

Attachment D – Rehabilitation Management Plan

George Alexander Way, Coomera Rehabilitation Plan

Plan Ref: 11241 E RP C				
Sheet No.	Title	Description	Issue	Date
1	11241 E 01 RP C	Cover sheet	C	7/02/2024
2-3	11241 E 02-03 RP C	Rehabilitation Notes	C	7/02/2024
4	11241 E 04 RP C	Detail Sheet	C	7/02/2024
5-7	11241 E A01-A03 RP C	Appendix A - Weed treatment & Removal	C	7/02/2024



Issue	Date	Description	Check
A	23/01/2024	Client Draft	LF
B	25/01/2024	Updated Engineering	AW
C	7/02/2024	SARA Amendments	LF

George Alexander Way, Coomera

Rehabilitation Plan - Notes

Background

This Rehabilitation Plan (RP) has been prepared by **Saunders Havill Group (SHG)** for **Coomera GA Pty Ltd** to satisfy Condition 4 of the SARA referral agency response for 54 George Alexander Way, Coomera (SARA reference 2302-33455 SRA, Council reference COM/2023/16).

The primary objectives of this RP is to support the existing values in the rehabilitation area through weed management over a two year maintenance period.

Contextually, the site is located approximately 2.7 kilometres (km) south of Coomera centre and approximately 1.4 km west of the Pacific Motorway. The site is bound by George Alexander Way to the west, an approved development to the north, a similar large residential lot to the south and established residential community to the east.

The site consists of a large vegetated residential allotment with a single dwelling and associated shed infrastructure in the centre of the property. Access to the site is by George Alexander Way which bounds the site to the west. An access driveway traverses from the west through to the north into the central portion of the site where the residential dwelling exists.

The residential property is surrounded by planted ornamental and native species, primarily *Acacia concurrens* (Black Wattle), *Syagrus romanzoffiana* (Cocos Palm), *Eucalyptus microcorys* (Tallowood) and *Corymbia citridora* (Spotted Gum).

The rehabilitation area contains one dam. The dam is located in the north-western corner of the property, which is surrounded by a mix of vegetation including *C. citridora*, *Eucalyptus fibrosa* (Broad-leaved Red Ironbark) and *Eucalyptus siderophloia* (Grey Ironbark) with an understorey of *Acacia disparrima* (Hickory Wattle), *Lophostemon sauevolens* (Swamp Box) and *Melaleuca saligna* (White Bottlebrush). The large dam is overgrown with sedge species. A second smaller dam is located in the north-eastern corner surrounded by vegetation including *Allocasuarina littoralis* (Black She-oak), *L. sauevolens* and *C. citridora*.

Rehabilitation Team Responsibilities

It is critical for all parties to understand their responsibilities as part of the rehabilitation 'team'.

PARTY	DESCRIPTION
Proponent	Ensure all consultants, contractors, sub-contractors or others utilizing the area are aware of the Rehabilitation Plan. Appoint appropriate consultants and contractors to undertake works as prescribed on the drawings and conditioned by the Assessment Manager. Provide security via an uncompleted works bond and maintenance bond for the cost of works if required. Cover costs of all resources to ensure works are completed as per approved plans.
Consultants	Brief proponent on their requirements in implementing and maintaining works as per the Rehabilitation Plan. Attend pre-start and compliance (on and off maintenance) inspections. Undertake monitoring and reporting to the Assessment Manager as per this plan. Be available to respond to technical queries to the approved documentation when on-site conditions require changes. Liaise with the Assessment Manager throughout all stages of approval, initial works and maintenance of works.
Assessment Manager	Provide technical expertise via commentary on the approval of documentation. Attend pre-start and compliance (on and off maintenance) inspections. Reduce and release securities held against works at the completion of successful milestone inspections. Be available to respond to technical queries to the approved documentation when on-site conditions require changes. Accept and review maintenance reports as dictated (if required in this plan).
Contractor	Ensuring implementation of works and compliance with this Rehabilitation Plan. Attend pre-start and compliance (on and off maintenance) inspections. Has a minimum Certificate III in Conservation and Land Management, or a Certificate III in Horticulture, or a Certificate III in Rehabilitation Construction, or equivalent experience in rehabilitation. Hold relevant licenses in applicable weed management/ revegetation/ fauna management, any required insurances for scope of works and an understanding of required Laws, Act, Policies and Guidelines. Recommend changes to the documentation when specific experience or on-site conditions require so.

Rehabilitation Plan Methodology

Detailed assessment of site conditions prior to commencement of documentation is essential. As part of most rehabilitation scopes, it is worth considering an appropriate methodology for both compiling documentation and site works. This can be broken down into the following items:

- Site assessment
- Rehabilitation Design Documentation (this plan)
- Site Works (Initial Weed Treatment, Follow-up Treatment, Maintenance Works)
- Maintenance and monitoring

Methodology - Site Assessment

Two ecologists from SHG assessed the application site on 18 October 2022, conditions were fine and sunny. The assessment area was walked to ensure all vegetation communities and flora and fauna species were recorded. The following Introduced Flora were observed across both the development and rehabilitation areas on-site:

Scientific name	Common name	Restricted under Biosecurity Act 2014	BCC Priority
<i>Ageratina adenophorum</i>	Crofton Weed		
<i>Ageratum houstonianum</i>	Blue Billygoat Weed		
<i>Alternanthera brasiliana</i>	Purple Joyweed		
<i>Asparagus aethiopicus</i>	Ground Asparagus Fern	Category 3	
<i>Convolvulus arvensis</i>	Field blindweed		
<i>Conyza sumatrensis</i>	Tall Fleabane		
<i>Corymbia torelliana</i>	Cadaghi		
<i>Desmodium intortum</i>	Greenleaf Desmodium		
<i>Dypsis lutescens</i>	Golden Cane Palm		
<i>Emilia sonchifolia</i>	Emilia		
<i>Hypochoeris glabra</i>	Annual Flatweed		
<i>Lantana camara</i>	Lantana	Category 3	Very Low
<i>Nephrolepis cordifolia</i>	Fishbone Fern		
<i>Passiflora suberosa</i>	Corky Passion Vine		
<i>Pinus elliotii</i>	Slash Pine		
<i>Ricinus communis</i>	Castor Oil		
<i>Schefflera actinophylla</i>	Umbrella Tree		
<i>Senecio madagascariensis</i>	Fireweed	Category 3	Low
<i>Senna pendula</i>	Easter Cassia		
<i>Setaria sphacelata</i>	South African Pigeon Grass		
<i>Solanum chrysotrichum</i>	Giant Devil's Fig		
<i>Solanum mauritianum</i>	Wild Tobacco		
<i>Solanum seafortianum</i>	Brazilian Nightshade		
<i>Sphagneticola trilobata</i>	Singapore Daisy	Category 3	Very Low
<i>Spiraea prunifolia</i>	Bridalwreath spirea		
<i>Sporobolus pyramidalis</i>	Giant Rat's Tail Grass	Category 3	High
<i>Syagrus romanzoffiana</i>	Cocos Palm		
<i>Tephrosia purpurea</i>	Ahuhu		
<i>Verbena bonariensis</i>	Purple-top Verbena		

Of the seventy-two (72) species recorded during the field survey across the site, twenty-nine (29) are considered introduced species. It should be noted that five (5) of these species are listed as restricted matters under the Biosecurity Act 2014. Restricted invasive plants under the Biosecurity Act 2014 are to be managed at the Local Government level through a biosecurity plan that covers invasive plants and animals in its area.

Methodology – Site Works

Following resolution of the site analysis and management areas as part of rehabilitation design, prioritising site works should be considered. Prior to site works commencing, the site should be secured from degrading impacts such as grazing by stock, unauthorised access and rubbish. Some factors that may require immediate attention include:

- The presence of highly invasive weed species which may disperse further prior to substantial site works commencing
- The presence of weed species which may have a long term impact on ecological communities such as exotic and weed varieties of vines
- Flammable materials (including weed thickets, grasses and vines)
- Damaging and easy access by 4WD, motorbikes and pedestrians into core retained vegetation and ecological restoration areas. This may require installation of temporary fencing if deemed appropriate

Site works are broken down into the following categories:

- Initial Weed Treatment
- Follow-up Treatment
- Maintenance & Monitoring Works

Methodology – Initial Weed Treatment

Initial Weed Treatment within the site or a section of the site will involve a sequence of activities such as the control of all groundcover weeds, woody weeds in the understorey and exotic vines prior to the control of weed trees. Specific attention should be paid to the weed species observed on site in the Site Assessment. Initial Weed Treatment has the effect of creating a large degree of disturbance which will stimulate the germination of native and exotic species. Therefore, continuing works should be scheduled shortly after the initial visit to allow for timely control of the newly regenerating weeds.

