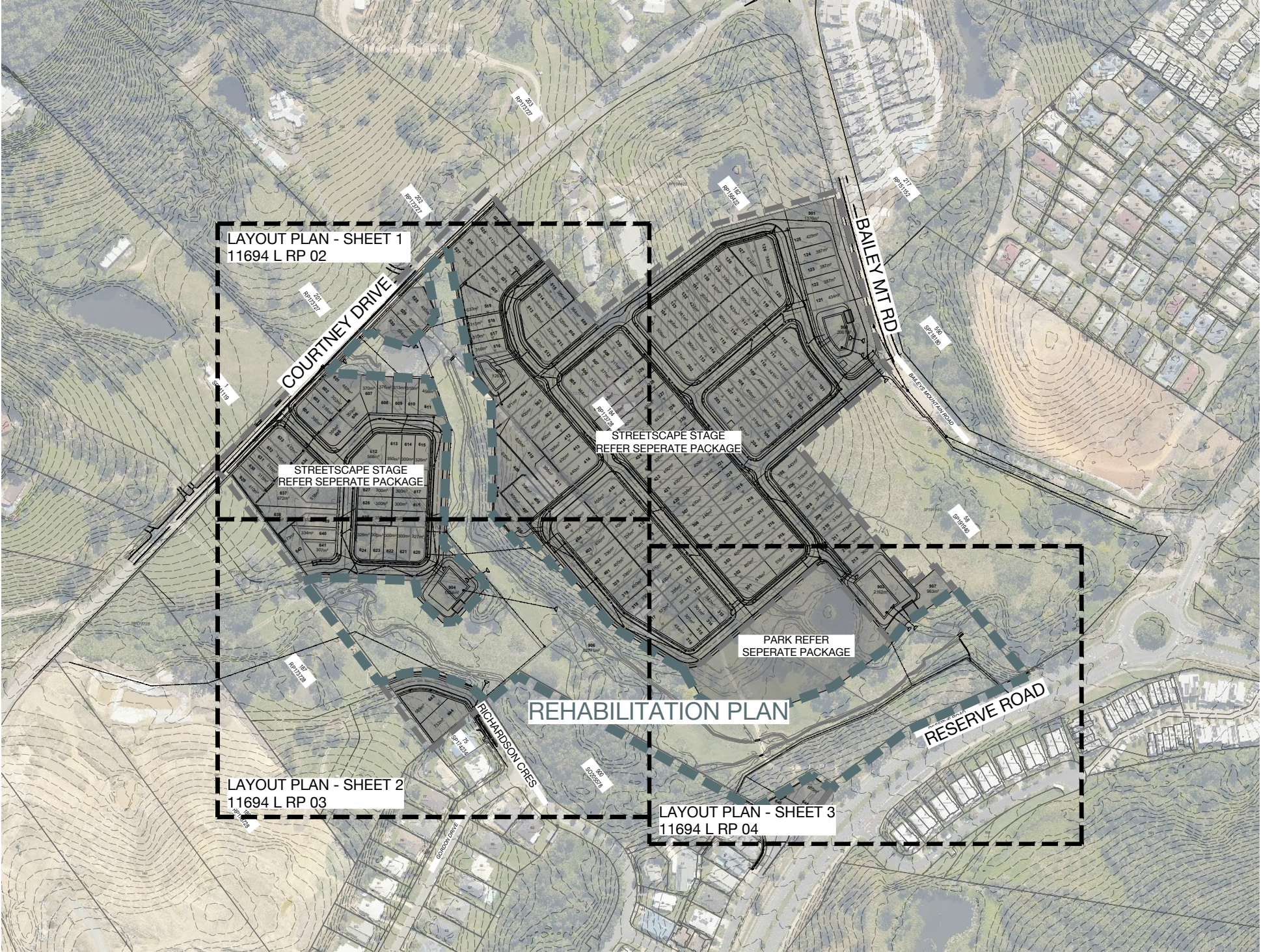


NORFOLK ESTATES - 41-53 COURTNEY DRIVE, UPPER COOMERA

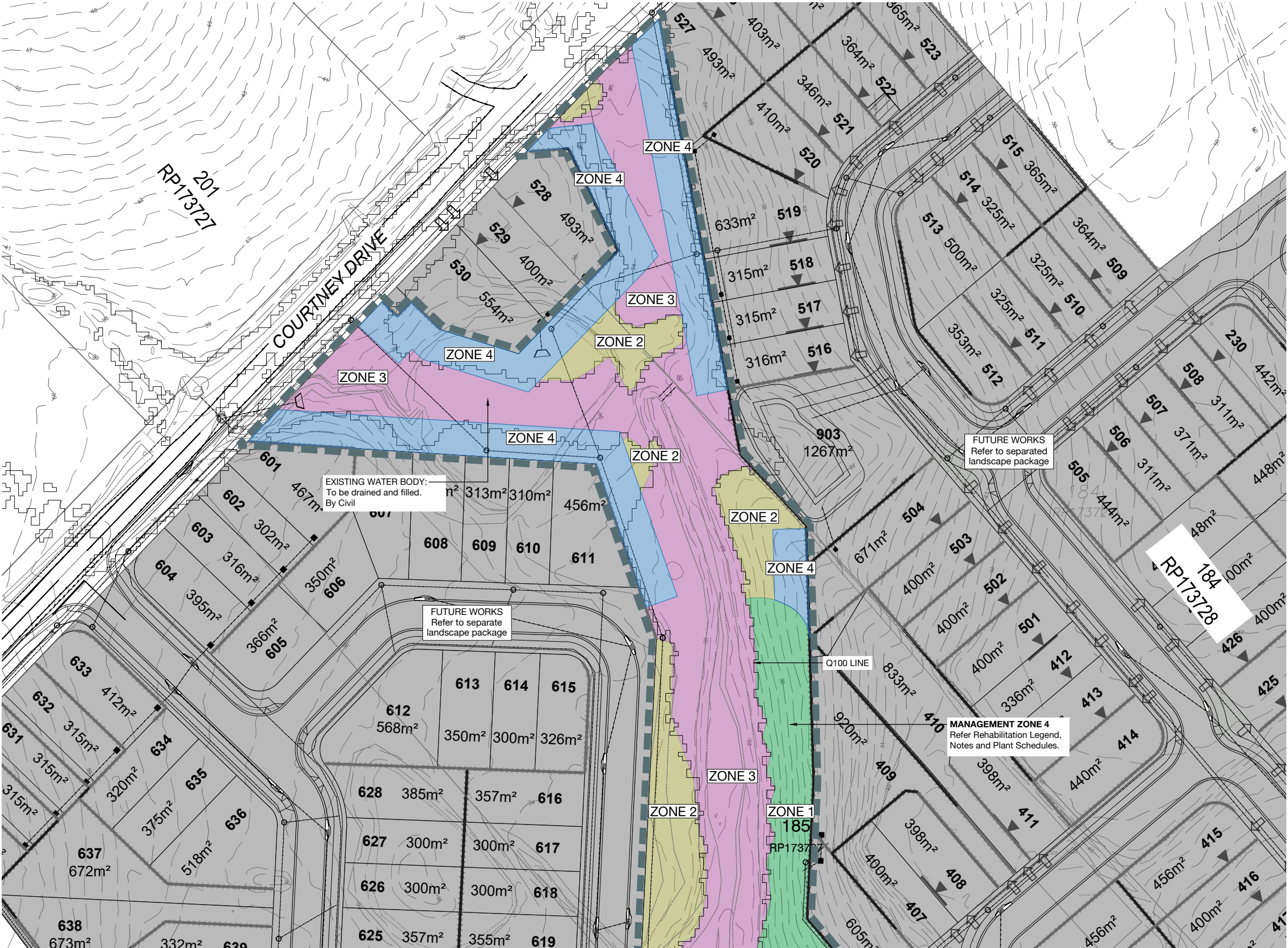
MANAGEMENT PLAN

DWG NO.	DRAWING TITLE	ISSUE	DATE
11694 L RP 01	REHABILITATION PLAN - COVER SHEET	A	08.07.2025
11694 L RP 02	REHABILITATION PLAN - LAYOUT PLAN - SHEET 1	A	08.07.2025
11694 L RP 03	REHABILITATION PLAN - LAYOUT PLAN - SHEET 2	A	08.07.2025
11694 L RP 04	REHABILITATION PLAN - LAYOUT PLAN - SHEET 3	A	08.07.2025
11694 L RP 05	REHABILITATION PLAN - SITE BACKGROUND AND REHABILITATION NOTES	A	08.07.2025
11694 L RP 06	REHABILITATION PLAN - WORKS DESCRIPTION & NOTES	A	08.07.2025
11694 L RP 07	REHABILITATION PLAN - WEED NOTES - SHEET 1	A	08.07.2025
11694 L RP 08	REHABILITATION PLAN - WEED NOTES - SHEET 2	A	08.07.2025
11694 L RP 09	REHABILITATION PLAN - WEED NOTES - SHEET 3	A	08.07.2025
11694 L RP 10	REHABILITATION PLAN - WEED NOTES - SHEET 4	A	08.07.2025
11694 L RP 11	REHABILITATION PLAN - NOTES AND DETAILS	A	08.07.2025
11694 L RP 12	REHABILITATION PLAN - PLANTING SCHEDULES	A	08.07.2025
11694 L RP 13	REHABILITATION PLAN - FAUNA NOTES AND MAINTENANCE PLAN	A	08.07.2025



NORFOLK ESTATES - 41-53 COURTNEY DRIVE, UPPER COOMERA

MANAGEMENT PLAN



LEGEND

Management Zone 1 - Existing Vegetation (Natural Regeneration)

Existing native trees, shrubs and groundcovers to be protected and retained. Weed management to entire zone to encourage natural regeneration by reducing competition. Appropriate (sensitive) weed management methodology within this zone to minimize any native vegetation damage / losses.

Refer to Rehabilitation Notes for additional details, plant species and densities.

Management Zone 2 - General Rehabilitation (Reconstruction)

Weed management to entire zone to encourage natural regeneration by reducing competition. Any existing/ occurring regrowth of native trees, shrubs and groundcovers to be protected and retained.

All bare / denuded areas to be appropriately cultivated, topsoiled and blanket mulched (100mm depth) or tecmatted (1:3 batters and locations prone to erosion) as required. All tecmatted to be installed to manufacturer's recommendations. Reconstruction of natural environment to be undertaken via tubestock installation including a diversity of tree, shrub and groundcover species to match regional ecosystem mapping for site.

Refer to Rehabilitation Notes for additional details, plant species and densities.

Management Zone 3 - Waterway Corridor (Assisted Natural Regeneration)

Existing native trees, shrubs and groundcovers to be protected and retained. Weed management to entire zone to encourage natural regeneration by reducing competition. Appropriate (sensitive) weed management methodology within this zone to minimize any native vegetation damage / losses.

Refer to Rehabilitation Notes for additional details, plant species and densities.

Management Zone 4 - General Rehabilitation (Reconstruction)

Weed management to entire zone to encourage natural regeneration by reducing competition. Any existing/ occurring regrowth of native trees, shrubs and groundcovers to be protected and retained.

All bare / denuded areas to be appropriately cultivated, topsoiled and blanket mulched (100mm depth) or tecmatted (1:3 batters and locations prone to erosion) as required. All tecmatted to be installed to manufacturer's recommendations. Reconstruction of natural environment to be undertaken via tubestock installation including a diversity of tree, shrub and groundcover species to match regional ecosystem mapping for site. Low growing goundcovers to zone / 8m buffer from back of lots.

Refer to Rehabilitation Notes for additional details, plant species and densities.

Approximate Creek Line:

Indicative location of creekline. Defined banks/ invert identifiable on site. Ground Truth to confirm final location throughout site. Allow for trimming of top edges of banks and centre-line to allow defined invert and to enable pinning of stabilisation matting and installation of plantig to top sides, banks and top edges of creek-line. Refer rehabilitation plan

NOTE:

- Refer rehabilitation plans, management zone notes, and plant schedules for breakdown of rehabilitation works and specification of treatment and finishes.
- Extents of weeds to be confirmed on site for all areas. Weed treatment to weed trees, shrubs and groundcovers within all rehabilitation areas.
- All wire / barbed wire fences withing rehabilitation areas and adjoining council reserves / parkland to be removed off site.

Saunders Havill

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Australian Institute of Landscape Architects

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AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	08.07.2025	CLIENT ISSUE	CT	RM

CLIENT

NORFOLK ESTATES Pty. Ltd.

