia quadrifida</i>	Peanut Tree
<i>Synoum glandulosum</i>	Scentless Rosewood
<b>Syzygium moorei</b>	<b>Coolamon</b>
<i>Syzygium oleosum</i>	Blue Lily Pilly
<i>Toechima dasyrrache</i>	Blunt-leaved Steel Wood
<i>Toona ciliata</i>	Red Cedar
<i>Wilkiea huegeliana</i>	Veiny Wilkiea



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**Site 4: Exotic and non-local species**

Scientific Name	Common Name
<i>Ageratina adenophora</i>	Crofton Weed
<i>Ageratina riparia</i>	Mist Weed
<i>Ageratum houstonianum</i>	Blue Billygoat Weed
<i>Anredera cordifolia</i>	Madeira Vine
<i>Ardisia crenata</i>	Ardisia
<i>Asparagus plumosus</i>	Climbing Asparagus
<i>Cinnamomum camphora</i>	Camphor Laurel
<i>Commelina benghalensis</i>	Hairy Commelina
<i>Crocosmia x crocosmiflora</i>	Montbretia
<i>Desmodium intortum</i>	Green-leaved Desmodium
<i>Desmodium uncinatum</i>	Silver-leaved Desmodium
<i>Hypoestes phyllostachya</i>	Freckle Face
<i>Impatiens graveolens</i>	Impatiens, Dizzy Lizzy
<i>Koehreuteria paniculata</i>	Golden Rain Tree
<i>Lantana camara</i>	Lantana
<i>Ligustrum lucidum</i>	Large-leaved Privet
<i>Ligustrum sinense</i>	Small-leaved Privet
<i>Murraya koenigii</i>	Curry Plant
<i>Murraya paniculata</i>	Sweet Jessamine
<i>Ochna serrulata</i>	Ochna, Mickey Mouse Plant
<i>Senna pendula</i> var. <i>glabrata</i>	Winter Senna
<i>Senna x floribunda</i>	Smooth Senna
<i>Syagrus romanzoffiana</i>	Cocos Palm
<i>Tradescantia fluminensis</i>	Tradescantia
<i>Tradescantia zebrina</i>	Zebrina

**Site 5: Native species**

Scientific Name	Common Name
<i>Alchornea ilicifolia</i>	Native Holly
<i>Anopterus macleayanus</i>	Queensland Laurel
<i>Backhousia citriodora</i>	Lemon Myrtle (planted)
<i>Brachychiton acerifolius</i>	Flame Tree
<i>Breynia oblongifolia</i>	Coffee Bush
<i>Citrus australasica</i>	Finger Lime
<i>Cryptocarya laevigata</i>	Glossy Laurel
<i>Cupaniopsis anacardioides</i>	Tuckeroo
<i>Dysoxylum mollissimum</i>	Red Bean
<i>Elaeocarpus grandis</i>	Blue Quandong
<i>Endiandra sieberi</i>	Hard Corkwood
<i>Eucalyptus robusta</i>	Swamp Mahogany (planted)
<i>Eupomatia laurina</i>	Bolwarra
<i>Ficus macrophylla</i>	Moreton Bay Fig
<i>Ficus watkinsiana</i>	Strangler Fig





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<i>Ficus coronata</i>	Creek Sandpaper Fig
<i>Ficus superba</i>	Deciduous Fig
<i>Lophostemon confertus</i>	Brushbox
<i>Litsea australis</i>	Bolly Gum
<i>Lomandra longifolia</i>	Spiny-headed Mat-rush
<i>Mallotus philippensis</i>	Red Kamala
<i>Macaranga tanarius</i>	Macaranga
<i>Oplismenus aemulus</i>	Basket Grass
<i>Polia crispa</i>	Polia
<i>Podocarpus elatus</i>	Plum Pine
<i>Syzygium francisci</i>	Giant Water Gum

## Site 5: Exotic and non-local species

Scientific Name	Common Name
<i>Corymbia torelliana</i>	Cadaghi
<i>Araucaria heterophylla</i>	Norfolk Pine
<i>Syngus romanzoffianum</i>	Cocos Palm
<i>Murraya paniculata</i>	Mock Orange
<i>Coffea arabica</i>	Coffee
<i>Tradescantia fluminensis</i>	Trad
<i>Ficus benjamina</i>	Weeping Fig
<i>Spathodea campanulata</i>	African Tulip Tree
<i>Sphagneticola trilobata</i>	Singapore Daisy
<i>Secium edule</i>	Choko
<i>Coprosma repens</i>	Coprosma
<i>Schefflera actinophylla</i>	Umbrella Tree
<i>Senna pendula</i>	Winter Senna
<i>Neomarica gracilis</i>	Walking Iris
<i>Howea forsteriana</i>	Kentia Palm
<i>Desmodium intortum</i>	Green-leaved Desmodium
<i>Archontophoenix alexandrae</i>	Alexander Palm
<i>Tabebuia chrysotricha</i>	Golden Trumpet Tree
<i>Ravenala madagascariensis</i>	Travellers Palm
<i>Eugenia uniflora</i>	Brazilian Cherry
<i>Ochna serrulata</i>	Ochna
<i>Ipomoea cairica</i>	Coast Morning Glory
<i>Koelreuteria paniculata</i>	Golden Rain Tree
<i>Cinnamomum camphora</i>	Camphor Laurel
<i>Jacaranda mimosifolia</i>	Jacaranda
<i>Aleurites moluccanus</i>	Candle Nut
<i>Dracaena marginata</i>	Dracaena
<i>Rumex crispus</i>	Curled Dock
<i>Passiflora subpeltata</i>	White Passionflower
<i>Ageratum houstonianum</i>	Blue Billy Goat Weed
<i>Paspalum mandiocanum</i>	Broadleaved Paspalum
<i>Panicum maximum</i>	Guinea Grass