Highly invasive weeds, such as the Restricted Invasive Plants listed under the Biosecurity Act 2014, should be treated as a priority during Initial Weed Treatment to alleviate competition on native flora species and inhibit spread into newly disturbed areas. Some weeds will also need to be treated in stages i.e. where the weed provides protection and habitat for native fauna. For example, if Lantana is providing the only habitat for small birds, it should be removed in phases as native shrub habitat establishes.

Techniques used during Initial Weed Treatment will vary depending on the target should follow the methods listed in the Weed Notes. At the end of Initial Weed Treatment, the zone will have been comprehensively and systematically worked, ready for follow-up treatment.

Methodology – Follow-up Treatment

For the first 12 months after Initial Weed Treatment, monthly observational visits should be made to the site to determine what progress the vegetation is making, and decide when to implement further follow-up treatment. A site that receives badly-timed, too frequent or too little follow-up will rapidly experience setbacks, as weed propagules will quickly become established in the newly disturbed areas. Germinating native seedlings may be swamped by weeds or damaged by inexperienced operators thereby exhausting the seed bank. Unless adequate follow-up can be ensured when planning restoration works, there is little point in commencing primary work, as time and resources are consumed with no substantial gain achieved (source: SEQERF).

Follow-up Treatment will mostly involve the spot-spraying of newly germinating weeds and resprouting sections of woody weeds and vines – particularly in areas where weeds were removed in Initial Weed Treatment.

Methodology – Maintenance & Monitoring Works

Maintenance Works

By the maintenance stage, the vegetation community is at a point where native plant species are germinating and establishing, and canopy formation is occurring. Weed density is starting to decrease as the native plants which have been encouraged during the previous restoration works are able to out-compete the weeds.

Maintenance of the planting includes tasks such as:

- Herbicide spraying to control competing weeds.
- Watering while plants are establishing. This is often highly variable and depends on the suite of species planted, weather conditions and time of year when planted. A watering schedule may consist of watering every day for week 1, twice per week for weeks 2-6 and then weekly from weeks 6-12; and
- Additional planting (if required).

A two (2) year maintenance period is recommended for this project including the first 12 months after Initial Weed Treatment subject to monthly observational visits and follow-up treatment.

Additional planting may be required to replace plants that do not survive (e.g.to meet survival rate requirements, or to fill gaps), but it may also be necessary to introduce new species at different stages of vegetation succession.

Maintenance is required following installation of the plants, although if maintenance is regular and thorough during the first year, maintenance requirements are likely to taper off significantly in the following years. The desired end-product is a fully-functioning system that can support itself in perpetuity, with minimal maintenance and input required.

Benchmark criteria / performance indicators

The utilisation of benchmark criteria helps to determine rehabilitation success during the maintenance period and assists in prompting when additional maintenance activities are required. Typically accepted benchmarks or performance indicators for dedicated or open space rehabilitation works include:

- Compliance 'On Maintenance' requirements:
 - 100% kill rate of declared environmental weeds.
 - 98% kill rate of other weeds
 - Control measures implemented at all eroded / erosion-prone areas
- Ongoing 'Off Maintenance' requirements:
 - No remaining eroded or degraded areas.
 - 100% kill rate of declared environmental weeds.
 - 98% kill rate of other weeds
 - Control measures implemented at all eroded / erosion-prone areas

Monitoring

Monitoring during the recommended two (2) year maintenance period will be the responsibility of the proponent and should be undertaken on a bi-annual basis.

Informal monitoring of rehabilitation works is one method of determining ecological restoration success in conjunction with the adjacent benchmarks. Informal monitoring may occur through ongoing site inspections, completion of record sheets and note taking. Notes to be distributed to the rehabilitation team and rectification works completed against notes. Photo point monitoring is an effective form of informal monitoring that may be used to support note taking, and may be requested during the approval process by the assessment manager. A permanent or semi-permanent photo point can be set up using a star picket marked with fluorescent yellow safety cap or painted timber stakes, so that a photograph may be taken of the site at regular (quarterly) intervals as it is being restored. A time series of photographs from a degraded state prior to the commencement of restoration, through the transition stages and into the maintenance stage will assist in assessing the success of the ecological restoration process. Collected site data and photos should be compiled in a 'master' monitoring report for proper record keeping.

Monitoring of the weed management works allows practitioners to:

- Monitor the rate of regeneration of desirable native species promoted in areas where weeds have been removed i.e. number and species of native seedlings established that were not planted on site
- Ensure level of protection for existing identified native vegetation inclusive of that which has naturally regenerated.
- Review the rate of spread or contraction of weed infestation within the weed removal and control program i.e. has weed growth been inhibited by current control program or has it spread to newly disturbed areas?
- Identification of new weed threats or other factors that may be affecting areas designated for rehabilitation i.e. *have additional scour locations been identified?*
- Review of the benchmark criteria / pre-established performance indicators for measuring the success of the weed removal and control program i.e. *has the rate of weed removal on ground reached the benchmark criteria for On or Off Maintenance?*

Monitoring timeframes may involve a series of key milestones:

- Prestart Inspection - On site meeting prior to the initial commencement of work. Typically involves Consultant, Contractor and Assessment Manager to work through rehabilitation areas and clarify any adjustments to scope against approved works.
- Compliance Inspections - At the completion of the Primary Site Works, a compliance inspection meeting will be held with the Consultant, Contractor and Assessment Manager to inspect the works on-site in relation to the approved plans and previously agreed benchmarks performance indicators. Should the rehabilitation be a dedicated asset (open space) to the assessment manager, this inspection is commonly referred to as 'on maintenance'. For dedicated assets, a secondary compliance inspection will be required (off maintenance).
- Ongoing Monitoring Inspections- Informal monitoring to occur on a regular basis as highlighted above. These inspections will generally occur throughout the process, specifically before, during and after relevant compliance inspections.

Progress Reporting

Following implementation of this plan, it is important that the techniques/methods and outcomes from maintenance and monitoring visits are documented and issued to the Department of Environment and Science for review and records.

Progress reporting should be undertaken on a bi-annual basis throughout the two (2) year maintenance period.

saunders havill group ■ surveying ■ town planning ■ urban design ■ environmental management ■ landscape architecture	Saunders Havill Group Pty Ltd ABN 24 144 972 949 Brisbane ■ Emerald ■ Rockhampton head office 9 Thompson St Bowen Hills Q 4006 phone 1300 123 SHG web www.saundershavill.com	Client:	Coomera GA Pty Ltd	Disclaimer: THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL GROUP CANNOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWING BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE PRIOR TO CONSTRUCTION AND DO NOT SCALE FROM THE DRAWINGS. ALL DIMENSIONS ARE IN MILLIMETRES. ANY DISCREPANCIES SHOULD BE CLARIFIED IN WRITING WITH SAUNDERS HAVILL GROUP PRIOR TO THE COMMENCEMENT OF WORK. PRIOR TO ANY DEMOLITION, EXCAVATION OR CONSTRUCTION ON SITE, THE RELEVANT AUTHORITY SHOULD BE CONTACTED FOR FURTHER UNDERGROUND SERVICES AND DETAILED LOCATIONS OF ALL SERVICES.	References: South East Queensland Ecological Restoration Framework (2012) Guideline for the preparation of a Rehabilitation Plan (GCC)	Amendments: <table><tr><th>Issue</th><th>Date</th><th>Description</th><th>Checked</th></tr><tr><td>A</td><td>23/01/2024</td><td>Client Draft</td><td>LF</td></tr><tr><td>B</td><td>25/01/2024</td><td>Updated Engineering</td><td>AW</td></tr><tr><td>C</td><td>7/02/2024</td><td>SARA Amendments</td><td>LF</td></tr></table>	Issue	Date	Description	Checked	A	23/01/2024	Client Draft	LF	B	25/01/2024	Updated Engineering	AW	C	7/02/2024	SARA Amendments	LF	Project: George Alexander Way, Coomera	environmental management	
	Issue	Date	Description	Checked																					
	A	23/01/2024	Client Draft	LF																					
	B	25/01/2024	Updated Engineering	AW																					
	C	7/02/2024	SARA Amendments	LF																					
Plan of: Rehabilitation Plan																									
- Notes																									
Date:	7/02/2024	Checked:	LF																						
Client Ref:	11241	Drawn:	LS																						
Drawing No.:	11241 E 02 RP C																								

George Alexander Way, Coomera

Rehabilitation Plan - Notes

Methodology – Maintenance Schedule

Below is an indicative maintenance schedule of work items and sequencing. The schedule is subject to change based on on-ground requirements and must meet the requirements on the rehabilitation condition of the development approval)