ATF THE SOLANDER INVESTMENTS UNIT TRUST

PROJECT

NORFOLK ESTATES

41-53 COURTNEY DRIVE,

UPPER COOMERA

DRAWING TITLE

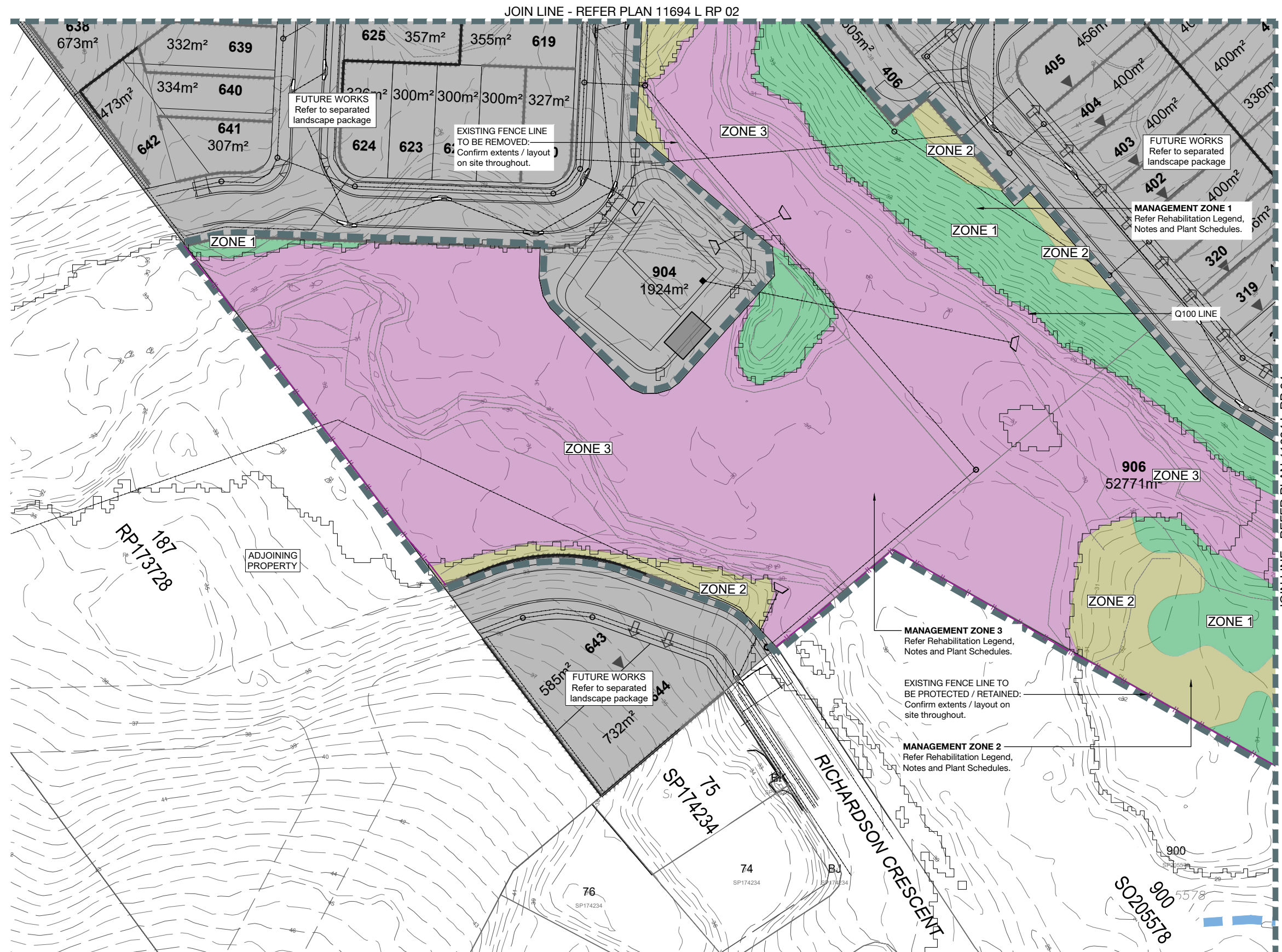
REHABILITATION LAYOUT PLAN - SHEET 1

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NORFOLK ESTATES - 41-53 COURTNEY DRIVE, UPPER COOMERA MANAGEMENT PLAN



LEGEND



Management Zone 1 - Existing Vegetation (Natural Regeneration)

Existing native trees, shrubs and groundcovers to be protected and retained. Weed management to entire zone to encourage natural regeneration by reducing competition. Appropriate (sensitive) weed management methodology within this zone to minimize any native vegetation damage / losses.

Refer to Rehabilitation Notes for additional details, plant species and densities.



Management Zone 2 - General Rehabilitation (Reconstruction)

Weed management to entire zone to encourage natural regeneration by reducing competition. Any existing/ occurring regrowth of native trees, shrubs and groundcovers to be protected and retained.

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Refer to Rehabilitation Notes for additional details, plant species and densities.



Management Zone 3 - Waterway Corridor (Assisted Natural Regeneration)

Existing native trees, shrubs and groundcovers to be protected and retained. Weed management to entire zone to encourage natural regeneration by reducing competition. Appropriate (sensitive) weed management methodology within this zone to minimize any native vegetation damage / losses.

➤ Refer to Rehabilitation Notes for additional details, plant species and densities.

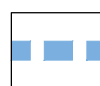


Management Zone 4 - General Rehabilitation (Reconstruction)

Weed management to entire zone to encourage natural regeneration by reducing competition. Any existing/ occurring regrowth of native trees, shrubs and groundcovers to be protected and retained.

All bare / denuded areas to be appropriately cultivated, topsoiled and blanket mulched (100mm depth) or tecomatted (1:3 batters and locations prone to erosion) as required. All tecomatting to be installed to manufacturer's recommendations. Reconstruction of natural environment to be undertaken via tubestock installation including a diversity of tree, shrub and groundcover species to match regional ecosystem mapping for site. Low growing groundcovers to zone / 8m buffer from back of lots.

Refer to Rehabilitation Notes for additional details, plant species and densities.



Approximate Creek Line:

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Indicative location of creekline. Defined banks/ invert identifiable on site. Ground Truth to confirm final location throughout site. Allow for trimming of top edges of banks and centre-line to allow defined invert and to enable pinning of stabilisation matting and installation of plantig to top sides, banks and top edges of creek-line. Refer rehabilitation plan

NOTE:

- Refer rehabilitation plans, management zone notes, and plant schedules for breakdown of rehabilitation works and specification of treatment and finishes.
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ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	08.07.2025	CLIENT ISSUE	CT	RM

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NORFOLK ESTATES
41-53 COURTNEY DRIVE,
UPPER COOMERA

| DRAWING TITLE

REHABILITATION
LAYOUT PLAN - SHEET 2

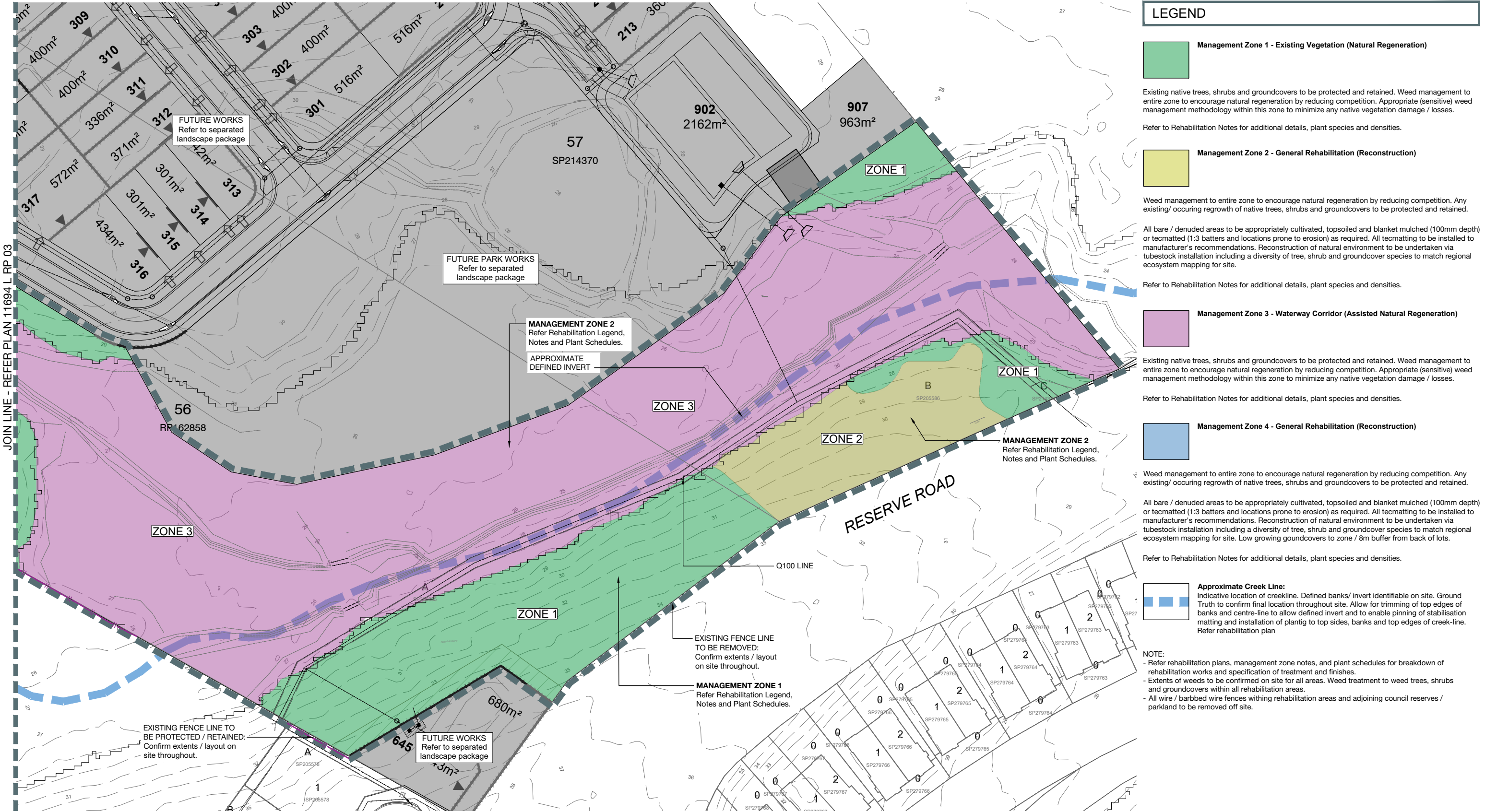
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NORFOLK ESTATES - 41-53 COURTNEY DRIVE, UPPER COOMERA

MANAGEMENT PLAN



NORFOLK ESTATES - 41-53 COURTNEY DRIVE, UPPER COOMERA

MANAGEMENT PLAN

REHABILITATION INTRODUCTION

A substantial amount of rehabilitation research has been conducted and compiled as part of the "South East Queensland Ecological Restoration Framework (SEQERF)" and subsequently endorsed by the majority of South East Queensland councils. Given this, information provided within this Rehabilitation document will largely utilize information derived from this framework.

Rehabilitation or "Ecological Restoration" can be described as "the process of assisting the recovery of an ecosystem that has been degraded, damaged or destroyed" (source: Society for Ecological Restoration International).

A key aspect of ecological restoration is that structure and function are returned to site, improving site stability, and improved habitat for fauna and flora. Structure includes vegetation height and density, canopy cover and appropriate species, as well as habitat features such as fallen logs and site rock. Function refers to the natural and self-sustaining processes occurring within the site including regeneration capacity, succession and cycling of nutrients. Activities required to achieve these objectives may include controlling environmental weeds, re-establishment of wildlife corridors and/ or stabilisation of creek banks or stormwater devices.

In accordance with the South East Queensland Ecological Restoration Framework, four ecological restoration approaches are generally applicable to rehabilitation works:

- Natural Regeneration
- Assisted Natural Regeneration
- Reconstruction
- Fabrication

It is worth noting as restoration work progresses on a site, ongoing changes to the structure and diversity of the vegetation will become apparent. These changes tend to occur in a cyclical manner, with the initial disturbance to the vegetation (either natural or man-made) being the trigger for changes. It is important to recognise that the vegetation will have to pass through a variety of stages of succession first, often over a period of years.

Disturbance as part of restoration works often has a negative connotation, however can often be useful for site restoration. Regeneration of native plant species is stimulated by mimicking natural disturbances. The techniques used will depend on the individual species and vegetation community, as they have evolved to respond to disturbances in different ways. Some examples of these techniques are:

- Control of competing vegetation, especially environmental weeds;
- Controlled burns or burn piles in vegetation communities adapted to fire;
- Soil disturbances such as ripping or raking; and/or
- Alterations to hydrology in wetlands to reinstate natural movement.

The SEQERF also highlights that consistent follow up is critical for success of ecological restoration. This ensures that beneficial, permanent changes can occur within the vegetation community benefiting both fauna and flora. In order to be able to confirm these changes are occurring, ongoing site monitoring may also be required.

Ecological restoration is a complicated and evolving field. It requires careful consideration for all ecosystem aspects to try in minimize any unexpected interactions, although is generally accepted that not all can be fully known about each complex ecosystem. Given this, it is necessary to remain flexible throughout this process to adapt to site and natural changes.

REHABILITATION APPROACHES

ECOLOGICAL RESTORATION APPROACHES	
NATURAL REGENERATION	
Applies:	To relatively large, intact and weed-free areas of native vegetation.
	Where native plants are healthy and capable of regenerating without human intervention.
	When native plant seed is stored in the soil or will be able to reach the site from nearby natural areas, by birds or other animals, wind or water.
	Where the plant community has a high potential for recovery after any short-live disturbance such as a fire or cyclonic winds.
	When preventative action is all that is required to avert on-going disturbances e.g. erection of fencing to prevent instruction by cattle.
Role of planting:	Planting in such areas can work against the aims of restoration by interfering with natural regeneration.
Goal vegetation community:	The re-establishing plant community will be similar in structure, composition and diversity to the original vegetation.
ASSISTED NATURAL REGENERATION	
Applies:	To natural areas where the native plant community is largely healthy and functioning.
	When native plant seed is still stored in the soil or will be able to reach the site from nearby natural areas, by birds or other animals, wind or water.
	Where the natural regeneration processes (seedling germination, root suckering, etc.) are being inhibited by external factors, such as weed invasion, soil compaction, cattle grazing, mechanical slashing, etc.
	When limited human intervention, such as weed control, minor amelioration of soil conditions, erection of fencing, cessation of slashing, etc. will be enough to trigger the recovery processes through natural regeneration.
	When the main management issue is weed infestation and/or current land use practices.
Role of planting:	Planting in such areas can work against the aims of restoration by interfering with natural regeneration except where species cannot return to site without direct intervention.
Goal vegetation community:	The re-establishing plant community will be substantially similar in structure, composition and diversity to the original vegetation.
RECONSTRUCTION	
Applies:	Where the site is highly degraded or altered.
	When the degree of disturbance has been so great and long-standing that the pre-existing native plant community cannot recover by natural means.
	To sites such as areas of fill, sites affected by stormwater flow, areas that have been drastically cleared, even though there may be a few remaining native trees or shrubs.
	When a greater degree of human intervention is required, such as weed control, cessation of grazing and/or slashing, amelioration of soil conditions such as importation of soils, drainage works or re-shaping of the landscape.
Role of planting:	Importation of native species to the area is required, either through planting or direct seeding (in some situations). natural regeneration and recruitment is insufficient to initially re-establish the original vegetation. Depending on the prevailing circumstances, the planting of a broad diversity of species from the target ecosystem may be unnecessary and the use of pioneers may be sufficient to re-establish ecological processes.
Goal vegetation community:	The re-establishing planted community should be similar to the original vegetation in structure, composition and diversity.
FABRICATION (TYPE CONVERSION)	
Applies:	Where site conditions have been irreversibly changed.
	When it is not possible to restore the original native plant community.
	Where a better-adapted local plant community can be planted that will function within the changed conditions.
	In situations such as the construction of a wetland plant community to mitigate increased urban storm-water run-off.
Role of planting:	Revegetation (planting) is the major component in a fabrication program.
Goal vegetation community:	The re-establishing planted community should be similar to a naturally occurring plant community of the same type (e.g. a constructed freshwater wetland should resemble a natural system in terms of structure, composition and diversity).