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Scientific Name	Common Name
<i>Cestrum nocturnum</i>	Lady-of-the-night
<i>Ricinus communis</i>	Castor Oil
<i>Solanum mauritianum</i>	Tobacco Bush
<i>Lantana camara</i>	Lantana
<i>Ligustrum lucidum</i>	Large-leaved Privet
<i>Ligustrum sinense</i>	Small-leaved Privet
<i>Syngonium podophyllum</i>	Syngonium
<i>Dracaena marginata</i>	Dracaena
<i>Salvia divinorum</i>	Salvia
<i>Solanum seaforthianum</i>	Climbing Nightshade
<i>Schinus molle</i> var. <i>areira</i>	Broadleaf Pepper Tree
<i>Bidens pilosa</i>	Cobbler's Pegs

## Site 6: Native species

Scientific Name	Common Name
<i>Allocasuarina torulosa</i>	Forest Oak
<i>Alocasia brisbanensis</i>	Cunjevoi
<i>Argyrodendron trifoliolatum</i>	White Booyong
<i>Brachychiton discolor</i>	Lacebark
<i>Castanospermum australe</i>	Black Bean
<i>Davidsonia jerseyana</i>	Davidson's Plum (planted)
<i>Diploglottis australis</i>	Native Tamarind
<i>Dysoxylum fraserianum</i>	Rosewood
<i>Elaeocarpus grandis</i>	Blue Quandong
<i>Lophostemon confertus</i>	Brushbox
<i>Pittosporum undulatum</i>	Native Daphne
<i>Stenocarpus sinuatus</i>	Firewheel Tree
<i>Sloanea australis</i>	Maidens Blush
<i>Syzygium australe</i>	Brush Cherry
<i>Syzygium oleosum</i>	Blue Lilly Pilly
<i>Tristaniopsis laurina</i>	Water Gum

## Site 6: Exotic and non-local species

Scientific Name	Common Name
<i>Agapanthus parecox</i>	Agapanthus
<i>Alloxylum flammeum</i>	Dorrigo Waratah
<i>Cestrum nocturnum</i>	Lady-of-the-night
<i>Cinnamomum camphora</i>	Camphor Laurel
<i>Clivea miniata</i>	Clivea
<i>Dracaena marginata</i>	Dracaena
<i>Epidendrum radicans</i>	Crucifix Orchid
<i>Howea forsteriana</i>	Kentia Palm
<i>Koelreuteria paniculata</i>	Golden Rain Tree
<i>Mangifera indica</i>	Mango



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<i>Murraya paniculata</i>	Murraya
<i>Neomarica gracilis</i>	Walking Iris
<i>Persea americana</i>	Avocado
<i>Ravenala madagascariensis</i>	Travellers Palm
<i>Sequoiadendron giganteum</i>	Sequoia
<i>Spathodea campanulata</i>	African Tulip Tree
<i>Syngonium podophyllum</i>	Arrowhead Vine
<i>Syzygium wilsonii</i>	Powderpuff Lilly Pilly
<i>Tradescantia fluminensis</i>	Trad
<i>Xanthorrhoea australis</i>	Grass Tree

**Site 7: Cerreto Circuit Reserve**

**Native species**

Scientific Name	Common Name
<i>Syzygium cultivar</i>	Lilly Pilly
<i>Callistemon viminalis</i>	Callistemon
<i>Grevillea robusta</i>	Silky Oak
<i>Lomandra longifolia</i>	Spiny-headed Mat-rush

**Site 7: Exotic and non-local species**

Scientific Name	Common Name
<i>Brunfelsia pauciflora</i>	Yesterday Today Tomorrow Plant
<i>Cestrum nocturnum</i>	Night Cestrum
<i>Delonix regina</i>	Poinciana
<i>Duranta erecta</i>	Duranta
<i>Hibiscus rosa-sinensis</i>	Hibiscus
<i>Koelreuteria paniculata</i>	Golden Rain Tree
<i>Lagerstroemia indica</i>	Crepe Myrtle
<i>Ligustrum lucidum</i>	Large-leaved Privet
<i>Musa sp.</i>	Banana
<i>Murraya paniculata</i>	Murraya
<i>Magnolia grandiflora</i>	Magnolia
<i>Photinia robusta</i>	Photinia
<i>Tibouchina granulosa</i>	Tibouchina
<i>Tradescantia fluminensis</i>	Trad



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**Site 8: Native species**

Scientific Name	Common Name
<i>Acacia melanoxylon</i>	Sally Wattle
<i>Allocasuarina torulosa</i>	Forest Oak
<i>Alocasia brisbanensis</i>	Cunjevoi
<i>Alphitonia excelsa</i>	Red Ash
<i>Argyrodendron trifoliolatum</i>	White Booyong
<i>Calochlaena dubia</i>	Soft Bracken
<i>Ficus fraseri</i>	Sandpaper Fig
<i>Guioa semiglauca</i>	Guioa
<i>Homalanthus populifolius</i>	Bleeding Heart
<i>Juncus usitatus</i>	Common Rush
<i>Melicope elleryana</i>	Pink Euodia
<i>Persicaria decipiens</i>	Slender Knotweed