INDICATIVE MAINTENANCE SCHEDULE OF WORK ITEMS AND SEQUENCING																										
TIMING	SPRING			SUMMER			AUTUMN			WINTER			MILESTONE: COMPLIANCE / "ON MAINTENANCE"	SPRING			SUMMER			AUTUMN			WINTER			MILESTONE: COMPLIANCE / "OFF MAINTENANCE"
	INITIAL WEED TREATMEN / FOLLOW-UP TREATMENT			FOLLOW-UP TREATMENT			FOLLOW-UP TREATMENT			FOLLOW-UP TREATMENT				MAINTENANCE WORKS			MAINTENANCE WORKS			MAINTENANCE WORKS			MAINTENANCE WORKS			
	Month 1	Month 2	Month 3	Month 1	Month 2	Month 3	Month 1	Month 2	Month 3	Month 1	Month 2	Month 3		Month 1	Month 2	Month 3	Month 1	Month 2	Month 3	Month 1	Month 2	Month 3	Month 1	Month 2	Month 3	
WEEK 1	Pre-start meeting Council, Contractor and Superintendent If required	Monthly Observational Visit to determine implementation of further follow-up treatment. Photo monitoring as required	Monthly Observational Visit to determine implementation of further follow-up treatment. Photo monitoring as required	Pre-start meeting Council, Contractor and Superintendent If required	Monthly Observational Visit to determine implementation of further follow-up treatment. Photo monitoring as required	Monthly Observational Visit to determine implementation of further follow-up treatment. Photo monitoring as required	Pre-start meeting Council, Contractor and Superintendent If required	Monthly Observational Visit to determine implementation of further follow-up treatment. Photo monitoring as required	Monthly Observational Visit to determine implementation of further follow-up treatment. Photo monitoring as required	Pre-start meeting Council, Contractor and Superintendent If required	Monthly Observational Visit to determine implementation of further follow-up treatment. Photo monitoring as required	Monthly Observational Visit to determine implementation of further follow-up treatment. Photo monitoring as required						Bi-annual Maintenance Visit to determine implementation of further follow-up treatment. Photo monitoring as required						Bi-annual Maintenance Visit to determine implementation of further follow-up treatment. Photo monitoring as required		
WEEK 2	Establish photo points if required. Weed management - "knockdown spray"	Watering and Monitoring and reporting (throughout establishment).	Watering and Monitoring and reporting (throughout establishment).	Establish photo points if required. Weed management - "knockdown spray"	Watering and Monitoring and reporting (throughout establishment).	Watering and Monitoring and reporting (throughout establishment).	Establish photo points if required. Weed management - "knockdown spray"	Watering and Monitoring and reporting (throughout establishment).	Watering and Monitoring and reporting (throughout establishment).	Establish photo points if required. Weed management - "knockdown spray"	Watering and Monitoring and reporting (throughout establishment).	Watering and Monitoring and reporting (throughout establishment).						Watering and Monitoring. Weed management works - removal by hand						Watering and Monitoring. Weed management works - removal by hand		
WEEK 3	Weed management works - removal by hand	Weed management - "knockdown spray" spraying of newly germinating weeds and resprouting sections of woody weeds and vines	Weed management works - removal by hand	Weed management works - removal by hand	Weed management - "knockdown spray" spraying of newly germinating weeds and resprouting sections of woody weeds and vines	Weed management works - removal by hand	Weed management works - removal by hand	Weed management - "knockdown spray" spraying of newly germinating weeds and resprouting sections of woody weeds and vines	Weed management works - removal by hand	Weed management works - removal by hand	Weed management - "knockdown spray" spraying of newly germinating weeds and resprouting sections of woody weeds and vines	Weed management works - removal by hand						Weed management - "knockdown spray" spraying of newly germinating weeds and resprouting sections of woody weeds and vines						Weed management - "knockdown spray" spraying of newly germinating weeds and resprouting sections of woody weeds and vines		
WEEK 4	Weed Management - slashing of maintenance access paths	Weed management works - removal by hand		Weed Management - slashing of maintenance access paths	Weed management works - removal by hand		Weed Management - slashing of maintenance access paths	Weed management works - removal by hand		Weed Management - slashing of maintenance access paths	Weed management works - removal by hand							Weed Management - slashing of maintenance access paths								Weed Management - slashing of maintenance access paths

Methodology – Weed Notes

Weed management typically comprises a major part of rehabilitation site works. Weed management provides the basis of aiding natural regeneration and assisted natural regeneration. It also forms part of the preliminary work required for reconstruction and fabrication scopes.

Weed Management is to be undertaken in accordance with the SEQERF Initial Weed Treatment, Follow-up Treatment and Maintenance works notes above. Weed management shall encompass all species declared at the commonwealth, state and local level, and any weeds that appear to be invasive at the site.

A total of twenty-nine (29) weed species were identified on site during vegetation assessments. Five (5) of these are classified as Restricted Invasive Plants under the Biosecurity Act 2014 and are listed in *Appendix A*.

Critical skills for Weed Management include:

- Knowledge of relevant legislation
- Plant Identification skills
- Knowledge of different weed management techniques

Knowledge of Relevant Legislation

It is expected contractors have a depth of knowledge of relevant legislation to complete site rehabilitation works. This includes invasive plant classifications and control obligations under the Queensland *Biosecurity Act 2014* and local Biosecurity Plans (Refer to adjacent schedules for classification of weeds under the Act).

Bush regenerators must also comply with the requirements of the Workplace Health and Safety Act 2011 or, when working on Commonwealth lands, the Commonwealth's Occupational Health and Safety (Commonwealth Employment) Act 1991.

Contractors should also obtain all relevant permits required under State and Commonwealth legislation (e.g.Nature Conservation Act 1992, Fisheries Act 1994, Vegetation Management Act 1999, Biosecurity Act 2014). Contractors must also be aware of and adhere to cultural heritage protection obligations under the Aboriginal Cultural Heritage Act 2003 and where chemicals are in use, the Agricultural Chemicals Distribution Control Act 1966. In addition to the above, contractors should also be familiar with local government body requirements (e.g. Local Codes, Policies and Guidelines).

RESTRICTED MATTERS (BIOSECURITY ACT 2014)	
Category	Description
1	must be reported to an inspector within 24 hours if it is present in, or on, something in your possession or under your control or at a place where you are the occupier, unless an appropriately authorised officer has already been advised or you possess a permit for the restricted matter. Includes red imported fire ants, electric ants, Asian honey bees, and certain animal diseases, aquatic diseases and pathogens.

2	must be reported to an inspector within 24 hours if it is present in, or on, something in your possession or under your control or at a place where you are the occupier, unless an appropriately authorised officer has already been advised or you possess a permit for the restricted matter. Includes certain noxious fish, weeds and pest animals
3	You must not distribute this restricted matter. It must not be given as a gift, sold, traded or released into the environment unless the distribution or disposal is authorised in a regulation or under a permit. Deliberate human distribution or disposal contrary to the legislation is a key source of spread into other areas. Includes weeds, pest animals and noxious fish
4	You must not move this restricted matter to ensure that it does not spread into other areas of the state. Includes specific weeds, pest animals and noxious fish
5	You must not possess or keep this restricted matter under your control. These pests have a high risk of negatively impacting on the environment. You may only keep this restricted matter under a permit of the <i>Biosecurity Act 2014</i> or another Act. Includes weeds, pest animals and noxious fish
6	You must not feed this category of restricted matter. Feeding this restricted matter may cause their numbers to increase and negatively impact the economy or the environment. Feeding for the purpose of preparing for or undertaking a control program is exempted. Includes invasive animals such as feral deer, foxes, rabbits and wild dogs and noxious fish such as carp, gambusia and tilapia.
7	If you have these noxious fish in your possession you must kill the restricted matter and dispose of the carcass by burying the whole carcass in the ground above the high tide water mark or placing it in a waste disposal receptacle. Includes noxious fish such as carp, weatherloach, climbing perch and gambusia

Plant Identification Skills

Both native and weed species should be identified prior to primary weed removal works and ongoing throughout the follow-up and maintenance periods. This is to maximise natural regeneration and reducing likelihood of accidental weed spraying to native vegetation. Regenerating species to be treated and maintained in a similar manner to newly planted revegetation tubestock. If contractor is unsure of species, advice should be sought by botanist, specialist contractor or confirmed with Queensland Herbarium. Refer to indicative Weed Treatment schedules derived from Queensland Herbarium for an indication of weed species and treatments.

Knowledge of Different Weed Management Techniques

A range of weed management techniques are available to combat varying weed species and scenarios. Refer to adjacent schedules and Appendix A for an indication of weed management techniques.

WEED MANAGEMENT TECHNIQUES	
METHOD	DESCRIPTION
Herbicide	The herbicide weed control techniques described below provide a range of proven methods that can be used on a restoration site.
Cut - Scrape-Paint	Cut the stem of the plant close to the ground (approximately 1-2cm) ensuring that soil does not come in contact with the cut surface. The cut can be made at a slight angle in order to increase the surface area that is exposed to the chemical. Apply herbicide immediately to the cut stump using poison pot and brush or dripper bottle. Using a knife, scrape the sides of the stump thoroughly to expose the green tissue. Apply herbicide to the scraped stump. The chemical must be applied within 10 seconds of the cut or scrape being made in order for it to be fully effective.