Note: Table adapted from a table in the Gold Coast City Council's "Guideline for the preparation of a Rehabilitation Plan"

REHABILITATION METHODOLOGY

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
- Maintenance and monitoring

REHABILITATION METHODOLOGY - SITE ASSESSMENT

Detailed assessment of site conditions prior to commencement of documentation is essential in the establishment of a site specific ecological restoration methodology. In accordance with the SEQERF the following checklist will form part of the site assessment process:

- Describe the history and background of the site;
- Describe the soil, drainage, topography and aspect;
- Describe the native vegetation on the site and along site boundaries;
- Describe the weeds on site;
- Describe the vegetation dispersal and structure;
- Describe the fauna use on site; and
- Describe estimated native regeneration response.

The responses to the above check list will provide the basis of the proposed restoration approach from Natural Regeneration to Fabrication for each treatment area within this Rehabilitation Plan.

Consideration should be made in the importance of integrating site specific measures for fauna habitat and movement. With many fauna species having specific habitat requirements, foraging patterns and movement patterns. During the site assessment process the following provisions should be taken into consideration:

- Fauna movement opportunities via easements, tracks, utility corridors and / or infrastructure pathways;
- Diversity and type of fauna and distribution on site;
- Habitat opportunities eg. dense foliage, roosting areas, log hollows and potential nesting boxes;
- Fauna disturbance and vicinity of works to significant nesting areas and / or fauna movement;
- Distribution of significant specialised food resources eg. Koala trees; and
- Stage weed removal and / or altering of weed control technique if the weeds are currently forming a significant fauna habitat.

For the sake of keeping this Rehabilitation document concise, site analysis results are compiled under a separate template and may or may not be included in this set, however the analysis outcomes derive the Rehabilitation design methodology.

REHABILITATION METHODOLOGY - REHABILITATION DESIGN

This documentation has been compiled through processes outlined in the SEQERF, site analysis and previous rehabilitation project experiences. The primary aims of this documentation is to provide assessment managers, clients and contractors a clear methodology to assist the recovery of an ecosystem that has been degraded, damaged or destroyed.

Upon site analysis, the following management zones are applicable to the rehabilitation site:

Management Zone 1 - Existing Vegetation (Natural Regeneration)

Existing native trees, shrubs and groundcovers to be protected and retained. Weed management to entire zone to encourage natural regeneration by reducing competition. Appropriate (sensitive) weed management methodology within this zone to minimize any native vegetation damage / losses.

Any significant bare / denuded areas as a result of weed management or natural disturbance are to be reviewed on site. Minor cultivation (minor 'ripping or raking disturbance' as per SEQERF) within bare areas and external to canopy drip lines to be utilised to encourage native seed germination. Should there be evidence of a lack of a native seed bank, blanket mulch (100mm depth) and tecmating (1:3 batters and locations prone to erosion) to be installed to bare areas. All tecmating to be installed to manufacturer's recommendations. Assisted natural regeneration to occur with infill tubestock canopy, shrubs and groundcovers to match regional ecosystem mapping for site at the discretion of rehabilitation superintendent. Where required, bushfire considerations should be reviewed by specialist bushfire consultant and species adjusted to minimize risks under their direction. Refer to plant schedule for species and planting densities.

Management Zone 2 - General Rehabilitation (Reconstruction)

Weed management to entire zone to encourage natural regeneration by reducing competition. Any existing/ occurring regrowth of native trees, shrubs and groundcovers to be protected and retained.

All bare / denuded areas to be appropriately cultivated, topsoiled and blanket mulched (100mm depth) or jutenetting (1:3 batters and locations prone to erosion) as required. All jutenetting to be installed to manufacturer's recommendations. Reconstruction of natural environment to be undertaken via tubestock installation including a diversity of tree, shrub and groundcover species to match regional ecosystem mapping for site. Where required, bushfire considerations should be reviewed by specialist bushfire consultant and species adjusted to minimize risks under their direction. Refer to plant schedule for species and planting densities.

Management Zone 3 - Waterway Corridor (Assisted Natural Regeneration)

Existing native trees, shrubs and groundcovers to be protected and retained. Weed management to entire zone to encourage natural regeneration by reducing competition. Appropriate (sensitive) weed management methodology within this zone to minimize any native vegetation damage / losses.

Any significant bare / denuded areas as a result of weed management or natural disturbance are to be reviewed on site. Should there be evidence of a lack of a native seed bank and natural regeneration, blanket mulch (100mm depth) to be installed to bare areas above high bank. Jutenetting within waterway, plant into existing site conditions. spray out 600x600 and install jutemat square and infill plant to 1:3 batters, locations prone to erosion, lower banks and to extents of water inundated rehabilitation areas. All jutenetting to be installed to manufacturer's recommendations. Assisted natural regeneration to occur with infill tubestock installation including a diversity of tree, shrub and groundcover (especially to lower banks) species to match regional ecosystem mapping for site. Refer to plant schedule for species and planting densities. Where required, bushfire considerations should be reviewed by specialist bushfire consultant and species adjusted to minimize risks under their direction. Refer to plant schedule for species and planting densities.

Management Zone 4 - General Rehabilitation (Reconstruction)

Weed management to entire zone to encourage natural regeneration by reducing competition. Any existing/ occurring regrowth of native trees, shrubs and groundcovers to be protected and retained.

All bare / denuded areas to be appropriately cultivated, topsoiled and blanket mulched (100mm depth) or tecmatted (1:3 batters and locations prone to erosion) as required. All tecmating to be installed to manufacturer's recommendations. Reconstruction of natural environment to be undertaken via tubestock installation including a diversity of tree, shrub and groundcover species to match regional ecosystem mapping for site. Where required, bushfire considerations should be reviewed by specialist bushfire consultant and species adjusted to minimize risks under their direction. Refer to plant schedule for species and planting densities. Low growing goundcovers to zone / 8m buffer from back of lots. Where required, bushfire considerations should be reviewed by specialist bushfire consultant and species adjusted to minimize risks under their direction. Refer to plant schedule for species and planting densities.

NORFOLK ESTATES - 41-53 COURTNEY DRIVE, UPPER COOMERA

MANAGEMENT PLAN

REHABILITATION 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 can be typically broken down into the following categories:

- Primary Works
- Follow-up Works
- Maintenance Works

Primary Works

Primary works or initial works within the site or a section of the site involves 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. Primary work 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 should be treated as a priority during primary work in order to avoid invasion of newly disturbed areas. Some weeds will need to be treated in steps e.g. where areas of weed is being used by nesting birds or where the staged removal of canopy weed trees is required. Techniques used during primary work commonly involve spot spray, cut-scrape-paint, cut-paint, scrape-paint, roll-hang and over spraying (source: SEQERF). Refer to Weed Management notes for additional details.

Following completion of weed management, rehabilitation (such as assisted natural regeneration, construction and fabrication planting) to occur in areas unaffected by weed management activities or areas that primary weed management activities have concluded. Refer to Rehabilitation Works notes for additional details.

At the end of primary work, the zone will have been comprehensively and systematically worked, ready for follow up works.

Follow-up Works

At intervals, which will vary according to the type of weed impacting the site and growing conditions, follow-up work will be necessary. This generally involves the spot-spraying of newly germinating weeds and resprouting sections of woody weeds and vines. It is at this stage that observational visits should be made to the site to determine what progress the vegetation is making, and decide when to implement further follow-up work. 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 seedbank. 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).

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. One of the fundamental principles of ecological restoration is that it attempts to create or re-establish an ecosystem that is self-sustaining. Therefore, it is the underlying goal that maintenance will eventually be decreased to a minimum. While this is not always possible, due to factors such as the continual reintroduction of weed propagules to the site from nearby residential areas; unfavourable seasons or weather event; persistent weed species; or global influences such as the enhanced greenhouse effect, it should always be strived for (source: SEQERF).

Maintenance works may include minor ongoing weed management and infill planting depending on site conditions.

REHABILITATION METHODOLOGY - SITE WORKS - 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 to be undertaken in accordance with SEQERF Primary, Follow-up and Maintenance works notes (adjacent).

Critical skills for Weed Management include:

- Identification Skills
- Knowledge of different techniques
- Knowledge of relevant legislation

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 Techniques

A range of weed management techniques are available to combat varying weed species and scenarios. Refer to adjacent schedules for an indication of 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 may include occupational Health and Safety laws as well as environmental and heritage protection legislation. Bush regenerators must 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- including Fire Ant Movement Controls). 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. Pest Management Plans, Local Codes, Policies and Guidelines) and Classifications of weeds. Refer to adjacent schedules for classification of weeds under the Land Protection Act (superseded by the Biosecurity Act 2014).

Under the Biosecurity Act 2014, landowners are responsible for taking all reasonable and practical steps to minimise the risks associated with invasive plants and animals under their control. This is known as the general biosecurity obligation (GBO). The act categorises restricted matter (restricted plants and animals) into the following:

- Category 1: must be reported to an inspector within 24 hours (includes Red Imported Fire Ants, amongst others).
- Category 2: must be reported within 24 hours to Biosecurity Queensland on 13 25 23.
- Category 3: must not be distributed either by sale or first, or released into the environment.
- Category 4: must not be moved.
- Category 5: must not be kept.

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES

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 (Ligustrum sinense), 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 ochra.
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.
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. 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.
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.
Roll-hang	Vines such as mile-a-minute (Ipomoea cairica) 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 cutscrape-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 (Protasparagus plumosus). 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.

Note: Table adapted from a table in the SEQERF

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES

WEED MANAGEMENT TECHNIQUES	
METHOD	DESCRIPTION
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.
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.
Stem Injection	Large woody weeds such as camphor laurel, coral trees (Erythrina spp, Privet Ligustrum 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 stem injection 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.
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 watercourses, 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 the SEQERF

NORFOLK ESTATES - 41-53 COURTNEY DRIVE, UPPER COOMERA

MANAGEMENT PLAN

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES

QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND						
RANK	FAMILY	SCIENTIFIC & COMMON NAME	SUB-REGION	LIFE FORM & SOURCE	NON-CHEMICAL CONTROL	CHEMICAL CONTROL
1	Verbenaceae	Lantana camara var. camara (lantana)	10	S/O	Seedlings: Hand pull	Seedlings: CS&P (G1.5); Shrubs: blanket spray G100 or cut down and spray regrowth G100 or splatter gun using 1 part G to 9 parts water - apply only when plant is growing, not dormant (ref 1).
2	Asteraceae	Baccharis halimifolia (groundsel bush)	10	S/O	Seedlings: Hand pull	Shrubs: CS&P or F/I (G1); Seedlings: CS&P (G1.5) or spray G200 (ref 1).
3	Crassulaceae	Bryophyllum delagoense (mother of millions)	8	H/O	Hand pull and dispose	Plantlets: spray G200 + MM or MM (ref 1).
4	Bignoniaceae	Macfadyena unguicati (cat's claw creeper)	5	V/O	Tubers: crown or dig up, bag and remove.	Regrowth and tubelings: spray G100 + MM or F100 (ref 1).
5	Basellaceae	Anredera cordifolia (madeira vine)	8	V/O	Small Vines & Tubers: Hand pull. Bag and dispose.	Ascending Stems: S&P (GU); Tubers: gouge, scrape and paint (GU); Ground infestations: spray G200 or G200 + MM (ref 1).
6	Asparagaceae	Asparagus africanus (ornamental asparagus, asparagus fern)	7	V/O	dig out roots and dispose of at local council landfill site. remove entire crown and underground stem to prevent regrowth	fluroxypyr (200 g/L) @ 35 mL per 1 L diesel/kerosene
7	Ulmaceae	Celtis sinensis (Chinese celtis)	8	T/O	remove when small. hand pull or dig out small seedlings. combine dozing, burning and controlled grazing for large infestations	Stem injection, glyphosate (360 g/L) @ Undiluted at 1 mL per 2 cm of hole or cut
8	Lauraceae	Cinnamomum camphora (camphor laurel)	7	T/O	Seedlings: Hand pull	Saplings: CS&P (G1.5); Trees: F/I (G1 or G1.5) or C&P (G1.5 or GU for stems up to 8 diameter); Seedlings: spray G200 or G200 + MM (ref 1).
9	Anacardiaceae	Schinus terebinthifolius (broad-leaf pepper tree)	6	T/O	Seedlings: Hand pull	Saplings: CS&P (G1.5); Trees: F/I (G1.5); Seedlings: spray G200 (ref 1).
10	Salviniaceae	Salvinia molesta (salvinia)	8	Ha/F	Mechanical removal of small infestations; Salvinia weevil (Biological control)	Aquatic areas: calcium dodecylbenzene sulphate (AF-100) @ 1 part to 19 parts kerosene; diquat (vegetrol) 50-100L/ha or 4L/100L water; diquat (watrol) 50-100L/ha or 4L/100L water; diquat (reglone) 5-10L/ha or 400mL + 150mL Agral / 100L water (see ref 2.
11	Cabombaceae	Cabomba caroliniana (cabomba, fanwort)	4	Ha/F	Mechanical removal of small infestations	2, 4-D N-Butyl Ester (Rubber Vine Spray) @ 12.5L/ML water (see ref 2. for application guide).
12	Asteraceae	Chrysanthemoides monilifera subsp. rotundata (bitou bush)	3	S/OA	N/A	Stems: C&P or F/I (G1.5); Bushes: spray or cut down and spray regrowth G100 or MM (ref 1).

Note: 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 products (such rates supersede those noted in above tables), or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable.

Note: Source for information contained on this page from Queensland Herbarium (Qld Gov't).