**Site 8: Exotic and non-local species**

Scientific Name	Common Name
<i>Ageratum houstonianum</i>	Blue Billygoat Weed
<i>Archtonphoenix alexandrae</i>	Alexander Palm
<i>Bidens pilosa</i>	Cobbler's Pegs
<i>Cecropia</i> spp.	Cecropia
<i>Cestrum nocturnum</i>	Lady-of-the-night
<i>Cinnamomum camphora</i>	Camphor Laurel
<i>Duranta erecta</i>	Duranta
<i>Dyopsis lutescens</i>	Golden Cane Palm
<i>Howea forsteriana</i>	Kentia Palm
<i>Jacaranda mimosifolia</i>	Jacaranda
<i>Lantana camara</i>	Lantana
<i>Ligustrum lucidum</i>	Large-leaved Privet
<i>Murraya paniculata</i>	Murraya
<i>Nephrolepis cordifolia</i>	Fishbone Fern
<i>Paspalum mandiocanum</i>	Broad-leaved Paspalum
<i>Philodendron bipinnatifidum</i>	Philodendron
<i>Pinus elliotii</i>	Slash Pine
<i>Ricinus communis</i>	Castor Oil
<i>Sphagneticola trilobata</i>	Singapore Daisy
<i>Syagrus romanzoffianum</i>	Cocos Palm
<i>Syngonium podophyllum</i>	Arrowhead Vine



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**Site 9: Native species**

Scientific Name	Common Name
<i>Acacia melanoxydon</i>	Sally Wattle
<i>Acmena hemilampra</i>	Broad-leaved Lilly Pilly
<i>Acmena ingens</i>	Red Apple
<i>Acmena smithii</i>	Common Lilly Pilly
<i>Acronychia oblongifolia</i>	Common Acronychia
<i>Alectryon tomentosus</i>	Hairy Alectryon
<i>Alpinia caerulea</i>	Native Ginjer
<i>Alocasia brisbanensis</i>	Cunievoi
<i>Alphitonia excelsa</i>	Red Ash
<i>Aphananthe philippinensis</i>	Native Elm
<i>Archidendron muellerianum</i>	Veiny Laceflower
<i>Archontophoenix cunninghamiana</i>	Bangalow Palm
<i>Arytera divaricata</i>	Twin Leaved Coogera
<i>Baloqhia inophylla</i>	Brush Bloodwood
<i>Brachychiton acerifolius</i>	Flame Tree
<i>Brachychiton discolor</i>	Lace Flower
<i>Breynia oblongifolia</i>	Breynia
<i>Bridelia exaltata</i>	Brush Ironbark
<i>Castanospermum australe</i>	Black Bean
<i>Clerodendrum floribundum</i>	Smooth Clerodendrum
<i>Clerodendrum tomentosum</i>	Hairy Clerodendron
<i>Cordyline petiolaris</i>	Palm Lily
<i>Cordyline rubra</i>	Red-fruited Palm Lily
<i>Cordyline stricta</i>	Narrow-leaved Palm Lily
<i>Commersonia bartramia</i>	Brown Kurrajong
<i>Cryptocarya laevigata</i>	Glossy Laurel
<i>Cryptocarya glaucescens</i>	Jackwood
<i>Cryptocarya triplinervis</i>	Three Veined Laurel
<i>Cupaniopsis parvifolia</i>	Small-leaved Tuckeroo
<b>Davidsonia jerseyana</b>	<b>Davidson's Plum</b>
<i>Dianella caerulea</i>	Blue Flax Lilly
<i>Diploglottis australis</i>	Native Tamarind
<i>Duboisia myoporoides</i>	Soft Corkwood
<i>Dysoxylum mollissimum</i>	Red Bean
<i>Ehretia acuminata</i>	Koda
<i>Elaeocarpus obovatus</i>	Hard Quandong
<i>Elaeocarpus grandis</i>	Blue Quandong
<i>Elaeodendron australe</i>	Red Olive Plum
<i>Euroschinus falcata</i>	Ribbonwood
<i>Ficus coronata</i>	Creek Sandpaper Fig
<i>Ficus fraseri</i>	Sandpaper Fig
<i>Ficus macrophylla</i>	Moreton Bay Fig
<i>Ficus obliqua</i>	Small Leaf Fig
<i>Ficus watkinsiana</i>	Strangling Fig