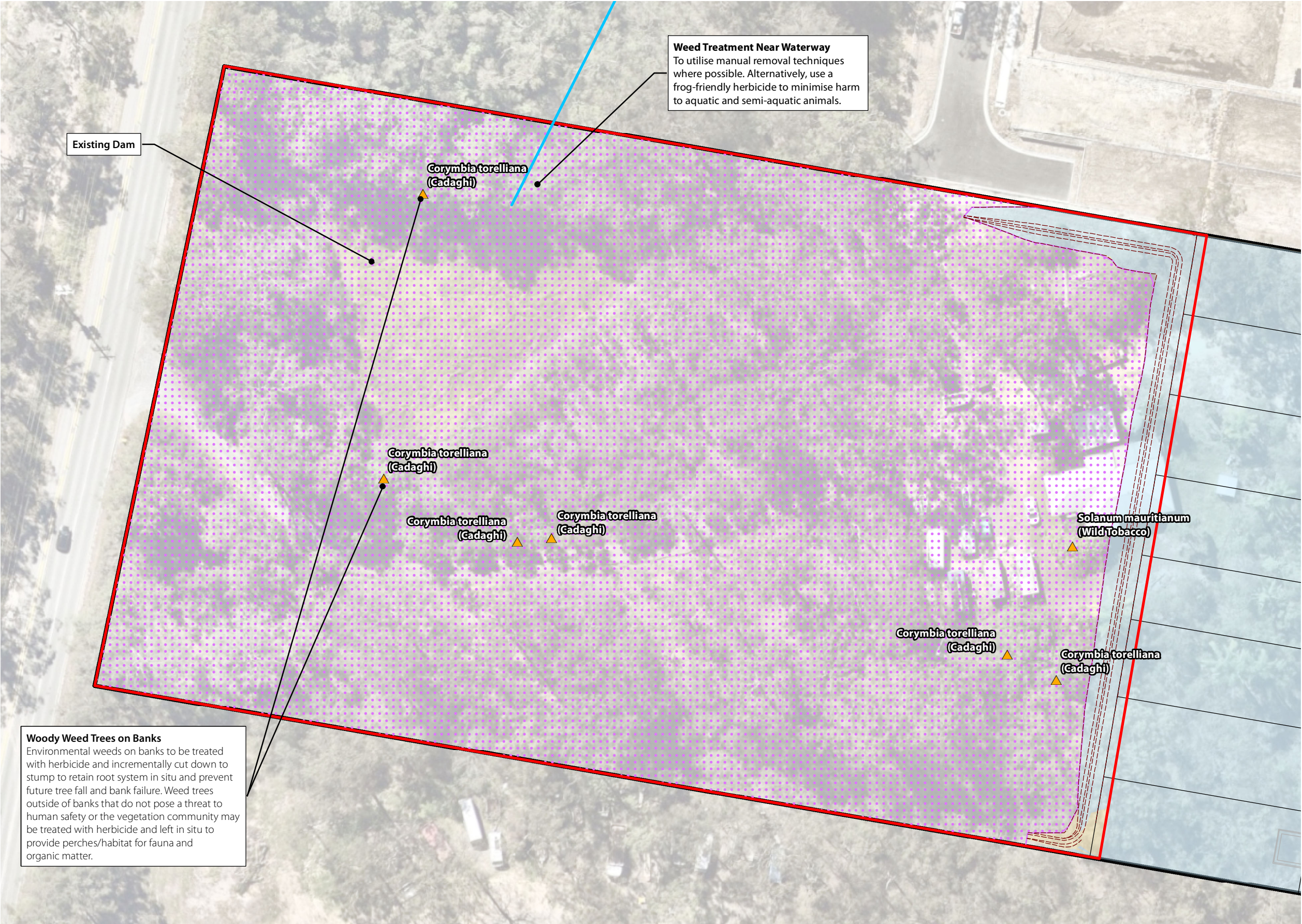
Cut - Paint	Cut the stem of the plant close to ground level. Apply herbicide to the cut stump using poison pot and brush or dripper bottle. This method is best suited to easy-to-treat weeds such as small-leaved privet (<i>Ligustrum sinense</i>), provided that the diameter of the stem at ground level is less than approximately three centimetres. If a glyphosate- / metsulfuron methyl herbicide mix is being used in the poison pot, a greater range of weeds can be controlled using this method e.g. Easter cassia.
Scrape - Paint	Scrape as much of the stem as possible (one side of the stem) using a knife and apply herbicide to the scrape. Leave a small section of the vine unscraped, and then twist the vine so that the next scrape is made on the opposite side of the stem to the preceding scrape. Continue along the length of the vine, scraping and painting as much of the stem as possible, with scraping to be concentrated along the thicker stems close to the root of the plant. This is the best method to use for madeira vine, as it allows the chemical to translocate to the underground storage organs and aerial tubers which may be hanging in large clusters above head height. This avoids the potential problem of tubers from cut stems left hanging in the trees from dropping to the ground and sprouting. When scraping madeira vine stems a deep scrape is advisable – scrape right through to the fibrous, stringy section of the stem, taking care not to sever the vine. This method is also suitable for treatment of ochna.
Over-spraying	Over-spraying involves the use of knapsacks or power sprayers to treat large expanses of weed such as lantana thickets. The foliage must be covered with herbicide but not to the point of running off the plant. The dead plants remain in place and can be cut down at a later stage. Prior to over-spraying, any weeds that are growing closely around established native plants must be hand removed or treated by cut-scrape-paint.
Spot-spraying	A knapsack filled with an appropriate herbicide mix is used by the operator to selectively control environmental weeds. A keen eye and an ability to distinguish between the native and weed species likely to be present, especially at seedling stage, is essential. Marker dye is added to the chemical mix to allow the operator to see what has already been sprayed, thus covering the ground weeds comprehensively and thoroughly Glyphosate and metsulfuron methyl are the main herbicides used for spot-spraying in ecological restoration, together with the addition of a penetrant and/or surfactant and marker dye.
Splatter Gun	This small gas-powered injector kit is fitted into a knapsack for easy carrying and delivers large droplets in a stream over the weed. The gun is used to deliver a concentrated herbicide (glyphosate or metsulfuron methyl) across large dense expanses of weed. The method is used for species such as lantana (ratio of 1:9 of glyphosate:water). Splatter gun involves spraying strips at one to two metre intervals over the thicket. The herbicide is then translocated throughout the entire plant. The method does not require the whole plant to be covered as in over-spray.
WEED MANAGEMENT TECHNIQUES	
METHOD	DESCRIPTION
Roll-hang	Vines such as mile-a-minute (<i>Ipomoea cairica</i>) which produce long stolons extending many metres along the surface of the ground, are suited to the roll-hang method. Locate the base of the plant and carefully pull up the runners and roll them up. The resulting roll of vine is then hung in the fork of a tree to dry out as if it is left on the ground it is likely to re-shoot. Where runners are climbing up into a tree they are cut off at head height prior to the runner being rolled up – there is no need to pull cut vines down from trees as this action is likely to damage the tree. The base of the vine is treated using the cutscape-paint method.
Gouge-paint	This method applies to plant species that have a fleshy underground storage organ, such as the large tuber that is often found at the base of madeira vine. It is also particularly appropriate for the treatment of climbing asparagus (<i>Protasparagus plumosus</i>). If using this technique on climbing asparagus, first cut the stems that are growing into the canopy at head height and also at the base. The fleshy rhizome can then be gouged, or alternatively in the case of climbing asparagus, it may be struck several times firmly with the head of a pair of loppers, allowing the brown outer