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES

QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND						
RANK	FAMILY	SCIENTIFIC & COMMON NAME	SUBREGION	LIFE FORM & SOURCE	NON-CHEMICAL CONTROL	CHEMICAL CONTROL
13	Pontederiaceae	Eichhornia crassipes (water hyacinth)	4	Ha/O	Mechanical removal of small infestations	Waterways: 2, 4-D acid ('AF 300') @ 1:200 with water; Aquatic Areas: glyphosate @ 1-1.3L/100L water (see ref 2. for application guide).
14	Acanthaceae	Hygrophila costata (Glush weed)	3	Ha/F	Hand pull small infestations. Can be controlled by planting competitive native species.	Glyphosate known to be effective. Species known to occur in waterways so EPA should be contacted before spraying (ref 4).
15	Oleaceae	Ligustrum lucidum (tree privet)	5	T/O	Seedlings: Hand pull	Saplings: CS&P or C&P (G1.5); Trees: F/I (G1 or G1.5) or C&P GU for stems up to 8cm diameter; Seedlings: spray MM or G200 + MM if other weeds such as Lantana or Camphor Laurel are present (ref 1).
16	Asteraceae	Sphagneticola trilobata (Singapore daisy)	6	H/O	Hand pull	Hand pull and/or spray G200 + MM (ref 1).
17	Asteraceae	Ageratina adenophora (crofton weed)	6	H/O	Hand pull and hang to dry.	Spray MM or G200 or G200 + MM if other weeds such as Lantana or Camphor Laurel are present (ref 1).
18	Verbenaceae	Lantana montevidensis (creeping lantana)	8	S/O	Fire and/or mechanical control	Spray (march to may): glyphosate 1L/100L water; metsulfuron methyl 10g/100L water; metsulfuron methyls + glyphosate 173g/100L water; Basal bark (anytime): triclopyr 1L/60L Diesel, picloram + triclopyr @ 1L/60L Diesel, Glyphosate, neat application; Platt
19	Fabaceae	Neonotonia wightii (glycine)	5	H/A	N/A	Vines: CS&P (1:1.5) or spray G100 + MM or MM (ref 1).
20	Poaceae	Panicum maximum (green panic and guinea grass)	8	H/A	Hand or mechanical removal of small infestations	Spray: glyphosate @ 13mL/1L water (ref 2.)
21	Oleaceae	Ligustrum sinense (Chinese privet)	4	T/O	Seedlings: Hand pull	Saplings: CS&P or C&P (G1.5); Trees: F/I (G1.5); Seedlings: spray MM or G200 + MM if other weeds such as Lantana or Camphor Laurel are present (ref 1).
22	Ochnaceae	Ochna serrulata (ochna)	7	S/O	N/A	Stems: CS&P or S&P or F/I (G1.5); Seedlings and Regrowth: spray G200 + MM or MM. Trial basal bark F100 or G200 + MM (ref 1).
23	Asparagaceae	Asparagus aethiopicus cv. Sprengeri (asparagus ground fern)	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	Spot spray - metsulfuronmethyl (600 g/L) @ 10 g per 100 L water plus wetting agent or 100 g/ha plus wetting agent. Cut stump, spot spray, Apply neat Diesel

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES

QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND						
RANK	FAMILY	SCIENTIFIC & COMMON NAME	SUBREGION	LIFE FORM & SOURCE	NON-CHEMICAL CONTROL	CHEMICAL CONTROL
24	Poaceae	Sporobolus pyramidalis and S. natalensis (giant rat's tail grasses)	8	H/U?	Hand or mechanical removal of small infestations	Small infestations: spray glyphosate @ 15mL/L water, flupropanate @ 2mL/L water + ionic wetter @ 1mL/Lwater; Dense Infestations: blanket spraying glyphosate 3L/ha, flupropanate 2L/ha (ref 2).
25	Asteraceae	Ageratina riparia (mistflower)	5	H/O	Hand pull and hang to dry.	Spray G100 or MM (ref 1).
26	Asclepiadaceae	Araujia sericifera (mothvine)	9	V/O	Seedlings & Vines: Hand pull. Bag and remove fruit.	Vines: CS&P (G1.5); Seedlings: spray G200 or G200 + MM or MM (ref 1).
27	Crassulaceae	Bryophyllum daigremontianum x B. delagoense (hybrid mother-of-millions)	6	H/O	Hand pull and dispose	Plantlets: spray G200 + MM or MM (ref 1).
28	Convolvulaceae	Ipomoea cairica (mile-a-minute)	7	V/O	Vines & Runners: hand pull, roll up and hand up to dry.	Vines and Runners: CS&P (G1.5); Larger Stems, Roots and Nodes: spray G100 + MM (ref 1).
29	Sapindaceae	Cardiospermum grandiflorum (balloon vine)	7	V/O	Seedlings & Small Vines: Hand Pull	Stems: CS&P (G1.5); Seedlings or Small vines: spray G200 or G200 + MM (ref 1).
30	Asclepiadaceae	Cryptostegia grandiflora (rubber vine)	6	V/O	Scattered or medium-density infestations: Where possible, repeated slashing close to ground level is recommended.	Foliar spray - Follow-up basal bark/cut stump/foliar spray as necessary with Triclopyr + picloram (Grazon DS, Grass-up, etc.) @ 0.35-0.5 L / 100 L water
31	Phytolaccaceae	Rivina humilis (baby pepper)	8	H/O	Hand pull and hang to dry.	Spray G100 (ref 1).
32	Poaceae	Sporobolus africanus (Parramatta grass)	8	H/U	Hand or mechanical removal of small infestations	Small infestations: spray glyphosate @ 15mL/L water, flupropanate @ 2mL/L water + ionic wetter @ 1mL/Lwater; Dense Infestations: blanket spraying glyphosate 3L/ha, flupropanate 2L/ha (ref 2).
33	Poaceae	Sporobolus fertilis (giant Parramatta grass)	9	H/U	Hand or mechanical removal of small infestations	Small infestations: spray glyphosate @ 15mL/L water, flupropanate @ 2mL/L water + ionic wetter @ 1mL/Lwater; Dense Infestations: blanket spraying glyphosate 3L/ha, flupropanate 2L/ha (ref 2).
34	Poaceae	Eragrostis curvula (African lovegrass)	7	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.	Glyphosate (360 g/L (e.g. Weedmaster® Duo) @ 10 ml/1 L water
35	Asteraceae	Gymnocoronis spilanthoides (Senegal tea)	3	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	Glyphosate and metsulfuron-methyl @ 15mL/L water

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES

QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND						
RANK	FAMILY	SCIENTIFIC & COMMON NAME	SUBREGION	LIFE FORM & SOURCE	NON-CHEMICAL CONTROL	CHEMICAL CONTROL
36	Amaranthaceae	Alternanthera philoxeroides (alligator weed)	1?	Ha/U	physical removal of plant should not be attempted	Terrrestrial plants use Metsulfuron methyl (Brushoff®) + 1mL/L non-ionic wetter @ 80g/ha + 1mL/L non-ionic wetter or 10g/100L water + 1mL/L non-ionic wetter. Free floating plants Glyphosate (Roundup Biactive®) 10 mL/L
37	Passifloraceae	Passiflora suberosa (cork passionflower)	8	V/O	N/A	Stems: CS&P; Seedlings & Regrowth: spray G200 or G200 + MM (ref 1).
38	Poaceae	Melinis minutiflora (molasses grass)	5	H/A	Grazing or mowing	Spray: Fluazifop-P 212g/L @ 2L/ha, Glyphosate 360g/L @ 1L/100L water (ref 2).
39	Aristolochiaceae	Aristolochia elegans (Dutchman's pipe)	8	V/O	Stems: Hand pull; Fruit: Bag and remove.	Stems: CS&P (G1.5); Seedlings: spray G200 or G200 + MM or MM (ref 1).
40	Convolvulaceae	Ipomoea indica (blue morning glory)	5	V/O	Vines and Runners: hand pull, roll up and hang to dry.	Vines and Runners: CS&P (G1.5); Larger Stems, Roots and Nodes: spray G100 + MM or F150 (ref 1).
41	Mimosaceae	Leucaena leucocephala (leucaena)	6	ST/A	Small plants: Hand pull or mechanical removal	Herbicide Control - Basal Bark application: triclopyr 240g/L + picloram 120g/L @ 1L/60L diesel; C&P: triclopyr 240g/L + picloram 120g/L @ 1L per 60L diesel; spray triclopyr 300g/L + picloram 120g/L @ 350mL per 100L water. Combination of chemical and mecha
42	Poaceae	Brachiaria mutica (para grass)	6	Ha/A	Grazing	Herbicide Control - Foliar application (Knapsack): glyphosate 360g/L @ 200mL/15L water; Foliar: glyphosate 360g/L @ 9L/ha; Handgun: glyphosate 360g/L @ 1.3L/100L water (ref 2).
43	Hydrocharitaceae	Egeria densa (egeria waterweed)	2	Ha/F	hand pulling, cutting and digging with machines effective	N/A
44	Pinaceae	Pinus elliotii (slash pine)	4	T/A	Seedlings: Hand pull; Saplings and Trees: cut close to ground or ring-bark	Saplings and Trees: F/I (G1.5) ensuring thick bark is penetrated (ref 1).
45	Caesalpiniaceae	Senna pendula var. glabrata (Easter cassia)	7	ST/O	Seedlings: Hand pull	Shrubs: CS&P or F/I (G1.5); Seedlings: spray G200 or G200 + MM or MM; collect and bag seeds (ref 1).
46	Poaceae	Chloris gayana (Rhodes grass)	9	H/A	Hand pulling and removal and digging of larger clumps	Spray: glyphosate @ 1L/100L water
47	Crassulaceae	Bryophyllum pinnatum (resurrection plant)	6	H/O	Hand pull and dispose	Plantlets: spray G200 + MM or MM (ref 1).
48	Asteraceae	Parthenium hysterophorus (parthenium weed)	6	H/U	hand pulling of small areas is not recommended	Spot spray 2,4-D amine 500g/L @ 0.4 L/100 L
49	Caprifoliaceae	Lonicera japonica (Japanese honeysuckle)	3	V/O	Vines and Runners: hand pull, roll up and hang to dry.	Vines and Runners: CS&P (G1.5); Larger Stems, Roots and Nodes: spray G100 + MM or MM (ref 1).
50	Acanthaceae	Thunbergia alata (black eyed susan)	5	H/O	N/A	CS&P (G1.5); spray G200 or G200 + MM (ref 1).



NORFOLK ESTATES - 41-53 COURTNEY DRIVE, UPPER COOMERA

MANAGEMENT PLAN

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES						
QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND						
RANK	FAMILY	SCIENTIFIC & COMMON NAME	SUBRE GION	LIFE FORM & SOURCE	NON-CHEMICAL CONTROL	CHEMICAL CONTROL
51	Fabaceae	Macropitilium atropurpureum (siratro)	8	V/A	N/A	Vines: CS&P (1:1.5) or spray G100 + MM or MM (ref 1).
52	Rosaceae	Rubus ellipticus (yellowberry)	4	S/O	slashing hinders growth, giving some control if plants are slashed before they seed	Grazon DS picloram/triclopyr 1:200 parts water + wetting agent
53	Colchicaceae	Gloriosa superba (glory lily)	3	V/O	N/A	Young Shoots: spray G200 or G200 + MM. Best results in Oct-Nov and by using 'Pulse' as surfucant (ref 1).
54	Verbenaceae	Phyla canescens (lippia, Condamine couch)	3	Ha/O	a combined approach of different control methods including chemical and mechanical with land management practices is most effective	Foliar spray 600g/L Dichlorprop @ 5ml /1L water or 2,4-Damine (500 g/L) +1% crop oil @ 2-4 L/ha + 1% crop oil
55	Solanaceae	Solanum seaforthianum (Brazilian nightshade)	8	V/O	Hand pull	Spray G100 (ref 1).
56	Araceae	Pistia stratiotes (water lettuce)	3	Ha/OF	Mechanical removal of small infestations	Glyphosate 360g/L @ 1-1.3L/100L water or 6.9L/ha; diquat 20g/L @ 4L/100L water or 50-100L/ha (see ref 2. for application guide).
57	Asparagaceae	Asparagus plumosus (asparagus fern)	4	V/O	Rhizomes: crown and hang to dry.	Rhizomes: gouge and paint (G1.5); Stems: wind up and spray or cut high and low and spray regrowth G200 or G200 + MM (ref 1).
58	Commelinaceae	Tradescantia fluminensis (Old use T. albiflora) (wandering jew)	5	H/O	N/A	Spray F150 (as per label) or G200 or G200 + MM; Collect and bag or roll and rake carefully. Dispose (ref 1).
59	Solanaceae	Cestrum parqui (green cestrum)	6	S/O	Seedlings: Hand pull	Stems: CS&P (G1.5) or spray G100 (ref 1).
60	Caesalpiniaceae	Senna septemtrionalis (arsenic bush, was S. floribunda)	6	S/O	Seedlings: Hand pull	Shrubs: CS&P or F/I (G1.5); Seedlings: spray G200 or G200 + MM or MM; collect and bag seeds (ref 1).
61	Solanaceae	Solanum mauritianum (wild tobacco tree)	8	S/O	Seedlings: Hand pull	Shrubs: CS&P (G1.5) or F/I (G1:1.5); Seedlings: spray G200 (ref 1).
62	Apocynaceae	Catharanthus roseus (pink periwinkle)	5	S/O	Hand pull	Spray G100 (ref 1).
63	Passifloraceae	Passiflora subpeltata (white passion flower)	10	V/O	Stems: Hand pull	Stems: CS&P; Seedlings & Regrowth: spray G200 or G200 + MM (ref 1).
64	Fabaceae	Desmodium uncinatum (silverleaf desmodium)	5	H/A	Hand pull or crown and dispose	CS&P tuberous roots (G1.5); spray G200 or G200 + MM or MM; collect and bag seeds (ref 1).
65	Poaceae	Melinis repens (red Natal grass)	10	H/A	Grazing or mowing	Spray: Fluazifop-P 212g/L @ 2L/ha. Glyphosate 360g/L @ 1L/100L water (ref 2).
66	Nymphaeaceae	Nymphaea caerulea subsp. zanzibarensis (blue lotus)	4	Ha/OF	Hand pull small infestations.	Spray with or Diquat Glyphosate. Occurs in waterways, thus EPA should be notified before any herbicide use (ref 5).