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Scientific Name	Common Name
<i>Flindersia bennettiana</i>	Bennett's Ash
<i>Flindersia australis</i>	Native Teak
<i>Flindersia schottiana</i>	Cudgerie
<i>Flindersia xanthoxyla</i>	Yellowwood
<i>Geissois benthamii</i>	Red Carabeen
<i>Glochidion ferdinandi</i>	Cheese Tree
<i>Gmelina leichhardtii</i>	White Beech
<i>Grevillea robusta</i>	Silky Oak
<i>Guioa semiglauca</i>	Guioa
<i>Harpullia pendula</i>	Tulipwood
<i>Homalanthus nutans</i>	Bleeding Heart
<i>Hymenosporum flavum</i>	Native Frangipani
<i>Jagera pseudorhus</i>	Foambark
<i>Lomandra hystrix</i>	Mat Rush
<i>Lomandra longifolia</i>	Spiny headed Mat-rush
<i>Macaranga tanarius</i>	Macaranga
<i>Mallotus discolor</i>	Yellow Kamala
<i>Mallotus philippensis</i>	Red Kamala
<i>Melia azedarach</i>	White Cedar
<i>Melicope micrococca</i>	White Euodia
<i>Neolitsea dealbata</i>	White Bolly Gum
<i>Pararchidendron pruinosum</i>	Snowwood
<i>Ptilidostigma glabrum</i>	Plum Myrtle
<i>Pittosporum undulatum</i>	Sweet Pittosporum
<i>Polyscias elegans</i>	Celerywood
<i>Polyscias murrayi</i>	Pencil Cedar
<i>Rhodamnia argentea</i>	Malletwood
<b><i>Rhodamnia rubescens</i></b>	<b>Scrub Turpentine</b>
<b><i>Rhodamnia maideniana</i></b>	<b>Smooth Scrub Turpentine</b>
<b><i>Rhodomyrtus psidioides</i></b>	<b>Native Guava (planted, not found in 2023 survey)</b>
<i>Linospadix monostachvus</i>	Walking Stick Palm
<i>Sloanea woollsii</i>	Yellow Carabeen
<i>Stenocarpus sinuatus</i>	Firewheel Tree
<i>Sterculia quadrifida</i>	Peanut Tree
<i>Syzygium australe</i>	Brush Cherry
<i>Syzygium corynanthum</i>	Sour Cherry
<i>Syzygium luehmannii</i>	Riberr
<i>Syzygium oleosum</i>	Blue Lilly Pilly
<i>Trema tomentosa</i> var. <i>viridis</i>	Poison Peach
<i>Toona ciliata</i>	Red Cedar
<i>Tristaniopsis laurina</i>	Water Gum

## Site 9: Exotic and non-local species

Scientific Name	Common Name
<i>Ageratum houstonianum</i>	Blue Billygoat Weed



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<i>Anredera cordifolia</i>	Madreia Vine
<i>Araujia sericifera</i>	Moth Vine
<i>Bidens pilosa</i>	Cobbler's Pegs
<i>Cestrum nocturnum</i>	Lady-of-the-night
<i>Cinnamomum camphora</i>	Camphor Laurel
<i>Desmodium intortum</i>	Green-leaved Desmodium
<i>Lantana camara</i>	Lantana
<i>Ligustrum lucidum</i>	Large-leaved Privet
<i>Paspalum mandiocanum</i>	Broad-leaved Paspalum
<i>Passiflora subpeltata</i>	White Passionflower
<i>Passiflora suberosa</i>	Corky Passionfruit
<i>Syagrus romanzoffianum</i>	Cocos Palm
<i>Sida rhombifolia</i>	Paddy's Lucerne
<i>Solanum mauritianium</i>	Tobacco Bush
<i>Solanum seaforthianum</i>	Climbing Nightshade

**Site 10: Native Species**

Scientific Name	Common Name
<i>Ficus macrophylla</i>	Moreton Bay Fig
<i>Homolanthus populifolius</i>	Bleeding Heart
<i>Lomandra longifolia</i>	Spiny-headed Mat-rush
<i>Melaleuca nodosa</i>	Prickly-leaved Paperbark
<i>Commersonia bartramia</i>	Brown Kurrajong
<i>Callistemon 'Little John'</i>	A Bottle Brush cultivar

**Site 10: Exotic and non-local species**

Scientific Name	Common Name
<i>Ageratum houstonianum</i>	Blue Billygoat Weed
<i>Bidens pilosa</i>	Cobbler's Pegs
<i>Ligustrum lucidum</i>	Large-leaved Privet
<i>Paspalum mandiocanum</i>	Broad-leaved Paspalum
<i>Passiflora suberosa</i>	Corky Passionfruit
<i>Sida rhombifolia</i>	Paddy's Lucerne
<i>Solanum mauritianium</i>	Tobacco Bush
<i>Solanum seaforthianum</i>	Climbing Nightshade



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**Site 11: Native species**

Scientific Name	Common Name
<i>Acacia melanoxylon</i>	Sally Wattle
<i>Acmena smithii</i>	Lilly Pilly
<i>Acronychia oblongifolia</i>	Common Acronychia
<i>Alphitonia excelsa</i>	Red Ash
<i>Alpinia caerulea</i>	Native Ginger
<i>Brachychiton acerifolius</i>	Flame Tree
<i>Callistemon salignus</i>	White Bottlebrush
<i>Commersonia bartramia</i>	Brown Kurrajong
<i>Cordyline petiolaris</i>	Palm Lilly
<i>Cyathea cooperi</i>	Coin-spot Tree Fern
<i>Elaeocarpus grandis</i>	Blue Quandong
<i>Ficus coronata</i>	Creek Sandpaper Fig
<i>Ficus fraseri</i>	Sandpaper Fig
<i>Ficus obliqua</i>	Small leaf Fig
<i>Ficus watkinsiana</i>	Strangler Fig
<i>Flindersia schottiana</i>	Cudgerie
<i>Glochidion ferdinandi</i>	Cheese Tree
<i>Grevillea robusta</i>	Silky Oak
<i>Homalanthus populifolius</i>	Bleeding Heart
<i>Lophostemon confertus</i>	Brushbox
<i>Macaranga tanarius</i>	Macaranga
<i>Mallotus philippensis</i>	Red Kamala
<i>Lomandra longifolia</i>	Spiny-headed Mat-rush
<i>Pittosporum undulatum</i>	Sweet Pittosporum
<i>Polyscias elegans</i>	Celery Wood
<i>Polyscias murrayi</i>	Pencil Cedar
<i>Syzygium luehmannii</i>	Riberry
<i>Syzygium oleosum</i>	Blue Lilly Pilly