	covering of the crown to peel away exposing the white fleshy inner section of the rhizome for application of herbicide. Gouge out sections of the fleshy base with a knife and apply herbicide using a paint pot and brush or dripper bottle within 10 seconds.
Basal Barking	This method involves mixing an oil-soluble herbicide in diesel/kerosene and painting or spraying the full circumference of the trunk or stem of the plant from ground level to a height of approximately 45cm. Basal bark application is suitable for thin-barked woody weeds including saplings, regrowth and multi-stemmed shrubs. The method will usually result in the mortality of difficult-to-control woody weeds at any time of the year, provided the bark is not wet or too thick to enable the herbicide to penetrate. The method should not be used in wet weather, adjacent to waterways or in areas where native trees and shrubs are located. The use should be restricted to situations where a weed is particularly difficult to control e.g. cherry guava and where other methods have been unsuccessful.
Stem Injection	Large woody weeds such as camphor laurel, coral trees (<i>Erythrina</i> spp, Privet <i>Ligustrum</i> spp) and umbrella trees are generally treated by stem-injection. Holes are drilled at regular intervals around the base of the tree and exposed roots using a drill. A tree injection syringe attached to a small capacity knapsack is used to fill the holes with the herbicide. Stem-injection of trees can also be undertaken using a hatchet to create cuts in a 'brickwork pattern' in trunks of trees for the application of herbicide (known as tree frilling). Frilling is more labour intensive than drilling. The greatest benefit of steminjection is that the trees can be left standing in situ as they die, provided there is no risk to humans or infrastructure from falling limbs. This creates convenient roosts for birds and other animals, and prevents the formation of large amounts of debris on the ground and damage to understorey plants which would result if the trees were to be cut down using a chainsaw.
Wick Wiping	Wick wipers can be manually used with a sponge or wick applicator, attached to a container filled with herbicide or as an attachment towed by a tractor. The manual method can be used to selectively apply herbicide to the leaves of weeds growing in sensitive situations. The hand held container can leak and generally spot spraying would be recommended. The use of a tractor drawn wick wiper is used to control taller growing species such as introduced grasses and to encourage the growth of lower growing species. This method could be used in preparation for planting.
Mechanical	Mechanical weed control involves the use of powered and non-powered equipment such as brushcutters, chainsaws, slashers, shovels, pruners, saws, etc. These methods are best used in situations where there is a large, uninterrupted stand of weeds.
Dig and Bag	Dig and remove tuberous/ rhizomatous root systems. Remove roots or whole plant in hard/ compacted soils. Place in suitable container and remove from site, dispose of by deep burial, burn or burial at a land fill, must not place declared weed species in recycling (mulch).
Hand-Pull	Remove totally from ground by hand (human). Perform when soil is moist. Applicable to small infestations or areas of environmental sensitivity (including sensitive watercrouses, when frogs are breeding, or presence of threatened species).
General Mechanical	May involve use of machinery (e.g. brushcutter, chainsaw, slasher, dozer, excavator). Suitable for lage infestations and weed trees. Initially cost-effective, but requires immediate revegetation of site or matting/ mulch application and extensive maintenance periods. Generates excessive soil and vegetation disturbance.

Note: Table adapted from a table in SEQERF

George Alexander Way, Coomera

Rehabilitation Plan - *Detail Sheet*



Legend

- Rehabilitation Area
- Understorey Weed Management Area
- Watercourse / Drainage Feature
- Weed Tree to Remove as part of Rehabilitation Works

Engineering Design

- Site DCDB
- QLD DCDB
- Lot Design
- Easement Design
- Road Design
- Earthworks Interface
- Earthworks Cut
- Earthworks Fill

Observed Introduced Flora (Including Development Area)

Scientific name	Common name
Ageratina adenophorum	Crofton Weed
Ageratum houstonianum	Blue Billygoat Weed
Alternanthera brasiliana	Purple Joyweed
Asparagus aethiopicus	Ground Asparagus Fern
Convolvulus arvensis	Field blindweed
Conyza sumatrensis	Tall Fleabane
Corymbia torelliana	Cadaghi
Desmodium intortum	Greenleaf Desmodium
Dypsis lutescens	Golden Cane Palm
Emilia sonchifolia	Emilia
Hypochaeris glabra	Annual Flatweed
Lantana camara	Lantana
Nephrolepis cordifolia	Fishbone Fern
Passiflora suberosa	Corky Passion Vine
Pinus elliotii	Slash Pine
Ricinus communis	Castor Oil
Schefflera actinophylla	Umbrella Tree
Senecio madagascariensis	Fireweed
Senna pendula	Easter Cassia
Setaria sphacelata	South African Pigeon Grass
Solanum chrysotrichum	Giant Devil's Fig
Solanum mauritianum	Wild Tobacco
Solanum seafortianum	Brazilian Nightshade
Sphagneticola trilobata	Singapore Daisy
Spiraea prunifolia	Bridalwreath spirea
Sporobolus pyramidalis	Giant Rat's Tail Grass
Syagrus romanzoffiana	Cocos Palm
Tephrosia purpurea	Ahuhu
Verbena bonariensis	Purple-top Verbena

Rehabilitation Plan - Appendix A - Weed treatment and Removal (1)

Queensland Herbarium Invasive Naturalised Plants In South East Queensland								
Rk	Family	Scientific and common names	Sr	R	S	LFS	Non-Chemical Control	Chemical Control
1	Mimosaceae	Acacia boliviana (Bolivian wattle)	1	1	4	T/O	Mechanical or chain removal.	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance.
2	Mimosaceae	Acacia farnesiana (mimosa bush)	6	15	3	T/A	Mechanical removal of small plants.	
3	Mimosaceae	Acacia nilotica subsp. indica (prickly acacia)	3	3	4.4	T/A	Mechanical or chain removal.	
4	Cactaceae	Acanthocereus tetragonus (sword pear)	1	1	3	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	
5	Polygonaceae	Acetosa sagittata (rambling dock)	4	18	4	V/U	Tubers: Dig up, bag and remove.	
6	Agavaceae	Agave americana (century plant)	4	9	4	S/OA	Dig out by hand or machine	
7	Agavaceae	Agave sisalana (sisal)	2	4	4	S/OA	Dig out by hand or machine	
8	Agavaceae	Agave vivipara var. vivipara (sisal)	2	3	4	S/OA	Dig out by hand or machine	
9	Asteraceae	Ageratina adenophora (crofton weed)	6	38	5	H/O	Hand pull and hang to dry.	
10	Asteraceae	Ageratina riparia (mistflower)	5	38	5	H/O	Hand pull and hang to dry.	
11	Asteraceae	Ageratum houstonianum (blue billygoat weed)	8	81	4	H/UO	N/A	
12	Simaroubaceae	Ailanthus altissima (tree of heaven)	1	3	4	T/O	Seedlings: Hand pull	
13	Amaranthaceae	Alternanthera philoxeroides (alligator weed)	1	3	5	Ha/U	Physical removal of plant should not be attempted	
14	Poaceae	Andropogon virginicus (whisky grass)	6	14	4	H/A	Hand pull or dig out small infestations.	
15	Basellaceae	Anredera cordifolia (madeira vine)	8	16	5	V/O	Small Vines & Tubers: Hand pull. Bag and dispose.	
16	Asclepiadaceae	Araujia sericifera (mothvine)	9	38	4	V/O	Seedlings & Vines: Hand pull. Bag and remove fruit.	
17	Aristolochiaceae	Aristolochia elegans (Dutchman's pipe)	8	30	4	V/O	Stems: Hand pull; Fruit: Bag and remove.	
18	Poaceae	Arundo donax (giant reed)	1	4	4	H/O	Physical removal of small infestations.	
19	Asclepiadaceae	Asclepias curassavica (red cotton bush)	9	43	3	S/O	Hand pull; Slash	
20	Asparagaceae	Asparagus aethiopicus cv. Sprengeri (asparagus ground fern)	5	35	5	H/O	Dig out unwanted plants and dispose of at the appropriate council landfill. Remove the entire crown of underground stem of plant to prevent regrowth	
21	Asparagaceae	Asparagus africanus (ornamental asparagus, asparagus fern)	7	26	5	V/O	Dig out roots and dispose of at local council landfill site. Remove entire crown and underground stem to prevent regrowth	
22	Asparagaceae	Asparagus plumosus (asparagus fern)	4	8	4	V/O	Rhizomes: crown and hang to dry.	
23	Poaceae	Axonopus compressus (broad leaved carpet grass)	5	23	4	H/AO	Cut stems from roos.	
24	Asteraceae	Baccharis halimifolia (groundsel bush)	10	168	5	S/O	Seedlings: Hand pull	
25	Asteraceae	Bidens pilosa (cobblers pegs)	10	110	4	H/U	Hand pull or cultivation.	
26	Poaceae	Brachiaria decumbens (signal grass)	4	14	4	H/A	Grazing	
27	Poaceae	Brachiaria mutica (para grass)	6	18	4	Ha/A	Grazing	