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REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES						
QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND						
RANK	FAMILY	SCIENTIFIC & COMMON NAME	SUBRE GION	LIFE FORM & SOURCE	NON-CHEMICAL CONTROL	CHEMICAL CONTROL
67	Onagraceae	Oenothera drummondii subsp. drummondii (beach evening primrose)	3	H/O	Hand pull	Spray G100 (ref 1).
68	Tiliaceae	Triumfetta rhomboidea (Chinese burr)	7	H/U	Hand pull	Spray G100 (ref 1).
69	Haloragaceae	Myriophyllum aquaticum (parrot's feather)	3	Ha/F	N/A	Spray: glyphosate 360g/L @ 100mL/10L water (ref 1).
70	Passifloraceae	Passiflora foetida (stinking passion flower)	7	V/O	Hand Pull	CS&P (G1.5); spray G200 or G200 + MM (ref 1).
71	Asteraceae	Verbesina encelioides (crownbeard)	7	H/U	Vines: Hand pull and remove; Runners: Roll up and hang to dry.	Stems: S&P (GU); Regrowth and seedlings: spray G200 or G200 + MM (ref 1).
72	Poaceae	Paspalum mandiocanum (broad leaf paspalum)	3	H/A	N/A	Spray G200 - resistant to weaker strength (ref 1).
73	Poaceae	Paspalum dilatatum (paspalum grass)	10	H/A	Hand pull or dig up	Spray G100 (ref 1).
74	Ruppiaceae	Ruppia maritima (sea tassel)	2	Ha/F	Hand pull or dig up	Spray G100 (ref 1).
75	Arecaceae	Syagrus romanzoffiana (queen palm)	4?	T/O	Seedlings: Hand pull or crown; Trees: cut below growing point	Trees: F/I (G1.5); Seedlings: spray G200 + MM (ref 1).
76	Poaceae	Hymenachne amplexicaulis cv. Olive (hymenachne)	1?	Ha/A	a combined approach of different control methods including mechanical, chemical and biological with land management practices is most effective	360 g/L Glyphosate (includes Roundup Biactive & Weedmaster Duo) – 1 L/100L water or 10 L/ha delivered by boom
77	Asteraceae	Senecio tamoides (Canary creeper)	3	V/O	Vines: Hand pull and remove; Runners: Roll up and hang to dry.	Stems: S&P (GU); Regrowth and seedlings: spray G200 or G200 + MM (ref 1).
78	Poaceae	Cenchrus ciliaris (buffel grass)	4	H/A	Hand or mechanical removal of young plants	Herbicide Control - Glyphosate 7mL/L water; Dichlobenil 600g/100m2; Fluazifop 50-100mL/10L water (ref 2).
79	Acanthaceae	Thunbergia grandiflora (thunbergia, blue thunbergia)	2	V/O	N/A	CS&P (G1.5); spray G200 (ref 1).
80	Cactaceae	Opuntia tomentosa (velvet tree pear)	8	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	Spray: Basal Bark application; Injection: Triclopyr: .8L/60L diesel. Picloram + Triclopyr: 1L/60L diesel. Amitrole: 1mL/3cm (ref 3).
81	Euphorbiaceae	Ricinus communis (castor oil plant)	7	S/O	Seedlings: Hand pull	Shrubs: S: CS&P or F/I (G1.5); Seedlings: spray G200 (ref 1).
82	Asteraceae	Senecio madagascariensis (fire weed)	6	H/U	Vines: Hand pull and remove; Runners: Roll up and hang to dry.	Stems: S&P (GU); Regrowth and seedlings: spray G200 or G200 + MM (ref 1).

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES						
QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND						
RANK	FAMILY	SCIENTIFIC & COMMON NAME	SUBRE GION	LIFE FORM & SOURCE	NON-CHEMICAL CONTROL	CHEMICAL CONTROL
83	Cyperaceae	Cyperus involucratus (African sedge)	6	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.	Aquatic areas - Glyphosate ipa Land—commercial/industrial, rights of way - Glyphosate-ipa, glyphosate-mas, Imazapyr
84	Asteraceae	Tithonia diversifolia (Mexican sunflower)	5	H/O	N/A	Stems: CS&P (G1.5) or cut and spray regrowth and seedlings (G100 or MM) (ref 1).
85	Poaceae	Setaria sphacelata (South African pigeon grass)	9	H/A	Hand pull or dig up	Spray G100 (ref 1).
86	Asclepiadaceae	Gomphocarpus physocarpus (balloon cotton bush)	10	S/OU	Slash in winter and burn cuttings. Wanderer Butterfly can also be used as biological control.	Spray: glyphosate @ 1:1000 with water, in spring before seeding (ref 3).
87	Poaceae	Digitaria didactyla (Queensland blue couch)	9	H/A	Hand pull or cultivation	Spot Spray: glyphosate or 2,2-DPA (ref 3)
88	Caesalpiniaceae	Gleditsia triacanthos (honey locust)	7	T/O	For the control of dense infestations on grazing land, burning followed by spot spraying is an economical control method.	pastures non-agricultural land fluoroxpyr1 (Starane 200*) @ 1.5 L-75mL/100 L diesel
89	Poaceae	Paspalum notatum (bahia grass)	4	H/A	Hand pull or dig up	Spray G100 (ref 1).
90	Cactaceae	Opuntia monacantha (drooping tree pear, syn. O. vulgaris)	2	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	Spray: Basal Bark application; Injection: Triclopyr: .8L/60L diesel. Picloram + Triclopyr: 1L/60L diesel. Amitrole: 1mL/3cm (ref 3).
91	Poaceae	Paspalum conjugatum (paspalum grass)	7	H/A	Cut below crown.	Spot Spray: glyphosate or 2,2-DPA (ref 3).
92	Malpighiaceae	Hiptage benghalensis (hiptage)	3	S,V/O	Hand pull small infestations.	Seedlings: Foliar spray of dicamba, fluoroxypr, and triclopyr/picloram. Larger plants cut stump application of fluoroxypr and triclopyr/picloram with diesel, glyphosate with water and picloram undiluted (ref 7).
93	Solanaceae	Solanum torvum (devil's fig)	6	S/O	Seedlings: Hand pull	Shrubs: CS&P (G1.5) or F/I (G1:1.5); Seedlings: spray G200 (ref 1).
94	Caesalpiniaceae	Caesalpinia decapetala (thorny poinciana)	4	S,V/O	Seed-heads: Bag and remove.	Stems: CS&P (G1.5); Seedlings: spray G200 or G200 + MM or MM (ref 1).
95	Poaceae	Pennisetum alopecuroides (swamp foxtail)	7	H/O	Hand Pull	Spot Spray: glyphosate or 2,2-DPA (ref 3)
96	Verbenaceae	Duranta erecta (duranta)	6	ST/O	Shrubs: CS&P (1:1.5)	Spray G100 (ref 1).
97	Brassicaceae	Nasturtium officinale (Qld use Rorippa nasturtium-aquaticum) (watercress)	7	Ha/FU	Manually grub and destroy.	Spray G100 and replace with local species (ref 1).

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES						
QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND						
RANK	FAMILY	SCIENTIFIC & COMMON NAME	SUBRE GION	LIFE FORM & SOURCE	NON-CHEMICAL CONTROL	CHEMICAL CONTROL
98	Polygonaceae	Acetosa sagittata (rambling dock)	4	V/U	Tubers: Dig up, bag and remove.	Tubers: Spray G200 or G200 + MM or MM (ref 1).
99	Poaceae	Cynodon dactylon (couch, Bahama grass introduced cultivars)	10	H/OA	Hand pull small infestations, removing all roots or smother with mulch.	Spray: glyphosate @ 200mL/15L water. Follow up spray (ref 3).
100	Bignoniaceae	Tecoma stans (yellow bells)	4	ST/O	N/A	Stems: CS&P (G1.5) or spray G200; Seeds: collect, bag and remove (ref 1).
101	Rosaceae	Rhaphiolepis indica (Indian hawthorn)	3	ST/O	Seedlings: Hand pull	Saplings: CS&P (G1.5); Trees: F/I (G1.5); Seedlings: spray G200 or G200 + MM or MM (ref 1).
102	Mimosaceae	Mimosa pudica (common sensitive plant)	4	S/A	N/A	Pastures - Fluoroxpyr/Starane 200 @ 1.5 L/ha Between cropping applications (conservation tillage) - Dicamba/Banvel 200 @ 0.8 1.4 L/ha
103	Commelinaceae	Callisia fragrans (purple succulent)	3	H/O	N/A	Spray F100 or G200 or G200 + MM; Collect and bag or roll and rake carefully. Dispose (ref 1).
104	Scrophulariaceae	Paulownia tomentosa (paulownia)	3	T/AO	Seedlings: Hand pull	Saplings: CS&P (G1.5); Trees: F/I (G1.5); Seedlings: spray G200 (ref 1).
105	Commelinaceae	Tradescantia zebrina (zebrina)	3	H/O	N/A	Spray F100 or G200 or G200 + MM; Collect and bag or roll and rake carefully. Dispose (ref 1).
106	Acanthaceae	Ruellia malacosperma (ruellia)	5	H/O	N/A	Spray G200 + MM (ref 1).
107	Poaceae	Pennisetum clandestinum (kikuyu grass)	4	H/A	Hand Pull	Spot Spray: glyphosate or 2,2-DPA (ref 3)
108	Liliaceae	Lilium formosanum (Taiwan lily)	5	H/O	Hand pull or crown and dispose	Spray G100 + MM or MM (ref 1).
109	Asteraceae	Sigesbeckia orientalis (Indian weed)	10	H/U	Hand pull or cultivation.	Spray with 2,4-D amine or sodium, pr MCPA + dicamba (ref 3).
110	Asteraceae	Bidens pilosa (cobble's pegs)	10	H/U	Hand pull or cultivation.	Spray with 2,4-D amine or sodium, pr MCPA + dicamba (ref 3).
111	Cactaceae	Opuntia stricta (common prickly pear)	7	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	Spray: Basal Bark application; Injection: Triclopyr: .8L/60L diesel. Picloram + Triclopyr: 1L/60L diesel. Amitrole: 1mL/3cm (ref 3).
112	Poaceae	Eleusine indica (crowsfoot grass)	8	H/A	Pull and chip. Replant with native couch.	Spray: glyphosate or 2,2-DPA (ref 3).
113	Poaceae	Axonopus compressus (broad leaved carpet grass)	5	H/AO	Cut stems from roos.	Spot spray with Glyphosate (ref 3).
114	Lamiaceae	Salvia coccinea (red salvia)	9	H/O	remove small areas by hand or machine	Aquatic areas (drains, channels, margins of streams, lakes and dams) - calcium dodecylbenzene sulphonate (AF-100) @ 1 part in 19 parts kerosene
115	Asteraceae	Ageratum houstonianum (blue billygoat weed)	8	H/UO	N/A	Spray G100 or hand pull and spray regrowth G100 (ref 1).



NORFOLK ESTATES - 41-53 COURTNEY DRIVE, UPPER COOMERA

MANAGEMENT PLAN

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES						
QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND						
RANK	FAMILY	SCIENTIFIC & COMMON NAME	SUBREGION	LIFE FORM & SOURCE	NON-CHEMICAL CONTROL	CHEMICAL CONTROL
116	Myrtaceae	Psidium guajava and P. guineense (yellow guava and West Indies guava)	4	ST/AO	N/A	Shrubs: CS&P or F/I (G1.5) or spray G200 + MM or MM. Trial basal bark F100 or G200 + MM (ref 1).
117	Rosaceae	Rubus bellobatus (kittatinny blackberry)	5	S/O	slashing hinders growth, giving some control if plants are slashed before they seed	Grazon DS picloram/triclopyr 1:200 parts water + wetting agent
118	Myrtaceae	Eugenia uniflora (Brazilian cherry)	4	ST/O	N/A	Stems: C&P or F/I (G1.5); Bushes: spray or cut down and spray regrowth G100 or MM (ref 1).
119	Oleaceae	Olea europaea (olive)	2	T/A	Seedlings: Hand pull	Saplings: CS&P (G1.5); Trees: F/I (G1.5); Seedlings: spray G200 or G200 + MM (ref 1).
120	Poaceae	Brachilaria decumbens (signal grass)	4	H/A	Grazing	Herbicide Control - Foliar application (Knapsack): glyphosate 360g/L @ 200mL/15L water; Foliar: glyphosate 360g/L @ 9L/ha; Handgun: glyphosate 360g/L @ 1.3L/100L water (ref 2).
121	Fabaceae	Stylosanthes scabra (shrubby stylo)	4	H/A	N/A	Vines: CS&P (1:1.5) or spray G100 + MM or MM (ref 1).
122	Commelinaceae	Commellina benghalensis (hairy wandering jew)	4	H/O	Collect and Bag	Spray G200 or G200 + MM (ref 1).
123	Poaceae	Pennisetum purpureum (elephant grass)	2	H/O	Grazing or mechanical removal	N/A (ref 2).
124	Zingiberaceae	Hedychium coronarium (wild ginger)	2	H/O	Small Plants: Hand pull and dispose	Small Plants: spray G200 or G200 + MM; Large Plants: cut and spray regrowth. If rhizomes are at ground level, cut stem and gouge rhizome - fill hole with G1.5 with injector kit or similar (ref 1).
125	Phytolaccaceae	Phytolacca octandra (inkweed)	10	H/O	Hand pull or crown	CS&P (G1.5) or C&P (G1.5); spray G100 (ref 1).
126	Asclepiadaceae	Asclepias curassavica (red cotton bush)	9	S/O	Hand pull; Slash	Slash and/or spray G100 (ref 1).
127	Solanaceae	Lycium ferocissimum (African boxthorn)	12	S/O	N/A	Stems: C&P (G1.5); Regrowth: spray G200 + MM (ref 1).
128	Mimosaceae	Prosopis pallida (algaroba)	2	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.	Basal bark - triclopyr + picloram Access* @ 1L/60L diesel. Cut stump - triclopyr + picloram Access* @ 1L/60L diesel. Overall spray - triclopyr + picloram Grazon DS* @ 350mL/100L water plus a wetting agent if plant is growing actively
129	Juncaceae	Juncus articulatus (jointed rush)	1	Ha/FO	Hand pull.	Spot spray with Glyphosate, 2,2-DPA or MCPA + dicamba (ref 3).
130	Cactaceae	Opuntia aurantiaca (tiger pear)	1	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	Spray; Basal Bark application; Injection: Triclopyr: .8L/60L diesel. Picloram + Triclopyr: 1L/60L diesel. Amitrole: 1mL/3cm (ref 3).