**Site 11: Exotic and non-local species**

Scientific Name	Common Name
<i>Ageratum houstonianum</i>	Blue Billygoat Weed
<i>Archontophoenix alexandrae</i>	Alexander Palm
<i>Bidens pilosa</i>	Cobbler's Pegs
<i>Cestrum nocturnum</i>	Lady-of-the-night
<i>Cinnamomum camphora</i>	Camphor Laurel
<i>Colocasia esculenta</i>	Taro
<i>Desmodium uncinatum</i>	Silver-leaved Desmodium
<i>Lantana camara</i>	Lantana
<i>Ligustrum lucidum</i>	Large-leaved Privet
<i>Nandina schizolobium</i>	Nandina
<i>Paspalum mandiocanum</i>	Broad-leaved Paspalum
<i>Passiflora subpeltata</i>	White Passionflower
<i>Passiflora suberosa</i>	Corky Passionfruit
<i>Syagrus romanzoffianum</i>	Cocos Palm



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Scientific Name	Common Name
<i>Sida rhombifolia</i>	Paddy's Lucerne
<i>Solanum mauritianum</i>	Tobacco Bush
<i>Solanum seaforthianum</i>	Climbing Nightshade
<i>Tipuana tipu</i>	Tree of Heaven

**Site 12: Native species**

Scientific Name	Common Name
<i>Acacia melanoxylon</i>	Sally Wattle
<i>Acmena hemilampra</i>	Broad-leaved Lilly Pilly
<i>Acmena ingens</i>	Red Apple
<i>Acmena smithii</i>	Common Lilly Pilly
<i>Acronychia oblongifolia</i>	Common Acronychia
<i>Acronychia octandra</i>	Doughwood
<i>Actephila lindleyi</i>	Actephila
<i>Alectryon tomentosus</i>	Hairy Alectryon
<i>Alpinia caerulea</i>	Native Ginger
<i>Alphitonia excelsa</i>	Red Ash
<i>Alocasia brisbanensis</i>	Cunjevoi
<i>Aphananthe philippinensis</i>	Native Elm
<i>Archidendron hendersonii</i>	White Laceflower
<i>Archidendron muellerianum</i>	Veiny Laceflower
<i>Archontophoenix cunninghamiana</i>	Bangalow Palm
<i>Arytera divaricate</i>	Twin Leaved Coogera
<i>Baloghia inophylla</i>	Brush Bloodwood
<i>Baumea rubiginosa</i>	Soft Twig Rush
<i>Brachychiton acerifolius</i>	Flame Tree
<i>Brachychiton discolor</i>	Lace Flower
<i>Breynia oblongifolia</i>	Breynia
<i>Bridelia exaltata</i>	Brush Ironbark
<i>Capparis arborea</i>	Brush Caper Berry
<i>Carex appressa</i>	Tall Sedge
<i>Castanospermum australe</i>	Black Bean
<i>Castanospora alphanthii</i>	Brown Tamarind
<i>Cinnamomum oliveri</i>	Oliver's Sassafras
<i>Cinnamomum virens</i>	Red-barked Sassafras
<i>Clerodendrum floribundum</i>	Smooth Clerodendrum
<i>Clerodendrum tomentosum</i>	Hairy Clerodendron
<i>Commersonia bartramia</i>	Brown Kurrajong
<i>Cordyline petiolaris</i>	Palm Lily
<i>Cordyline rubra</i>	Red-fruited Palm Lily
<i>Cordyline stricta</i>	Narrow-leaved Palm Lily
<i>Croton verreauxii</i>	Native Cascarilla
<i>Cryptocarya glaucescens</i>	Jackwood
<i>Cryptocarya laevigata</i>	Glossy Laurel
<i>Cryptocarya microneura</i>	Murrogun