Rk	Family	Scientific and common names	Sr	R	S	LFS	Non-Chemical Control	Chemical Control
28	Crassulaceae	Bryophyllum daigremontianum x B. delagoense (hybrid mother-of millions)	6	15	5	H/O	Hand pull and dispose	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance.
29	Crassulaceae	Bryophyllum delagoense (mother of millions)	8	38	5	H/O	Hand pull and dispose	
30	Crassulaceae	Bryophyllum pinnatum (resurrection plant)	6	17	4	H/O	Hand pull and dispose	
31	Buddlejaceae	Buddleja madagascariensis (buddleja)	5	6	3	S,V/O	N/A	
32	Cabombaceae	Cabomba caroliniana (cabomba, fanwort)	4	12	5	Ha/F	Mechanical removal of small infestations	
33	Caesalpiniaceae	Caesalpinia decapetala (thorny poinciana)	4	20	4	S,V/O	Seed-heads: Bag and remove.	
34	Brassicaceae	Cakile edentula (American sea rocket)	4	24	4	H/U	Manually grub and destroy.	
35	Commelinaceae	Callisia fragrans (purple succulent)	3	9	4	H/O	N/A	
36	Cannaceae	Canna indica (canna lily)	3	9	3	H/O	Dig out entire plant	
37	Sapindaceae	Cardiospermum grandiflorum (balloon vine)	7	31	4	V/O	Seedlings & Small Vines: Hand Pull	
38	Apocynaceae	Cascabela thevetia (syn. Thevetia peruviana) (yellow oleander)	5	9	3	ST/O	Hand pull small infestations. Slashing can be used but should be followed up by herbicide application.	
39	Apocynaceae	Catharanthus roseus (pink periwinkle)	5	22	4	S/O	Hand pull	
40	Ulmaceae	Celtis sinensis (Chinese celtis)	8	19	5	T/O	Remove when small. Hand pull or dig out small seedlings. Combine dozing, burning and controlled grazing for large infestations	
41	Poaceae	Cenchrus ciliaris (buffel grass)	4	15	4	H/A	Hand or mechanical removal of young plants	
42	Poaceae	Cenchrus echinatus (Mossman river grass)	8	43	3	H/A	Hand or mechanical removal of young plants	
43	Solanaceae	Cestrum parqui (green cestrum)	6	36	4	S/O	Seedlings: Hand pull	
44	Caesalpiniaceae	Chamaecrista rotundifolia (round-leaf cassia)	6	14	3	ST/A	Seedlings: Hand pull	
45	Poaceae	Chloris gayana (Rhodes grass)	9	55	4	H/A	Hand pulling and removal and digging of larger clumps	
46	Asteraceae	Chrysanthemoides monilifera subsp. rotundata (bitou bush)	3	23	5	S/OA	N/A	
47	Lauraceae	Cinnamomum camphora (camphor laurel)	7	25	5	T/O	Seedlings: Hand pull	
48	Rubiaceae	Coffea arabica (coffee)	3	7	3	ST/A	Saplings: Hand pull	
49	Arecaceae	Colocasia esculenta (taro)	3	4	3	H/AO	Hand pull.	
50	Commelinaceae	Commelina benghalensis (hairy wandering jew)	4	7	4	H/O	Collect and Bag	
51	Asteraceae	Conyza bonariensis (flax-leaf fleabane)	7	38	3	H/U	Hand or mechanical removal of small infestations	
54	Poaceae	Cortaderia selloana (pampas grass)	2	1	4	H/O	Small Plants: dig out by hand or machine	Scattered or medium-density infestations: Where possible, repeated slashing close to ground level is recommended.
55	Asclepiadaceae	Cryptostegia grandiflora (rubber vine)	6	19	4	V/O		
56	Poaceae	Cynodon dactylon (couch, Bahama grass introduced cultivars)	10	45	4	H/OA	Hand pull small infestations, removing all roots or smother with mulch.	

Rk	Family	Scientific and common names	Sr	R	S	LFS	Non-Chemical Control	Chemical Control
57	Cyperaceae	Cyperus brevifolius (Mullumbimby couch)	8	53	3	H/O	Each has to be dug out with a spade and the entire plant turned over, exposing the root system while making sure all aerial parts of the plant are completely covered.	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance.
58	Cyperaceae	Cyperus involucratus (African sedge)	6	15	4	Ha/OF	Each has to be dug out with a spade and the entire plant turned over, exposing the root system while making sure all aerial parts of the plant are completely covered.	
59	Fabaceae	Desmodium intortum (greenleaf desmodium)	4	11	3	H/A	Hand pull or crown and dispose	
60	Fabaceae	Desmodium uncinatum (silverleaf desmodium)	5	14	4	H/A	Hand pull or crown and dispose	
61	Poaceae	Digitaria didactyla (Queensland blue couch)	9	70	4	H/A	Hand pull or cultivation	
62	Poaceae	Digitaria eriantha (pangola grass)	5	20	3	H/A	Hand pull or cultivation	
63	Verbenaceae	Duranta erecta (duranta)	6	14	4	ST/O	Shrubs: CS&P (1:1.5)	
64	Poaceae	Echinochloa colona (awnless barnyard grass)	9	44	3	H/A	Hand or mechanical removal of small infestations	
65	Poaceae	Echinochloa crus-galli (barnyard grass)	6	34	4	H/A	Hand pull or dig out small infestations.	
66	Hydrocharitaceae	Egeria densa (egeria waterweed)	2	7	4	Ha/F	Hand pulling, cutting and digging with machines effective	
67	Pontederiaceae	Eichhornia crassipes (water hyacinth)	4	8	5	Ha/OF	Mechanical removal of small infestations	
68	Poaceae	Eleusine indica (crowsfoot grass)	8	55	4	H/A	Pull and chip. Replant with native couch.	
69	Poaceae	Eragrostis curvula (African lovegrass)	7	29	4	H/U	Chipped out before they flower. When chipping out the plant ensure that the tussock crowns are removed, as this will prevent regrowth. If in seed, the stems must be cut and bagged first.	
70	Rosaceae	Eriobotrya japonica (loquat)	3	5	3	T/O	Seedlings: Hand pull	
71	Fabaceae	Erythrina crista-galli (cockspur coral tree)	2	4	4	T/O	N/A	
72	Myrtaceae	Eugenia uniflora (Brazilian cherry)	4	19	4	ST/O	N/A	
73	Euphorbiaceae	Euphorbia cyathophora (painted spuge)	8	20	3	H/O	Hand pull	
74	Euphorbiaceae	Euphorbia heterophylla (milk weed)	5	12	3	H/O?	Hand pull	
75	Agavaceae	Furcraea foetida (Cuban hemp)	3	4	4.3	S/OA	Dig out by hand or machine	
76	Agavaceae	Furcraea selloa (hemp)	1	2	4	S/OA	Dig out by hand or machine	
77	Caesalpiniaceae	Gleditsia triacanthos (honey locust)	7	12	4	T/O	For the control of dense infestations on grazing land, burning followed by spot spraying is an economical control method.	
78	Colchicaceae	Gloriosa superba (glory lily)	3	26	4	V/O	N/A	
79	Asclepiadaceae	Gomphocarpus physocarpus (balloon cotton bush)	10	132	4	S/OU	Slash in winter and burn cuttings. Wanderer Butterfly can also be used as biological control.	

● = Weed Species Recorded on site

Rehabilitation Plan - Appendix A - Weed treatment and Removal (2)