Note: 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 products (such rates supersede those noted in above tables), or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable.

Note: Source for information contained on this page from Queensland Herbarium (Qld Gov't).

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES						
QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND						
RANK	FAMILY	SCIENTIFIC & COMMON NAME	SUBREGION	LIFE FORM & SOURCE	NON-CHEMICAL CONTROL	CHEMICAL CONTROL
131	Poaceae	Arundo donax (giant reed)	1	H/O	Physical removal of small infestations.	Spot spray or cut stump and spray with Glyphosate (ref 5).
132	Cactaceae	Opuntia imbricata (rope pear)	1	H/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	Spray; Basal Bark application; Injection: Triclopyr: .8L/60L diesel. Picloram + Triclopyr: 1L/60L diesel. Amitrole: 1mL/3cm (ref 3).
133	Bignoniaceae	Pyrostegia venusta (flame vine)	1	V/O	N/A	CS&P (G1.5); spray G200 (ref 1).
134	Poaceae	Cortaderia selloana (pampas grass)	2	H/O	Small Plants: dig out by hand or machine	Stems: C&P (G1.5) or cut back and slash and spray regrowth G100 (ref 1).
135	Solanaceae	Solanum hispidum (giant devil's fig)	5	S/O	Hand pull	Spray G100 (ref 1).
136	Agavaceae	Furcraea foetida (Cuban hemp)	3	S/OA	Dig out by hand or machine	CS&P near ground or spray MM (ref 1).
137	Agavaceae	Furcraea sellos (hemp)	1	S/OA	Dig out by hand or machine	CS&P near ground or spray MM (ref 1).
138	Agavaceae	Agave americana (century plant)	4	S/OA	Dig out by hand or machine	CS&P near ground or spray MM (ref 1).
139	Rutaceae	Murraya paniculata cv. Exotica (murraya)	6	S/O	Seedlings: Hand pull	Shrubs: CS&P or F/I (G1.5); Seedlings: spray G200 (ref 1).
140	Rosaceae	Rubus discolor (R. fruticosus complex, a blackberry)	4	S/OA	slashing hinders growth, giving some control if plants are slashed before they seed	Grazon DS picloram/triclopyr 1:200 parts water + wetting agent. A variety of herbicides may be used to control this species including (ref 5).
141	Brassicaceae	Cakile edentula (American sea rocket)	4	H/U	Manually grub and destroy.	Spray G100 and replace with local species (ref 1).
142	Balsaminaceae	Impatiens walleriana (balsam)	2	H/O	N/A	Spray G100 (ref 1).
143	Agavaceae	Agave sisalana (sisal)	2	S/OA	Dig out by hand or machine	CS&P near ground or spray MM (ref 1).
144	Agavaceae	Agave vivipara var. vivipara (sisal)	2	S/OA	Dig out by hand or machine	CS&P near ground or spray MM (ref 1).
145	Rosaceae	Prunus munsoniana (wild goose plum)	7	ST/A	Seedlings: Hand pull	Shrubs: CS&P or F/I (G1.5); Seedlings: spray G200 (ref 1).
146	Poaceae	Echinochloa crus-galli (barnyard grass)	6	H/A	Hand pull or dig out small infestations.	Spot spraying with Glyphosate or 2,2-DPA (ref 3).
147	Asteraceae	Solidago canadensis var. scabra (Canadian goldenrod)	7	H/O	Hand pull and hang to dry.	Spray MM or G200 or G200 + MM if other weeds such as Lantana or Camphor Laurel are present (ref 1).
148	Fabaceae	Pueraria lobata (kudzu)	3	V,S/O	Slash; Diminish by shading site	CS&P (G1.5); spray G200 or MM (ref 1).
149	Alismataceae	Sagittaria graminea var. platyphylla (sagittaria arrowhead)	3	Ha/FO	Physical removal of small infestations.	Spot Spray with Glyphosate at 1.0L:100L water (ref 5).
150	Nymphaeaceae	Nymphaea mexicana (yellow waterlily)	2	Ha/OF	Hand pull small infestations.	Spray with or Diquat Glyphosate. Occurs in waterways, thus EPA should be notified before any herbicide use (ref 5).
151	Poaceae	Phyllostachys aurea (fishpole bamboo)	1	S/O	N/A	Stems: cut and fill segment (G1.5); Regrowth: spray G100 (ref 1).
152	Euphorbiaceae	Jatropha gossypifolia (cotton-leaf physic nut, bellyache bush)	1	S/O	Hand pull	Spray G100 (ref 1).
153	Malvaceae	Sida rhombifolia (Paddy's lucerne)	9	S/U	Hand pull or dig out.	Spray with 2,4-Damine or fluoxypyr (ref 3).

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES						
QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND						
RANK	FAMILY	SCIENTIFIC & COMMON NAME	SUBREGION	LIFE FORM & SOURCE	NON-CHEMICAL CONTROL	CHEMICAL CONTROL
154	Poaceae	Themeda quadrivalvis (grader grass)	8	H/A	Hand pull or dig out small infestations.	Spot spraying with Glyphosate or 2,2-DPA (ref 3).
155	Poaceae	Andropogon virginicus (whisky grass)	6	H/A	Hand pull or dig out small infestations.	Spot spraying with Glyphosate or 2,2-DPA (ref 3).
156	Bignoniaceae	Jacaranda mimosifolia (jacaranda)	4	T/O	Seedlings: Hand pull	Saplings: CS&P (G1.5); Trees: F/I (G1.5); Seedlings: spray G200 (ref 1).
157	Acanthaceae	Justicia betonica (squirreltail)	2	S/O	Hand pull small infestations. Can be controlled by planting competitive native species.	Glyphosate known to be effective. Species known to occur in waterways, DERM should be contacted before spraying in waterways (ref 4).
158	Mimosaceae	Acacia boliviana (Bolivian wattle)	1	T/O	Mechanical or chain removal.	Basal Bark or cut stump application. Triclopyr 600g/L at 1.0L:120L diesel, Triclopyr + Picloram 240 g/l + 120 g/l at 1.0L:60L diesel, Picloram 45 g/kg undiluted (ref 5).
159	Simaroubaceae	Ailanthus altissima (tree of heaven)	12	T/O	Seedlings: Hand pull	Seedlings: CS&P (G1.5); Trees: F/I (G1.5); Seedlings: spray G200 or MM (ref 1).
160	Poaceae	Echinochloa colona (awnless barnyard grass)	9	H/A	Hand or mechanical removal of small infestations	Spray: glyphosate @ 13mL/1L water (ref 2).
161	Cyperaceae	Cyperus brevifolius (Mullumbimby couch)	8	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.	Aquatic areas - Glyphosate ipa Land—commercial/industrial, rights of way - Glyphosate-ipa, glyphosate-mas, imazapyr
162	Moraceae	Morus alba (white mulberry)	3	T/O	N/A	Trees: F/I (G1.5), stack cut branches above the ground to dry; Saplings: CS&P (G1.5); Seedlings: spray G200 (ref 1).
163	Arecaceae	Colocasia esculenta (taro)	3	H/AO	Hand pull.	Cut at base and apply glyphosate or metsulfuron methyl. Plant often occurs in waterways so consult DERM prior to application (ref 6).
164	Cannaceae	Canna indica (canna lily)	3	H/O	Dig out entire plant	Cut/Slash and spray regrowth G200 or G200 + MM; Collect and bag seeds. Resistant to herbicide (ref 1).
165	Buddlejaceae	Buddleja madagascariensis (buddleja)	5	S,V/O	N/A	Stems: CS&P (1:1.5); Vines: spray or cut down and spray regrowth G200 (ref 1).
166	Bignoniaceae	Tecoma capensis (Cape honeysuckle)	3	ST/O	N/A	Stems: CS&P (G1.5) or spray G200; Seeds: collect, bag and remove (ref 1).

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES						
QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND						
RANK	FAMILY	SCIENTIFIC & COMMON NAME	SUBREGION	LIFE FORM & SOURCE	NON-CHEMICAL CONTROL	CHEMICAL CONTROL
167	Cactaceae	Harrisia martinii (harrisia cactus)	22	S/O	The use of the biological mealybug agent is recommended	Triclopyr + picloram at 1.0L:60L diesel, Dichloroprop 600 g/l at 1.0L/60L water, metsulfuron methyl 600 g/l at 2.0L:100L water Ref 5).
168	Acanthaceae	Thunbergia laurifolia (laurel clock vine)	1	V/O	N/A	CS&P (G1.5); spray G200 (ref 1).
169	Fabaceae	Erythrina crista-galli (cockspur coral tree)	22	T/O	N/A	F/I (G1.5) or C&P stumps. Cut and stack branches above ground to dry to prevent resprouting. F/I sprouted branches (G1.5) or spray regrowth G200 + MM or MM. Trial Tordon (ref 1).
170	Sapindaceae	Koelreuteria elegans (Chinese rain tree)	12	T/O	Seedlings: Hand pull	Trees: F/I (G1.5) or C&P stumps (G1.5); Saplings: CS&P (G1); stack cut branches above ground to dry; Seedlings: spray G200 (ref 1).
171	Zingiberaceae	Hedychium gardnerianum (ginger lily)	12	H/O	Small Plants: Hand pull and dispose	Small Plants: spray G200 or G200 + MM; Large Plants: cut and spray regrowth. If rhizomes are at ground level, cut stem and gouge rhizome - fill hole with G1.5 with injector kit or similar (ref 1).
172	Acanthaceae	Hypoestes phylllostachya (polka-dot plant)	3	H/O	Hand pull or crown and dispose	Spray G200 or G200 + MM (ref 1).
173	Caprifoliaceae	Sambucus canadensis (American elder)	3	ST/O	Vines and Runners: hand pull, roll up and hang to dry.	Vines and Runners: CS&P (G1.5); Larger Stems, Roots and Nodes: spray G100 + MM or MM (ref 1).
174	Asteraceae	Conyza sumatrensis (tall fleabane)	9	H/U	Hand or mechanical removal of small infestations	Seedlings: Altrazine or Chlorosulfuron in combination with competitive native species; Plants: Glyphosate and Tordon 75-D mix. Glyphosate ration depends on other weeds present (ref 2).
175	Fabaceae	Tipuana tipu (tipuana)	2	T/O	Seedlings: Hand pull	Saplings: CS&P (G1.5); Trees: F/I (G1.5); Seedlings: spray G200 (ref 1).
176	Asteraceae	Tagetes minuta (stinking roger)	8	H/U	Hand pull and hang to dry.	Spray MM or G200 or G200 + MM if other weeds such as Lantana or Camphor Laurel are present (ref 1).
177	Caesalpiniaceae	Chamaecrista rotundifolia (round-leaf cassia)	6	ST/A	Seedlings: Hand pull	Shrubs: CS&P or F/I (G1.5); Seedlings: spray G200 or G200 + MM or MM; collect and bag seeds (ref 1).
178	Poaceae	Cenchrus echinatus (Mossman river grass)	8	H/A	Hand or mechanical removal of young plants	Herbicide Control - Glyphosate 7mL/L water; Dichlobenil 600g/100mL; Fluazifop 50-100mL/10L water (ref 2).



NORFOLK ESTATES - 41-53 COURTNEY DRIVE, UPPER COOMERA

MANAGEMENT PLAN

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES

QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND						
RANK	FAMILY	SCIENTIFIC & COMMON NAME	SUBREGION	LIFE FORM & SOURCE	NON-CHEMICAL CONTROL	CHEMICAL CONTROL
179	Asteraceae	Conyza canadensis (Canadian fleabane)	10	H/U	Hand or mechanical removal of small infestations	Seedlings: Altrazine or Chlorosulfuron in combination with competitive native species; Plants: Glyphosate and Tordon 75-D mix. Glyphosate ration depends on other weeds present (ref 2).
180	Euphorbiaceae	Euphorbia cyathophora (painted spurge)	8	H/O	Hand pull	Spray G100 (ref 1).
181	Poaceae	Setaria palmifolia (palm leaf setaria)	5	H/O	Hand pull or dig up	Spray G100 (ref 1).
182	Euphorbiaceae	Euphorbia heterophylla (milk weed)	5	H/O?	Hand pull	Spray G100 (ref 1).
183	Fabaceae	Desmodium intortum (greenleaf desmodium)	4	H/A	Hand pull or crown and dispose	CS&P tuberous roots (G1.5); spray G200 or G200 + MM or MM; collect and bag seeds. Monitor regrowth over 2- 3 years (ref 1).
184	Poaceae	Pennisetum setaceum (fountain grass)	3	H/O	Hand Pull	Spot Spray: glyphosate or 2,2-DPA (ref 3)
185	Asteraceae	Conyza bonariensis (flax-leaf fleabane)	7	H/U	Hand or mechanical removal of small infestations	Seedlings: Altrazine or Chlorosulfuron in combination with competitive native species; Plants: Glyphosate and Tordon 75-D mix. Glyphosate ration depends on other weeds present (ref 2).
186	Solanaceae	Solanum erianthum (a tobacco bush)	7	S/O	Hand pull	Spray G100 (ref 1).
187	Poaceae	Stenotaphrum secundatum (buffalo grass)	3	H/AO	Hand or mechanical removal of small infestations	Spray: glyphosate @ 13mL/1L water (ref 2.)
188	Apocynaceae	Cascabela thevetia (syn. Thevetia peruviana) (yellow oleander)	5	ST/O	Hand pull small infestations. Slashing can be used but should be followed up by herbicide application.	Basal bark application of fluroxypyr (35mL:1L Diesel); Stem injection Glyphosate (1L:2L Water); Cut stump application of fluroxypyr (1L:55L Diesel; Foliar Spray of fluroxypyr 1:100 for larger plants. 1:200 for seedlings (ref 2).
189	Rubiaceae	Coffea arabica (coffee)	3	ST/A	Saplings: Hand pull	Shrubs: F/I (G1) between flower and fruit set; Saplings: CS&P (G1); Seedlings: spray G200 or G200 + MM (ref 1).
190	Bignoniaceae	Spathodea campanulata (African tulip tree)	1?	T/O	N/A	Saplings: CS&P (G1.5); Trees: F/I (G1.5); Seedlings: spray G200 (ref 1).
191	Fabaceae	Macrotyloma axillare (perennial horse gram)	4	V,H/A	N/A	Vines: CS&P (1:1.5) or spray G100 + MM or MM (ref 1).
192	Iridaceae	Watsonia meriana var. bulbilifera (bulbil watsonia)	2	H/O	Dig up, bag and remove	Spray G200 + MM (ref 1).
193	Passifloraceae	Passiflora edulis (passion fruit)	6	V/AO	Hand Pull	CS&P (G1.5); spray G200 or G200 + MM (ref 1).
194	Asteraceae	Zinnia peruviana (wild zinnia)	6	H/O	Seedlings: Hand pull	Shrubs: CS&P or F/I (G1); Seedlings: CS&P (G1.5) or spray G200 (ref 1).