## Wollongbar Reserves Vegetation Management Plan

Scientific Name	Common Name
<i>Cryptocarya obovate</i>	Pepperberry
<i>Cryptocarya triplinervis</i> var. <i>pubens</i>	Three Veined Cryptocarya
<i>Cupaniopsis parvifolia</i>	Small-leaved Tuckeroo
<i>Cyathea australis</i>	Rough Tree Fern
<i>Cyathea cooperi</i>	Scaly Tree Fern
<i>Daphnandra micrantha</i>	Socketwood
<i>Decaspermum humile</i>	Silky Myrtle
<i>Dianella caerulea</i>	Blue Flax Lilly
<i>Diospyros australis</i>	Black Plum
<i>Diospyros pentamera</i>	Myrtle Ebony
<i>Diploglottis australis</i>	Native Tamarind
<i>Duboisia myoporoides</i>	Soft Corkwood
<i>Dysoxylum mollissimum</i>	Red Bean
<i>Dysoxylum rufum</i>	Hairy Rosewood
<i>Ehretia acuminata</i>	Koda
<i>Elaeocarpus grandis</i>	Blue Quandong
<i>Elaeocarpus kirtonii</i>	Silver Quandong
<i>Elaeocarpus obovatus</i>	Hard Quandong
<i>Elaeodendron australe</i>	Red Olive Plum
<i>Elattostachys nervosa</i>	Green Tamarind
<i>Eleocharis acuta</i>	Common Spike Rush
<i>Endiandra muelleri</i>	Green-leaved Rose Walnut
<i>Endiandra pubens</i>	Hairy Walnut
<i>Eupomatia laurina</i>	Bolwarra
<i>Euroschinus falcata</i>	Ribbonwood
<i>Ficus coronata</i>	Creek Sandpaper Fig
<i>Ficus fraseri</i>	Sandpaper Fig
<i>Ficus macrophylla</i>	Moreton Bay Fig
<i>Ficus obliqua</i>	Small Leaf Fig
<i>Ficus watkinsiana</i>	Strangling Fig
<i>Flindersia australis</i>	Native Teak
<i>Flindersia bennettiana</i>	Bennett's Ash
<i>Flindersia schottiana</i>	Cudgerie
<i>Flindersia xanthoxyla</i>	Yellowwood
<i>Gahnia aspera</i>	Rough Saw Sedge
<i>Gahnia sieberiana</i>	Red Fruited Saw Sedge
<i>Geissois benthamii</i>	Red Carabeen
<i>Glochidion ferdinandi</i>	Cheese Tree
<i>Gmelina leichhardtii</i>	White Beech
<i>Gossia bidwillii</i>	Python Tree
<i>Guioa semiglauca</i>	Guioa
<i>Harpullia hillii</i>	Blunt-leaved Tulip
<i>Harpullia pendula</i>	Tulipwood
<i>Hedraianthera porphyropetala</i>	Hedraianthera
<i>Helicia glabrifolia</i>	Smooth Helicia
<i>Helmholtzia glaberrima</i>	Stream Lily





Wollongbar Reserves Vegetation Management Plan

Scientific Name	Common Name
<i>Heritiera trifoliata</i>	White Booyong
<i>Homalanthus nutans</i>	Bleeding Heart
<i>Hymenosporum flavum</i>	Native Frangipani
<i>Jagera pseudorhus</i>	Foambark
<i>Juncus usitatus</i>	Tussock Rush
<i>Linospadix monostachyus</i>	Walking Stick Palm
<i>Litsea australis</i>	Brown Bolly Gum
<i>Litsea reticulatus</i>	Bolly Gum
<i>Lomandra hystrix</i>	Mat Rush
<i>Lomandra longifolia</i>	Spiny headed Mat-rush
<i>Macadamia tetraphylla</i>	Rough-shelled Bush Nut
<i>Macaranga tanarius</i>	Macaranga
<i>Mallotus discolor</i>	Yellow Kamala
<i>Mallotus philippensis</i>	Red Kamala
<i>Melia azedarach</i>	White Cedar
<i>Melicope micrococca</i>	White Euodia
<i>Melicope octandra</i>	Doughwood
<i>Mischocarpus australis</i>	Red Pear-fruit
<i>Mischocarpus pyriformis</i>	Yellow Pear-fruit
<i>Neolitsea australiensis</i>	Green Bolly Gum
<i>Neolitsea dealbata</i>	White Bolly Gum
<i>Notelaea johnsonii</i>	Veinless Mock-Olive
<i>Olea paniculate</i>	Native Olive
<i>Philydrum lanuginosum</i>	Frogsmouth
<i>Pararchidendron pruinatum</i>	Snowwood
<i>Pentaceras australe</i>	Crows Ash
<i>Ptilidostigma glabrum</i>	Plum Myrtle
<i>Pittosporum undulatum</i>	Sweet Pittosporum
<i>Polyscias elegans</i>	Celerywood
<i>Polyscias murrayi</i>	Pencil Cedar
<i>Pouteria australis</i>	Black Apple
<i>Rhodamnia argentea</i>	Malletwood
<b><i>Rhodamnia maideniana</i></b>	<b>Smooth Scrub Turpentine</b>
<b><i>Rhodamnia rubescens</i></b>	<b>Scrub Turpentine</b>
<b><i>Rhodomyrtus psidioides</i></b>	<b>Native Guava (planted, not found in 2023 survey)</b>
<i>Rhysotoechia bifoliolata</i>	Twin Leaved Tuckeroo
<i>Sambucus australasica</i>	Native Elderberry
<i>Sarcomelicope simplicifolia</i>	Bauerella
<i>Sarcopteryx stipata</i>	Steelwood
<i>Scolopia braunii</i>	Flintwood
<i>Schoenoplectus mucronatus</i>	Sedge
<i>Sloanea australis</i>	Maidens Blush
<i>Sloanea woollsii</i>	Yellow Carabeen
<i>Stenocarpus sinuatus</i>	Firewheel Tree
<i>Sterculia quadrifida</i>	Peanut Tree
<i>Streblus brunonianus</i>	Whalebone



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Scientific Name	Common Name
<i>Symplocos stawellii</i>	White Hazelwood
<i>Symplocos thwaitesii</i>	Buff Hazelwood
<i>Synoum glandulosum</i>	Scentless Rosewood
<i>Syzygium australe</i>	Brush Cherry
<i>Syzygium corynanthum</i>	Sour Cherry
<i>Syzygium crebrinerve</i>	Purple Cherry/Rose Satinash
<i>Syzygium francisii</i>	Giant Water Gum
<i>Syzygium luehmannii</i>	Riberry
<i>Syzygium oleosum</i>	Blue Lilly Pilly
<i>Tabernaemontana pandacaqui</i>	Banana Bush
<i>Toechima dasyrrhache</i>	Blunt-leaved Steelwood
<i>Toona ciliata</i>	Red Cedar
<i>Trema tomentosa</i> var <i>viridis</i>	Native Peach
<i>Tristaniopsis laurina</i>	Water Gum
<i>Wilkiea austroqueenslandica</i>	Smooth Wilkiea
<i>Wilkiea huegeliana</i>	Veiny Wilkiea
<i>Wilkiea macrophylla</i>	Large-leaved Wilkiea