Queensland Herbarium Invasive Naturalised Plants In South East Queensland									
Rk	Family	Scientific and common names	Sr	R	S	LFS	Non-Chemical Control	Chemical Control	
80	Asteraceae	Gymnocoronis spilanthoides (Senegal tea)	3	4	5	Ha/F	Place plant material in a sealed plastic bag, leave in sunlight to rot then burn or dispose of at a council-approved land fill tip	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance.	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance.
81	Cactaceae	Harrisia martinii (harrisia cactus)	2	4	4	S/O	The use of the biological mealy-bug agent is recommended		
82	Zingiberaceae	Hedychium coronarium (wild ginger)	2	2	4	H/O	Small Plants: Hand pull and dispose		
83	Zingiberaceae	Hedychium gardnerianum (ginger lily)	1	3	4	H/O	Small Plants: Hand pull and dispose		
84	Malpighiaceae	Hiptage benghalensis (hiptage)	3	5	4	S,V/O	Hand pull small infestations.		
85	Acanthaceae	Hygrophila costata (Glush weed)	3	7	5	Ha/F	Hand pull smal infestations. Can be controlled by planting competitive native species.		
86	Poaceae	Hymenachne amplexicaulis cv. Olive (hymenachne)	1	1	4	Ha/A	A combined approach of different control methods including mechanical, chemical and biological with land management practices is most effective		
87	Acanthaceae	Hypoestes phyllostachya (polka-dot plant)	3	5	4	H/O	Hand pull or crown and dispose		
88	Balsaminaceae	Impatiens walleriana (balsam)	2	6	4	H/O	N/A		
89	Convolvulaceae	Ipomoea cairica (mile-a-minute)	7	56	4	V/O	Vines & Runners: hand pull, roll up and hand up to dry.		
90	Convolvulaceae	Ipomoea indica (blue morning glory)	5	24	4	V/O	Vines and Runners: hand pull, roll up and hang to dry.		
91	Bignoniaceae	Jacaranda mimosifolia (jacaranda)	4	12	3	T/O	Seedlings: Hand pull		
92	Euphorbiaceae	Jatropha gossypifolia (cotton-leaf physic nut, bellyache bush)	1	1	4	S/O	Hand pull		
93	Juncaceae	Juncus articulatus (jointed rush)	1	2	4	Ha/FO	Hand pull.		
94	Acanthaceae	Justicia betonica (squirreltail)	2	4	4	S/O	Hand pull smal infestations. Can be controlled by planting competitive native species.		
95	Sapindaceae	Koelreuteria elegans (Chinese rain tree)	1	1	3.6	T/O	Seedlings: Hand pull		
96	Verbenaceae	Lantana camara var. camara (lantana)	10	455	5	S/O	Seedlings: Hand pull		
97	Verbenaceae	Lantana montevidensis (creeping lantana)	8	62	5	S/O	Fire and/or mechanical control		
98	Mimosaceae	Leucaena leucocephala (leucaena)	6	14	4	ST/A	Small plants: Hand pull or mechanical removal		
99	Oleaceae	Ligustrum lucidum (tree privet)	5	9	5	T/O	Seedlings: Hand pull		
100	Oleaceae	Ligustrum sinense (Chinese privet)	4	11	5	T/O	Seedlings: Hand pull		
101	Liliaceae	Lilium formosanum (Taiwan lily)	5	10	4	H/O	Hand pull or crown and dispose		
102	Caprifoliaceae	Lonicera japonica (Japanese honeysuckle)	3	6	4	V/O	Vines and Runners: hand pull, roll up and hang to dry.		
103	Solanaceae	Lycium ferocissimum (African boxthorn)	1	5	4.4	S/O	N/A		
Rk	Family	Scientific and common names	Sr	R	S	LFS	Non-Chemical Control	Chemical Control	
104	Bignoniaceae	Macfadyena unguis-cati (cat's claw creeper)	5	36	5	V/O	Tubers: crown or dig up, bag and remove.	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance.	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance.
105	Fabaceae	Macroptilium atropurpureum (siratro)	8	39	4	V/A	N/A		
106	Fabaceae	Macrotyloma axillare (perennial horse gram)	4	12	3	V,H/A	N/A		
107	Poaceae	Melinis minutiflora (molasses grass)	5	17	5	H/A	Grazing or mowing		
108	Poaceae	Melinis repens (red Natal grass)	10	134	4	H/A	Grazing or mowing		
109	Mimosaceae	Mimosa pudica (common sensitive plant)	4	12	4	S/A	N/A		
110	Moraceae	Morus alba (white mulberry)	3	10	3	T/O	N/A		
111	Rutaceae	Murraya paniculata cv. Exotica (murraya)	6	26	4	S/O	Seedlings: Hand pull		
112	Haloragaceae	Myriophyllum aquaticum (parrot's feather)	3	15	4	Ha/F	N/A		
113	Brassicaceae	Nasturtium officinale (Qld use Rorippa nasturtium-aquaticum) (watercress)	7	19	4	Ha/FU	Manually grub and destroy.		
114	Fabaceae	Neonotonia wightii (glycine)	5	16	5	H/A	N/A		
115	Nymphaeaceae	Nymphaea caerulea subsp. zanzibarensis (blue lotus)	4	17	4	Ha/OF	Hand pull small infestations.		
116	Nymphaeaceae	Nymphaea mexicana (yellow waterlily)	2	4	4	Ha/OF	Hand pull small infestations.		
117	Ochnaceae	Ochna serrulata (ochna)	7	33	5	S/O	N/A		
118	Onagraceae	Oenothera drummondii subsp. drummondii (beach evening primrose)	3	17	4	H/O	Hand pull		
119	Oleaceae	Olea europaea (olive)	2	6	4	T/A	Seedlings: Hand pull		
120	Cactaceae	Opuntia aurantiaca (tiger pear)	1	2	4	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.		
121	Cactaceae	Opuntia imbricata (rope pear)	1	1	4	H/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.		
122	Cactaceae	Opuntia monacantha (drooping tree pear, syn. O. vulgaris)	2	3	4	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.		
123	Cactaceae	Opuntia stricta (common prickly pear)	7	67	4	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.		
124	Cactaceae	Opuntia tomentosa (velvet tree pear)	8	46	4	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.		
125	Poaceae	Panicum maximum (green panic and guinea grass)	8	78	5	H/A	Hand or mechanical removal of small infestations		
Rk	Family	Scientific and common names	Sr	R	S	LFS	Non-Chemical Control	Chemical Control	
126	Asteraceae	Parthenium hysterophorus (parthenium weed)	6	14	4	H/U	Hand pulling of small areas is not recommended	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance.	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance.
127	Poaceae	Paspalum conjugatum (paspalum grass)	7	38	4	H/A	Cut below crown.		
128	Poaceae	Paspalum dilatatum (paspalum grass)	10	30	4	H/A	Hand pull or dig up		
129	Poaceae	Paspalum mandiocanum (broad leaf paspalum)	3	6	4	H/A	N/A		
130	Poaceae	Paspalum notatum (bahia grass)	4	10	4	H/A	Hand pull or dig up		
131	Passifloraceae	Passiflora edulis (passion fruit)	6	12	3	V/AO	Hand Pull		
132	Passifloraceae	Passiflora foetida (stinking passion flower)	7	50	4	V/O	Hand Pull		
133	Passifloraceae	Passiflora suberosa (cork passionflower)	8	166	4	V/O	N/A		
134	Passifloraceae	Passiflora subpeltata (white passion flower)	10	60	4	V/O	Stems: Hand pull		
135	Scrophulariaceae	Paulownia tomentosa (paulownia)	3	5	4	T/AO	Seedlings: Hand pull		
136	Poaceae	Pennisetum alopecuroides (swamp foxtail)	7	29	4	H/O	Hand Pull		
137	Poaceae	Pennisetum clandestinum (kikuyu grass)	4	12	4	H/A	Hand Pull		
138	Poaceae	Pennisetum purpureum (elephant grass)	2	9	4	H/O	Grazing or mechanical removal		
139	Poaceae	Pennisetum setaceum (fountain grass)	3	11	3	H/O	Hand Pull		
140	Verbenaceae	Phyla canescens (lippia, Condamine couch)	3	4	4	Ha/O	A combined approach of different control methods including chemical and mechanical with land management practices is most effective		
141	Poaceae	Phyllostachys aurea (fishpole bamboo)	1	2	4	S/O	N/A		
142	Phytolaccaceae	Phytolacca octandra (inkweed)	10	50	3	H/O	Hand pull or crown		
143	Pinaceae	Pinus elliotii (slash pine)	4	22	4	T/A	Seedlings: Hand pull; Saplings and Trees: cut close to ground or ring-bark		
144	Araceae	Pistia stratiotes (water lettuce)	3	8	4	Ha/OF	Mechanical removal of small infestations		
145	Mimosaceae	Prosopis pallida (algaroba)	2	2	4	ST/O	When using mechanical control methods, it is important to remove the bud zone of the root system (about 30 cm below the ground surface). If this is not removed, re-shooting can occur.		
146	Rosaceae	Prunus munsoniana (wild goose plum)	7	31	4	ST/A	Seedlings: Hand pull		
147	Myrtaceae	Psidium guajava and P. guineense (yellow guava and West Indes guava)	4	7	4	ST/AO	N/A		
148	Fabaceae	Pueraria lobata (kudzu)	3	4	4	V,S/O	Slash; Diminish by shading site		
149	Bignoniaceae	Pyrostegia venusta (flame vine)	1	1	4	V/O	N/A		
150	Rosaceae	Rhaphiolepis indica (Indian hawthorn)	3	10	4	ST/O	Seedlings: Hand pull		

● = Weed Species Recorded on site

Rehabilitation Plan - Appendix A - Weed treatment and Removal (3)

Queensland Herbarium Invasive Naturalised Plants In South East Queensland									
Rk	Family	Scientific and common names	Sr	R	S	LFS	Non-Chemical Control	Chemical Control	
150	Rosaceae	Rhaphiolepis indica (Indian hawthorn)	3	10	4	ST/O	Seedlings: Hand pull		Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance
151	Euphorbiaceae	Ricinus communis (castor oil plant)	7	20	4	S/O	Seedlings: Hand pull		
152	Phytolaccaceae	Rivina humilis (baby pepper)	8	61	4	H/O	Hand pull and hang to dry.		
153	Rosaceae	Rubus bellobatus (kittatinny blackberry)	5	22	4	S/O	Slashing hinders growth, giving some control if plants are slashed before they seed		
154	Rosaceae	Rubus discolor (R. fruticosus complex, a blakberry)	4	10	4	S/OA	Slashing hinders growth, giving some control if plants are slashed before they seed		
155	Rosaceae	Rubus ellipticus (yellowberry)	4	26	4	S/O	Slashing hinders growth, giving some control if plants are slashed before they seed		
156	Acanthaceae	Ruellia malacosperma (ruellia)	5	16	4	H/O	N/A		
157	Ruppiaceae	Ruppia maritima (sea tassel)	2	8	4	Ha/F	Hand pull or dig up		
158	Alismataceae	Sagittaria graminea var. platyphylla (sagittaria arrowhead)	3	7	4	Ha/FO	Physical removal of small infestations.		
159	Lamiaceae	Salvia coccinea (red salvia)	9	46	4	H/O	remove small areas by hand or machine		
160	Salviniaceae	Salvinia molesta (salvinia)	8	57	5	Ha/F	Mechanical removal of small infestations; Salvinia weevil (Biological control)		
161	Caprifoliaceae	Sambucus canadensis (American elder)	3	7	3	ST/O	Vines and Runners: hand pull, roll up and hang to dry.		
162	Dracaenaceae	Sansevieria trifasciata (sansevieria)	2	7	3	H/O	Hand pull or dig up		
163	Anacardiaceae	Schinus terebinthifolius (broad-leaf pepper tree)	6	49	5	T/O	Seedlings: Hand pull		
164	Asteraceae	Senecio madagascariensis (fire weed)	6	28	4	H/U	Vines: Hand pull and remove; Runners: Roll up and hang to dry.		
165	Asteraceae	Senecio tamoides (Canary creeper)	3	8	4	V/O	Vines: Hand pull and remove; Runners: Roll up and hang to dry.		