Note: 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 products (such rates supersede those noted in above tables), or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable.

Note: Source for information contained on this page from Queensland Herbarium (Qld Gov't).

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES

QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND						
RANK	FAMILY	SCIENTIFIC & COMMON NAME	SUBREGION	LIFE FORM & SOURCE	NON-CHEMICAL CONTROL	CHEMICAL CONTROL
195	Dracaenaceae	Sansevieria trifasciata (sansevieria)	2?	H/O	Hand pull or dig up	Spray G100 + MM (ref 1).
196	Poaceae	Digitaria eriantha (pangola grass)	5	H/A	Hand pull or cultivation	Spot Spray: glyphosate or 2,2-DPA (ref 3)
197	Rosaceae	Eriobotrya japonica (loquat)	3	T/O	Seedlings: Hand pull	Saplings: CS&P (G1.5); Trees: F/I (G1.5); Seedlings: spray G200 or G200 + MM or MM (ref 1).
198	Cactaceae	Acanthocereus tetragonus (sword pear)	1	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	Spray; Basal Bark application; Injection: Triclopyr: .8L/60L diesel. Picloram + Triclopyr: 1L/60L diesel. Amitrole: 1mL/3cm (ref 3).
199	Mimosaceae	Acacia nilotica subsp. indica (prickly acacia)	3	T/A	Mechanical or chain removal.	Basal Bark or cut stump application. Triclopyr 600g/L at 1.0L:120L diesel, Triclopyr + Picloram 240 g/l + 120 g/l at 1.0L:60L diesel, Picloram 45 g/kg undiluted (ref 5).
200	Mimosaceae	Acacia farnesiana (mimosa bush)	6	T/A	Mechanical removal of small plants.	Basal Bark or cut stump application of Triclopyr + Picloram 240 g/l + 120 g/l at 1.0L:60L diesel. Foliar application of Clopyralid 300g/L at 500mL:1L water ref 5).

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES

QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND						
Explanatory notes:						
Sub-region: Number of the ten sub-regions of the Southeast Queensland bioregion (Young and Dillewaard 1999) within which species recorded (Queensland Herbarium data).						
Rec no.: Total number of records for species within study area, Queensland Herbarium CORVEG and HERBRECS data.						
Scores: Based on panel data of invasiveness, 5 (highest) to 3 (moderate). ? indicate doubtful scores.						
Life forms: 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.						

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES

QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND						
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 + surfactant, eg 20mL LI 700 per 10L						
G200 = 200mL glyphosate per 10L of water + surfactant, 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.						



NORFOLK ESTATES - 41-53 COURTNEY DRIVE, UPPER COOMERA

MANAGEMENT PLAN

REHABILITATION METHODOLOGY - SITE WORKS - PLANTING NOTES

Following Primary weed management works, areas requiring infill planting (assisted natural regeneration), and larger scale planting (reconstruction and fabrication) can be undertaken. Prior to installation, the following items should be considered:

- Species selection
- Sourcing plant material
- Timing of planting
- Site preparation
- Planting density
- Planting installation

Species Selection

Species selection is critical in achieving the desired ecological restoration outcomes for rehabilitation sites. Planting is typically derived from:

- Local Regional Ecosystem (RE) descriptions.
- Observed site native vegetation.
- Bioretention guideline requirements.
- Climatic and weather conditions observed on site (frost, salt-spray, etc.).
- 'Pioneer' species are useful in site stabilisation and encouraging native regeneration.
- Utilising flowering and fruiting species are useful to attract wildlife and result in introduction of seeds.
- Diverse vegetation layers (trees, shrubs, groundcovers).
- Species availability from seed propagation and/ or local nurseries.

Refer to plant schedule for species and planting densities.

Sourcing Plant Material

There are a number of options for sourcing plant material for revegetation purposes. Propagation from site seed is a good outcome however is often limited by required timing of works. Sourcing planting from local nurseries is the commonly-chosen option and has the following benefits:

- Awareness of genetic considerations when collecting seed.
- Experience with breaking dormancy mechanisms in hard to germinate seeds.
- Highly successful propagation techniques.
- Ability to provide high quality stock to order
- Draw on industry resources.

Timing of Planting

The timing of planting should ideally be aligned with the wet season in SEQ (summer and autumn). This minimises the need for intensive watering to establishment planting. Planting between February to May is the most beneficial as it also seeks to avoid intense heat periods of summer. Despite this, it is understood planting may occur at various times within rehabilitation areas due to development timing needs.

Site Preparation

Site or planting preparation includes:

- Fencing to exclude grazing animals and people (if required).
- Pre-spraying of exotic grasses and other weeds to planting areas.
- Consideration of source of water for new planting (access tracks, temporary irrigation).
- Arranging delivery of mulch, jutenetting and tree guards (if required).
- Treatment of heavily compacted soils by ripping and/or application of gypsum.
- Soil amelioration as required

Planting Density

Plant density is calculated on a zone by zone basis. This allows planting to cater for various requirements including standard revegetation, infill only requirements such as canopy trees at low densities, as well dense bioretention plantings as per Bioretention Technical Guidelines (where/ if applicable). Refer to plant schedule for species and planting densities.

Planting Installation

The following outlines the preferred installation methodology for revegetation works within the rehabilitation areas. It has been designed to maximise plant establishment success rates and minimise plant mortality. Revegetation works shall be either undertaken or directly supervised by an experienced and qualified contractor. All works shall be in accordance with the provisions of this Rehabilitation Plan, and local government policies and Australian Standards.

REHABILITATION METHODOLOGY - SITE WORKS - PLANTING NOTES

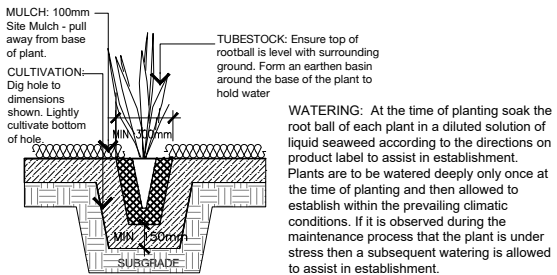
Plant installation methods shall include:

- Plants are to be vigorous, well established, hardened off, consistent with species or variety, free from disease and insect pests, with large root systems and no evidence of having been restricted or damaged. The landscape coordinator has the right to inspect and reject stock prior to planting.
- Tube stock is to be disease and pest free and purchased from local nurseries within 10kms of subject sites where possible.
- Plants are to be planted immediately after delivery to the planting site.
- Planting is to be undertaken in accordance with the planting module contained within this drawing sheet.
- Excavate planting medium to a depth suitable for the installation of tube or pot specimens. In areas where planting substrate is deemed to be very poor (compacted, nutrient deficient, hydrophobic, etc.) and above areas of potential frequent inundation and water flow, topsoil may be used.
- Pre-water plant hole, if soil is dry, to decrease root stress upon planting and assess the infiltration of water through the soil.
- Incorporate into the planting substrate the appropriate quantity of prepared water crystals or other suitable hydrating product such as Hortex 'Rainsaver' or 'Moisturaid'.
- Place plant into hole and backfill ensuring that the plant is upright and the stem is not covered in any less than 10mm or any more than 20mm of planting medium.
- Plants are to be watered thoroughly immediately after planting (ensure deep irrigation) and thereafter as required during the construction phase of the development depending on climatic conditions. Creation of a concave hollow around the base of each plant will aid water infiltration to the plant roots.
- A complete, slow release fertiliser is recommended, and is to be administered appropriately during planting. Top dressing with slow release fertiliser is preferred to avoid toxic levels of fertiliser accumulating in the plant hole around the plant roots.
- To ensure successful establishment, all planting surfaces must be covered in: a 100mm layer of high quality weed-free composted chip mulch (site mulch) - Note: to avoid possible stem rot in some 'drier' species ensure mulch is 'dished' and not covering plant stem by more than 20mm. Where available mulch material to be sourced from cleared vegetation material if adequately seasoned (12 weeks minimum).
- suitable individual anchored natural fibre weed mat (jutenetting); or
- A long term slow release fertiliser, such as Nutricote or similar product should be used for all plantings after initial plant establishment.
- A minimum 90% survival rate should be achieved.
- Any planting substitutions to be approved by Superintendent and Assessment Manager where applicable.
- Any wheel ruts from site works within rehabilitation areas to be rectified to minimise risk of erosion and use as conduits for introduced species (such as cane toads).
- Consideration for requirements under "Hygiene protocol for handling amphibians" by the Qld Government should be also given including washdown requirements and handling on site as required.

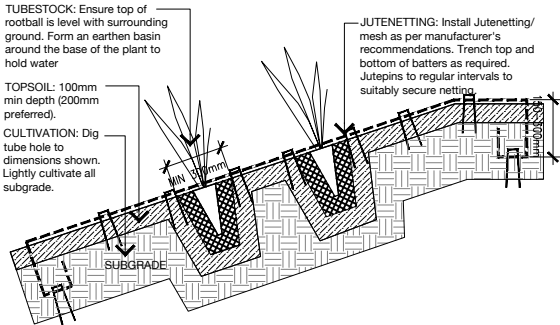
REHABILITATION METHODOLOGY - SITE WORKS - PLANTING NOTES

Typical planting details as below for standard medium/ mulch installation and jutenetting. Refer to manufacturer's recommendations for detailed jutenetting installation including pinning, etc.

Each individual planting location should be spot cultivated to at least 2 times the depth and twice the width of the plant stock size.



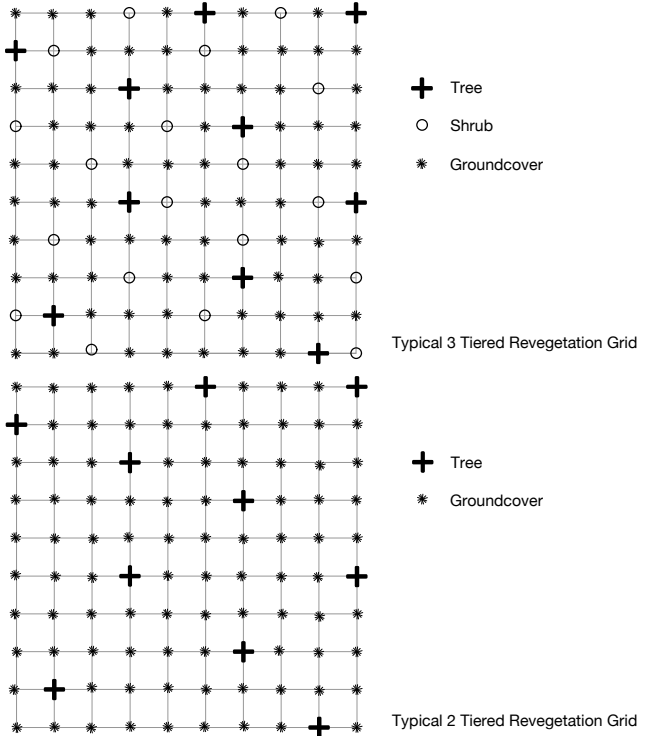
Where evidence of plant damage is occurring, tree guards/ growtubes to be installed as required.



Jutenetting/ mesh to be installed as per manufacturer's recommendations. Indicative detail shown only.

REHABILITATION METHODOLOGY - SITE WORKS - PLANTING NOTES

Revegetation planting locations shall be generally setout in accordance with a typical random grid pattern as shown below. Various typical densities shown. Refer to plant schedule for species and planting densities.



NORFOLK ESTATES - 41-53 COURTNEY DRIVE, UPPER COOMERA

MANAGEMENT PLAN

REHABILITATION METHODOLOGY - SITE WORKS - PLANT SCHEDULE

I1694 - COURTNEY DRIVE, UPPER COOMERA ECOLOGICAL RESTORATION SCHEDULE						
ZONE 1 - NATURAL REGENERATION						
Recommended Species List Total. Approximate Area = 10,907m2						
(Overall density approximately 2 plant per m2) - Area Allowance of 25%						
NOTES:						
1) Species selected from site and local species mix						
2) Setback trees 3m min from all property boundaries, sewer, retaining walls and service alignments.						
3) Refer to additional plans for general locations and additional details for planting notes.						
4) Distribute plants in groups on site in random arrangement to be confirmed with superintendent on site.						
SPECIES	COMMON NAME	PLANT FORM	POT SIZE	PLANTING DENSITY OVERALL @ 2 PER 1M²	QUANTITY	
TREES				1 per 10 m2		
Elaeocarpus eumundi	Eumundi Quandong	Tree	Tube	1/4m2	68	
Ficus racemosa	Cluster Fig	Tree	Tube	1/20m2	14	
Grevillea robusta	Silky Oak	Tree	Tube	1/4m2	68	
Syzygium francisii	Brush Box	Tree	Tube	1/4m2	68	
Tristaniopsis laurina	Water Gum	Tree	Tube	1/4m2	68	
				SUBTOTAL	286	
SHRUBS				1 per 5m2		
Grevillea robyn gordon	Roby Gordon	Shrub	Tube	1/10m2	55	
Grevillea banksii	Banks' Grevillea	Shrub	Tube	1/10m2	55	
Syzygium australe	Lily Pilly	Shrub	Tube	1/7m2	82	
				SUBTOTAL	191	
GROUNDCOVERS				2 per m2		
Anigozanthos flavidus	Kangaroo Paw	Ground	Tube	1/12m2	249	
Dianella caerulea	Blueberry Lily	Ground	Tube	1/12m2	249	
Dianella revoluta	Blue Flax Lily	Ground	Tube	1/12m2	249	
Hardenbergia violacea	Sarsparilla	Ground	Tube	1/12m3	249	
Liriope muscari	Lily Turf	Ground	Tube	1/4m2	746	
Lomandra longifolia	Mat Rush	Ground	Tube	1/4m2	746	
Lomandra hystrix	Mat Rush	Ground	Tube	1/4m2	746	
Scaevola aemula	Fairy Fan Flower	Ground	Tube	1/12m2	249	
Scaevola humilis	Sandplain fan Flower	Ground	Tube	1/12m3	249	
Westringia fruticosa	Native Rosemary	Ground	Tube	1/12m2	249	
				SUBTOTAL	3981	
				TOTAL	4458	