**Site 12: Exotic and non-local species**

Scientific Name	Common Name
<i>Ageratum houstonianum</i>	Blue Billygoat Weed
<i>Ageratina adenophora</i>	Crofton Weed
<i>Archontophoenix alexandrae</i>	Alexander Palm
<i>Bidens pilosa</i>	Cobbler's Pegs
<i>Cestrum nocturnum</i>	Lady-of-the-night
<i>Cinnamomum camphora</i>	Camphor Laurel
<i>Colocasia esculenta</i>	Taro
<i>Corymbia torelliana</i>	Cadaghi
<i>Desmodium uncinatum</i>	Silver-leaved Desmodium
<i>Lantana camara</i>	Lantana
<i>Ligustrum lucidum</i>	Large-leaved Privet
<i>Paspalum mandiocanum</i>	Broad-leaved Paspalum
<i>Passiflora edulis</i>	Edible Passionfruit
<i>Passiflora subpeltat</i>	White Passionflower
<i>Passiflora suberosa</i>	Corky Passionfruit
<i>Setaria sphacelata</i>	Setaria
<i>Syagrus romanzoffianum</i>	Cocos Palm
<i>Sida rhombifolia</i>	Paddy's Lucerne
<i>Solanum mauritianum</i>	Tobacco Bush
<i>Sphagneticola trilobata</i>	Singapore Daisy

**Site 13: Native Species**

Scientific Name	Common Name
<i>Acacia melanoxylon</i>	Sally Wattle
<i>Cyathea leichardiana</i>	Tree Fern



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<i>Cyperus</i> sp.	Sedges
<i>Typha orientalis</i>	Typha

**Site 13: Exotic and non-local species**

Scientific Name	Common Name
<i>Ageratum houstonianum</i>	Blue Billygoat Weed
<i>Ageratina adenophora</i>	Crofton Weed
<i>Archontophoenix alexandrae</i>	Alexander Palm
<i>Bidens pilosa</i>	Cobbler's Pegs
<i>Cestrum nocturnum</i>	Lady-of-the-night
<i>Cinnamomum camphora</i>	Camphor Laurel
<i>Colocasia esculenta</i>	Taro
<i>Desmodium uncinatum</i>	Silver-leaved Desmodium
<i>Lantana camara</i>	Lantana
<i>Ligustrum lucidum</i>	Large-leaved Privet
<i>Paspalum mandiocanum</i>	Broad-leaved Paspalum
<i>Passiflora edulis</i>	Edible Passionfruit
<i>Passiflora subpeltata</i>	White Passionflower
<i>Passiflora suberosa</i>	Corky Passionfruit
<i>Setaria sphacelata</i>	Setaria
<i>Sida rhombifolia</i>	Paddy's Lucerne
<i>Solanum mauritianum</i>	Tobacco Bush
<i>Sphagneticola trilobata</i>	Singapore Daisy

**Site 14: Native Species**

Scientific Name	Common Name
<i>Acacia melanoxylon</i>	Sally Wattle
<i>Ficus coronata</i>	Creek Sandpaper Fig
<i>Guioa semiglaucula</i>	Guioa
<i>Macaranga tanarius</i>	Macaranga
<i>Wilkiea huegeliana</i>	Veiny Wilkiea

**Site 14: Exotic and non-local species**

Scientific Name	Common Name
<i>Ageratum houstonianum</i>	Blue Billygoat Weed
<i>Ageratina adenophora</i>	Crofton Weed
<i>Archontophoenix alexandrae</i>	Alexander Palm
<i>Bidens pilosa</i>	Cobbler's Pegs
<i>Cestrum nocturnum</i>	Lady-of-the-night
<i>Cinnamomum camphora</i>	Camphor Laurel
<i>Colocasia esculenta</i>	Taro
<i>Desmodium uncinatum</i>	Silver-leaved Desmodium
<i>Lantana camara</i>	Lantana
<i>Ligustrum lucidum</i>	Large-leaved Privet
<i>Paspalum mandiocanum</i>	Broad-leaved Paspalum
<i>Passiflora edulis</i>	Edible Passionfruit
<i>Passiflora subpeltata</i>	White Passionflower



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<i>Passiflora suberosa</i>	Corky Passionfruit
<i>Setaria sphacelata</i>	Setaria
<i>Sida rhombifolia</i>	Paddy's Lucerne
<i>Solanum mauritianium</i>	Tobacco Bush
<i>Sphagneticola trilobata</i>	Singapore Daisy

**Site 15: Native Species**

Scientific Name	Common Name
<i>Dianella caerulea</i>	Dianella
<i>Lomandra longifolia</i>	Spiny-Headed Mat-rush
<i>Mixed rainforest trees and shrubs</i>	

**Site 15: Exotic and non-local species**

Scientific Name	Common Name
	No weeds – well mulched



## APPENDIX 2 – WEED CONTROL METHODS

**"Cut-scrape-paint" method:** This method applies to all woody shrubs, trees and some vines e.g. Camphor Laurel, Winter Senna, Lantana.