Rk	Family	Scientific and common names	Sr	R	S	LFS	Non-Chemical Control	Chemical Control
166	Caesalpiniaceae	Senna pendula var. glabrata (Easter cassia)	7	33	4	ST/O	Seedlings: Hand pull	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance
167	Caesalpiniaceae	Senna septemtrionalis (arsenic bush, was S. floribunda)	6	25	4	S/O	Seedlings: Hand pull	
168	Poaceae	Setaria palmifolia (palm leaf setaria)	5	13	3	H/O	Hand pull or dig up	
169	Poaceae	Setaria sphacelata (South African pigeon grass)	9	41	4	H/A	Hand pull or dig up	
170	Malvaceae	Sida rhombifolia (Paddy's lucerne)	9	69	4	S/U	Hand pull or dig out.	
171	Asteraceae	Sigesbeckia orientalis (Indian weed)	10	148	4	H/U	Hand pull or cultivation.	
172	Solanaceae	Solanum erianthum (a tobacco bush)	7	19	3	S/O	Hand pull	
173	Solanaceae	Solanum hispidum (giant devil's fig)	5	23	4	S/O	Hand pull	
174	Solanaceae	Solanum mauritanium (wild tobacco tree)	8	30	4	S/O	Seedlings: Hand pull	
175	Solanaceae	Solanum seaforthianum (Brazilian nightshade)	8	78	4	V/O	Hand pull	
176	Solanaceae	Solanum torvum (devil's fig)	6	39	4	S/O	Seedlings: Hand pull	
177	Asteraceae	Solidago canadensis var. scabra (Canadian goldenrod)	7	15	4	H/O	Hand pull and hang to dry.	
178	Bignoniaceae	Spathodea campanulata (African tulip tree)	1	1	3	T/O	N/A	
179	Asteraceae	Sphagneticola trilobata (Singapore daisy)	6	34	5	H/O	Hand pull	
180	Poaceae	Sporobolus africanus (Parramatta grass)	8	48	5	H/U	Hand or mechanical removal of small infestations	
181	Poaceae	Sporobolus fertilis (giant Parramatta grass)	9	27	5	H/U	Hand or mechanical removal of small infestations	
182	Poaceae	Sporobolus pyramidalis and S. natalensis (giant rat's tail grasses)	8	72	5	H/U?	Hand or mechanical removal of small infestations	
183	Poaceae	Stenotaphrum secundatum (buffalo grass)	3	23	3	H/AO	Hand or mechanical removal of small infestations	
184	Fabaceae	Stylosanthes scabra (shrubby stylo)	4	4	4.3	H/A	N/A	

Rk	Family	Scientific and common names	Sr	R	S	LFS	Non-Chemical Control	Chemical Control
185	Arecaceae	Syagrus romanzoffiana (queen palm)	4	10	4	T/O	Seedlings: Hand pull or crown; Trees: cut below growing point	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance
186	Asteraceae	Tagetes minuta (stinking roger)	8	32	3	H/U	Hand pull and hang to dry.	
187	Bignoniaceae	Tecoma capensis (Cape honeysuckle)	3	8	4	ST/O	N/A	
188	Bignoniaceae	Tecoma stans (yellow bells)	4	16	4	ST/O	N/A	
189	Poaceae	Themeda quadrivalvis (grader grass)	8	25	4	H/A	Hand pull or dig out small infestations.	
190	Acanthaceae	Thunbergia alata (black eyed susan)	5	22	4	H/O	N/A	
191	Acanthaceae	Thunbergia grandiflora (thunbergia, blue thunbergia)	2	3	5	V/O	N/A	
192	Acanthaceae	Thunbergia laurifolia (laurel clock vine)	1	1	4	V/O	N/A	
193	Fabaceae	Tipuana tipu (tipuana)	2	5	3	T/O	Seedlings: Hand pull	
194	Asteraceae	Tithonia diversifolia (Mexican sunflower)	5	11	4	H/O	N/A	
195	Commelinaceae	Tradescantia fluminensis (Qld use T. albiflora) (wandering jew)	5	9	4	H/O	N/A	
196	Commelinaceae	Tradescantia zebrina (zebrina)	3	12	4	H/O	N/A	
197	Tiliaceae	Triumfetta rhomboidea (Chinese burr)	7	44	4	H/U	Hand pull	
198	Asteraceae	Verbesina encelioides (crownbeard)	7	34	4	H/U	Vines: Hand pull and remove; Runners: Roll up and hang to dry.	
199	Iridaceae	Watsonia meriana var. bulbilifera (bulbil watsonia)	2	3	3	H/O	Dig up, bag and remove	
200	Asteraceae	Zinnia peruviana (wild zinnia)	6	33	3	H/O	Seedlings: Hand pull	

Explanatory notes.

Sub-region (Sr): Number of the ten sub-regions of the Southeast Queensland bioregion (Young and Dillewaard 1999) within which species recorded (Queensland Herbarium data).
Rec no. (R): Total number of records for species within study area, Queensland Herbarium CORVEG and HERBRECS data.
Scores (S): Based on panel data of invasiveness, 5 (highest) to 3 (moderate). ? indicate doubtful scores.

Life forms (LFS): T-tree (woody plant >5m), ST-small tree (2-5m), S-shrub (woody <2m), H-herb (grasses & forbes), Ha-aquatic herbs.
Source: A-agriculture, O-ornamental and landscaping, F-fish aquarium, U-unintentional introduction and/or contaminant.

Abbreviations: Control Methods

CS&P = cut scrape and paint

S&P = scrape and paint

C&P = cut and paint

F/I = frill or inject stem

Abbreviations: Herbicides

G = Glyphosate, eg. Roundup Biactive, Weedmaster Duo

MM = Metsulfuron methyl, eg. Brushoff

F = Fluroxypyr, eg. Starane

Abbreviations: Herbicide Dilution Rates for High Concentration Applications

GU = Glyphosate undiluted

G1 = 1 part water to 1 part glyphosate

G1.5 = 1.5 parts water to 1 part glyphosate

G4 = 4 parts water to 1 part glyphosate

Abbreviations: Herbicide Spray Concentrations

G100 = 100mL glyphosate per 10L of water + surfuctant, eg 20mL LI 700 per 10L

G200 = 200mL glyphosate per 10L of water + surfuctant, eg 50mL LI 700 per 10L

G100 + MM = 100mL glyphosate + 1.5g metsulfuron methyl per 10L of water + wetting agent, eg. 2mL Agral per 10L water

G200 + MM = 200mL glyphosate + 1.5g metsulfuron methyl per 10L of water + wetting agent, eg. 2mL Agral per 10L water

MM = 1.5g metsulfuron methyl per 10L water + wetting agent, eg. 2mL Agral per 10L water

F100 = 100mL fluroxypyr per 10L water

F150 = 150mL fluroxypyr per 10L water

Other Abbreviations

= Locally non-indigenous native species

Ref. 1. Big Scrub Rainforest Landcare Group (2008), 'Common Weeds of Subtropical Rainforests of Eastern Australia: A practical manual on their identification and control'

Ref. 2. Department of Primary Industries and Fisheries (QLD), 'Weeds and pest animals and ants'.

Ref. 3. Holland et al. (1996), 'Suburban Weeds', DPI QLD.

Ref 4. Port Stephens Council (NSW), 'Weed Busters'.

Ref 5. Department of Primary Industries (NSW), 'Noxious and Environmental Weed Handbook, 3rd Edition'.

Ref 6. Department of Environment and Conservation, 'Florabase', (DEC - WA)

Ref 7. Vitelli, J.S. and Madigan, B.A. and Van Haaren, P.E. and Setter, S. and Logan, P. (2009) Control of the invasive liana, Hiptage benghalensis. Weed Biology and Management, 9 (1). pp. 54-62.

● = Weed Species Recorded on site