REHABILITATION METHODOLOGY - SITE WORKS - PLANT SCHEDULE

I1694 - COURTNEY DRIVE, UPPER COOMERA ECOLOGICAL RESTORATION SCHEDULE						
ZONE 2 - GENERAL REHABILITATION / MULCHED PLANTING AREAS (RECONSTRUCTION)						
Recommended Species List Total. Approximate Area = 5,174m2						
(Overall density approximately 2 plant per m2)						
NOTES:						
1) Species selected from site and local species mix						
2) Setback trees 3m min from all property boundaries, sewer, retaining walls and service alignments.						
3) Refer to additional plans for general locations and additional details for planting notes.						
4) Distribute plants in groups on site in random arrangement to be confirmed with superintendent on site.						
SPECIES	COMMON NAME	PLANT FORM	POT SIZE	PLANTING DENSITY OVERALL @ 2 PER 1M²	QUANTITY	
TREES				1 per 10 m2		
Elaeocarpus eumundi	Eumundi Quandong	Tree	Tube	1/4m2	129	
Ficus racemosa	Cluster Fig	Tree	Tube	1/20m2	26	
Grevillea robusta	Silky Oak	Tree	Tube	1/4m2	129	
Syzygium francisii	Brush Box	Tree	Tube	1/4m2	129	
Tristaniopsis laurina	Water Gum	Tree	Tube	1/4m2	129	
				SUBTOTAL	543	
SHRUBS				1 per 5m2		
Grevillea robyn gordon	Roby Gordon	Shrub	Tube	1/10m2	103	
Grevillea banksii	Banks' Grevillea	Shrub	Tube	1/10m2	103	
Syzygium australe	Lily Pilly	Shrub	Tube	1/7m2	155	
Syzygium moorei	Rose Apple	Shrub	Tube	1/20m2	52	
				SUBTOTAL	362	
GROUNDCOVERS				2 per m2		
Anigozanthos flavidus	Kangaroo Paw	Ground	Tube	1/12m2	472	
Dianella caerulea	Blueberry Lily	Ground	Tube	1/12m2	472	
Dianella revoluta	Blue Flax Lily	Ground	Tube	1/12m2	472	
Hardenbergia violacea	Sarsparilla	Ground	Tube	1/12m3	472	
Liriope muscari	Lily Turf	Ground	Tube	1/4m2	1416	
Lomandra longifolia	Mat Rush	Ground	Tube	1/4m2	1416	
Lomandra hystrix	Mat Rush	Ground	Tube	1/4m2	1416	
Scaevola aemula	Fairy Fan Flower	Ground	Tube	1/12m2	472	
Scaevola humilis	Sandplain fan Flower	Ground	Tube	1/12m3	472	
Westringia fruticosa	Native Rosemary	Ground	Tube	1/12m2	472	
				SUBTOTAL	7554	
				TOTAL	8459	

REHABILITATION METHODOLOGY - SITE WORKS - PLANT SCHEDULE

I1694 - COURTNEY DRIVE, UPPER COOMERA ECOLOGICAL RESTORATION SCHEDULE						
ZONE 3 - ASSISTED NATURAL REGENERATION						
Recommended Species List Total. Approximate Area = 34,025m2						
(Overall density approximately 2 plant per m2)						
NOTES:						
1) Species selected from site and local species mix						
2) Setback trees 3m min from all property boundaries, sewer, retaining walls and service alignments.						
3) Refer to additional plans for general locations and additional details for planting notes.						
4) Distribute plants in groups on site in random arrangement to be confirmed with superintendent on site.						
SPECIES	COMMON NAME	PLANT FORM	POT SIZE	PLANTING DENSITY OVERALL @ 2 PER 1M²	QUANTITY	
TREES				1 per 10 m2		
Lophestmon confertus	Water Gum	Tree	Tube	1/2m2	1701	
Syzygium francisii	Brush Box	Tree	Tube	1/2m2	1701	
				SUBTOTAL	3403	
SHRUBS				1 per 5m2		
Syzygium australe	Lily Pilly	Shrub	Tube	1/7m2	1021	
Syzygium moorei	Rose Apple	Shrub	Tube	1/20m2	340	
				SUBTOTAL	1361	
GROUNDCOVERS				2 per m2		
Dianella caerulea	Blueberry Lily	Ground	Tube	1/12m2	3164	
Dianella revoluta	Blue Flax Lily	Ground	Tube	1/12m2	3164	
Ficinia nodosa	Knotty Club-rush	Ground	Tube	1/12m3	3164	
Liriope muscari	Lily Turf	Ground	Tube	1/3m2	13923	
Lomandra longifolia	Mat Rush	Ground	Tube	1/3m2	13923	
Lomandra hystrix	Mat Rush	Ground	Tube	1/3m2	13923	
				SUBTOTAL	51262	
				TOTAL	56026	

REHABILITATION METHODOLOGY - SITE WORKS - PLANT SCHEDULE

I1694 - COURTNEY DRIVE, UPPER COOMERA ECOLOGICAL RESTORATION SCHEDULE						
ZONE 4 - GENERAL REHABILITATION / MULCHED PLANTING AREAS (RECONSTRUCTION)						
Recommended Species List Total. Approximate Area = 2,749m2						
(Overall density approximately 2 plant per m2)						
NOTES:						
1) Species selected from site and local species mix						
2) Setback trees 3m min from all property boundaries, sewer, retaining walls and service alignments.						
3) Refer to additional plans for general locations and additional details for planting notes.						
4) Distribute plants in groups on site in random arrangement to be confirmed with superintendent on site.						
SPECIES	COMMON NAME	PLANT FORM	POT SIZE	PLANTING DENSITY OVERALL @ 2 PER 1M²	QUANTITY	
GROUNDCOVERS				2 per m2		
Liriope muscari	Lily Turf	Ground	Tube	1/3m2	1832	
Lomandra longifolia	Mat Rush	Ground	Tube	1/3m2	1832	
Lomandra hystrix	Mat Rush	Ground	Tube	1/3m2	1832	
				SUBTOTAL	5496	
				TOTAL	5496	

NOTE: SPECIES ADJUSTED TO CONSIDER BUSHFIRE IMPACTS.

NORFOLK ESTATES - 41-53 COURTNEY DRIVE, UPPER COOMERA

MANAGEMENT PLAN

REHABILITATION METHODOLOGY - SITE WORKS - FAUNA NOTES

Consideration for fauna habitat and values should be given during rehabilitation site works and should seek to enhance and restore the existing native vegetation areas and promote safe fauna movement throughout the site and into the larger greenspace corridors where possible. It is assumed properties adjacent to the rehabilitation scope of works will undertake individual site analysis, fauna investigations, and implement future measures as required.

As part of these rehabilitation works, basic fauna works will be undertaken. These treatments will primarily involve:

- Fauna Habitat Value and Protection - Increased fauna habitat value within the rehabilitation areas.

Fauna Habitat Value and Protection

Rehabilitation Areas to include reuse of site fallen / hollow logs and site rock to create fauna safe havens and cover from predators for small fauna. This approach coupled with additional revegetation works allows greater fauna security and movement within the rehabilitation areas. Consideration for bushfire requirements should be reviewed to confirm no conflict in both the fauna and rehabilitation approaches. Refer indicative images below.



Note: Source for information contained on this page from SEQERF.

COLOUR KEY TO WORK ITEMS
Weed Management
Soil Preparation and Mulching
Planting Works
Watering, Monitoring and Reporting

REHABILITATION WORKS - INDICATIVE SCHEDULE OF WORK ITEMS AND MAINTENANCE SEQUENCING																													
TIMING	SPRING				SUMMER			AUTUMN			WINTER			SPRING			SUMMER			AUTUMN			WINTER			SPRING			
	PRIMARY WORKS				FOLLOW-UP WORKS			FOLLOW-UP / MAINTENANCE WORKS			MAINTENANCE WORKS			MAINTENANCE WORKS			MAINTENANCE WORKS			MAINTENANCE WORKS			MAINTENANCE WORKS			MAINTENANCE WORKS			
	Month 1	Month 2	Month 3	MILESTONE: COMPLIANCE / "ON MAINTENANCE"	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	Weed management - "knockdown spray"	Mulch spreading and Jute-mat installation		Watering and Monitoring and reporting (throughout establishment)	Watering and Monitoring and reporting (throughout establishment)	Watering and Monitoring and reporting (throughout establishment)	Monitoring and reporting (watering to replacement plants only)	Monitoring and reporting	Monitoring and reporting	Monitoring (watering to replacement plants only). Photomonitoring as required		Informal monitoring and reporting	Informal monitoring and reporting. Photomonitoring as required.		Informal monitoring and reporting	Monitoring (watering to replacement plants only). Photomonitoring as required		Informal monitoring and reporting	Informal monitoring and reporting. Photomonitoring as required.		Monitoring and reporting	Informal monitoring and reporting. Photomonitoring as required.		Informal monitoring and reporting	Informal monitoring and reporting. Photomonitoring as required.	Mulch - top up depths to 100mm and replace / repair Jutematting as required	Informal monitoring and reporting. Photomonitoring as required.	Monitoring (watering to replacement plants only)
WEEK 2	Initial weed management works - wood weed removal /"knockdown" spray	Soil Preparation and cultivation	Natural regeneration plants staking for identification		Weed management - "knockdown spray" in mulched areas	Weed management - "knockdown spray" re-apply woody weeds	Weed management - "knockdown spray" in mulched areas	Weed management - rotation "knockdown spray" in mulched areas	Weed management - rotation "knockdown spray" in mulched areas	Weed management - rotation "knockdown spray" in mulched areas	Weed management - rotation "knockdown spray" in mulched areas		Weed management - rotation "knockdown spray" in mulched areas	Weed management - rotation "knockdown spray" in mulched areas		Weed management - rotation "knockdown spray" in mulched areas	Weed management - rotation "knockdown spray" in mulched areas		Weed management - rotation "knockdown spray" in mulched areas	Weed management - rotation "knockdown spray" in mulched areas		Weed management - rotation "knockdown spray" in mulched areas	Weed management - rotation "knockdown spray" in mulched areas		Weed management - rotation "knockdown spray" in mulched areas	Natural regeneration plants - weed management	Weed management - "knockdown spray" re-apply woody weeds	Weed management - "knockdown spray" in mulched areas	
WEEK 3	Weed management works - removal by hand	Soil Preparation and modification	Planting and Watering		Natural regeneration plants - weed management	Replacement of Failed Plants	Replacement of Failed Plants	Natural regeneration plants - weed management	Natural regeneration plants - weed management	Replacement of Failed Plants	Natural regeneration plants - weed management		Trees formative pruning			Replacement of Failed Plants				Natural regeneration plants - weed management		Trees formative pruning					Trees formative pruning	Replacement of Failed Plants	Natural regeneration plants - weed management
WEEK 4	Weed Management - slashing of maintenance access paths	Mulch - stockpiled on site	Planting and Watering		Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths		Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths		Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths		Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths		Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths		Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths	Replacement of Failed Plants	Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths
MILESTONE: COMPLIANCE / "OFF MAINTENANCE"																													

REHABILITATION METHODOLOGY - MAINTENANCE & MONITORING

Maintenance, as with all ecological restoration work is fundamental in ensuring project success. Maintenance of the planting includes:

- 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. Contractor to confirm final watering regime. Ongoing watering may be required subject to weather conditions during maintenance period.
- Repair of tree guards if they become damaged.
- Replenishment of mulch.
- Maintaining exclusion fencing; and
- Additional planting if required.

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. An adaptive management approach should be utilised, if one plant species consistently dies on a site, consider using in its place a species that is performing well.

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 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;
 - All required planting completed.
 - 90% plant survival.
 - 100% kill rate of declared environmental weeds.
 - Maintenance access (including tracks, fencing, etc.).
- Ongoing / 'Off Maintenance' requirements;
 - 80% plant survival.
 - Tree guards, stakes and general rubbish removed.
 - No remaining eroded or degraded areas.
 - 100% kill rate of declared environmental weeds.

The desired end-product is a fully-functioning system that can support itself in perpetuity, with minimal maintenance and input required.

REHABILITATION METHODOLOGY - MAINTENANCE & MONITORING

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

REHABILITATION TEAM RESPONSIBILITIES	
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 require d.
	Cover the costs of all necessary resources to ensure works are completed as per the approved documents.
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 set up by this document.
	Be available to respond to technical queries to the approved documentation when on-site conditions require changes.
Assessment Manager	Liaise with the Assessment Manager throughout all stages of approval, initial works and maintenance of works.
	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.
Contractor	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 document.
	Complete works in strict accordance with the documentation.
	Attend pre-start and compliance (on and off maintenance) inspections.
Contractor	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.
	Hold minimum certifications such as Certificate III in Conservation and Land Management, or Certificate III in Horticulture, or Certificate III in Rehabilitation Construction, or equivalent experience in rehabilitation.

REHABILITATION METHODOLOGY - MAINTENANCE & MONITORING

Informal Monitoring of rehabilitation works is another method of determining ecological restoration success in conjunction with the adjacent benchmarks. Informal monitoring to occur through ongoing site inspections and note-taking. Notes to be distributed to the rehabilitation team and rectification works completed against notes.

Additionally, informal monitoring may require photo-monitoring locations if deemed necessary during the approval process by the assessment manager. A permanent or semi-permanent photopoint 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 and revegetation works allows for:

- Review of the pre-established performance indicators for measuring the success of the weed removal and control.
- 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 control program.
- Monitor the rate of assisted regeneration and revegetation of desirable native species promoted in areas where weeds have been removed.
- Identification of new weed threats or other factors which may be effecting areas designated for rehabilitation.

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 (On/ Off Maintenance) Inspections - At the completion of the Primary Site Works (Practical Completion), an 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.
- 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.