- (a) Cut plant low to the ground at an angle.
- (b) Apply herbicide immediately at the rate of 1 part glyphosate to 1 part water with a paintbrush approximately 1.5cm wide.
- (c) Scrape sides lightly to reveal green tissues and apply the herbicide to the scraped area.
- (d) Take care that the brush is not contaminated with soil.

This method is modified to Scrape and Paint for fleshy vines such as Madeira Vine and Syngonium. The thick stems are scraped (length of approximately 15cm) from base to head height and painted taking care not to break the vine.

**Stem Injection:** This method applies to all woody trees and shrubs with a stem diameter >6cm, e.g., Camphor Laurel, Large-leaved Privet and Coral Tree.

- (a) With a drill (10mm bit), drill a hole at a downwards and transverse angle into the stem.
- (b) Apply herbicide immediately into the cut using a tree injecting device (using glyphosate, apply at the rate of 1:1).
- (c) Repeat at spaces of 10cm around the circumference of the tree, as close to the ground as possible. Where the presence of a crotch angle makes this difficult, make a hole above it. (**Note:** One row is sufficient. larger trunk diameters will need correspondingly more).
- (d) Treat all visible lateral roots as per (a).

**Spot Spraying:** This is carried out using a 15 litre back-pack spray unit with a modified spray nozzle that gives a solid spray pattern. Glyphosate is the main herbicide used, with the addition of the red marker dye. For plants which show some resistance to herbicides e.g. Ground Asparagus, or when growing conditions are not optimal, a penetrant is also added. A mixture of glyphosate and Metsulphuron Methyl is approved for plants that are difficult to control with glyphosate alone (**Note:** an appropriate permit is required for this 'off-label' herbicide usage).

**Overspray:** This method is applicable to large, dense infestations of such plants as Lantana and exotic grasses where it is desirable to leave the dead plants intact to prevent erosion and over-exposure of large areas, to protect native seedlings from predators such as wallabies and to avoid trampling by humans.

- (a) Spray over the top of the infestation, using a solution of glyphosate (**Note:** any native plants that may be under the weed will be protected by the foliage cover of the weed).
- (b) Leave the sprayed plants intact so that native seedlings can establish under the shelter provided. **Note:** Example: for Lantana, the usual dilution rate for glyphosate 360 is 1:75 water; for exotic grasses glyphosate 1:100 water. Always follow the label instructions. Alternatively, weeds can be cut and flattened with brush-hooks or loppers and the subsequent regrowth sprayed with glyphosate.

**Crowning:** This method is applicable to weeds which have their growing points below the surface of the ground (corms, bulbs, rhizomes, clumped or fibrous root systems etc. e.g. *Asparagus* spp. and exotic grasses).

- (a) Grasp the leaves or stems and hold them tightly so that the base of the plant is visible. Plants with





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sharp leaves or stems should be cut back first.

(b) Insert the knife close to the base of the plant at a slight angle, with the tip well under the root system.

(c) Cut through the roots close to the base. Depending on the size of the plant, two or more cuts may be needed to sever all the roots.

(d) Remove the plant. Make sure that the base of the plant where the roots begin is completely removed.

**Hand Pull:** Gently pull seedling out by the roots, wriggling the plant to fully free them.



**APPENDIX 3 – AHIMS EXTENSIVE SEARCH**



**AHIMS Web Services (AWS)**  
Extensive search - Site list report

Your Ref/PO Number : Wollongbar extensive  
Client Service ID : 732750

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
04-4-0095	KL-OS-1 <a href="#">Contact</a>	AGD	56	541350	6810450	Open site	Valid	Artefact : -		4454
		<a href="#">Recorders</a>		Mrs.Robynne Mills				<a href="#">Permits</a>	1881.3000	
04-4-0106	Wollongbar <a href="#">Contact</a> T Russell	AGD	56	540700	6812100	Open site	Valid	Artefact : 1		
		<a href="#">Recorders</a>		Jali Local Aboriginal Land Council				<a href="#">Permits</a>		
04-4-0246	Wollongbar East <a href="#">Contact</a> Jali Local Aboriginal Land Cou	GDA	56	541614	6811232	Open site	Valid	Water Hole : 1		
		<a href="#">Recorders</a>		Jali Local Aboriginal Land Council				<a href="#">Permits</a>		
04-4-0247	Byrnes Lane <a href="#">Contact</a> Jali Local Aboriginal Land Cou	GDA	56	544114	6812131	Open site	Valid	Water Hole : 1		
		<a href="#">Recorders</a>		Jali Local Aboriginal Land Council				<a href="#">Permits</a>		

**\*\* Site Status**  
 Valid - The site has been recorded and accepted onto the system as valid  
 Destroyed - The site has been completely impacted or harmed usually as consequence of permit activity but sometimes also after natural events. There is nothing left of the site on the ground but proponents should proceed with caution.  
 Partially Destroyed - The site has been only partially impacted or harmed usually as consequence of permit activity but sometimes also after natural events. There might be parts or sections of the original site still present on the ground  
 Not a site - The site has been originally entered and accepted onto AHIMS as a valid site but after further investigations it was decided it is NOT an aboriginal site. Impact of this type of site does not require permit but Heritage NSW should be notified

Report generated by AHIMS Web Service on 16/11/2022 for Sandra Pimm for the following area at Lat, Long From : -28.8331, 153.3946 - Lat, Long To : -28.813, 153.4563. Number of Aboriginal sites and Aboriginal objects found is 4

This information is not guaranteed to be free from error omission. Heritage NSW and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.