Annual Compliance Report

17 October 2023 to 16 October 2024 EPBC 2013/7057
Spring Mountain Mixed Use Master Planned Community Development, Spring Mountain, Queensland

Prepared for Lendlease Communities (Springfield) Pty Limited
14 January 2025

Job No. 7243 E

Document Control

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1. Introduction

The Environmental Management Division of **Saunders Havill Group** was engaged by **Lendlease Communities (Springfield) Pty Limited** (Proponent) to prepare this Annual Compliance Report for the Spring Mountain Mixed Use Master Planned Community Development at Spring Mountain, Queensland. This report provides an assessment of project compliance with the approval granted under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (ref EPBC 2013/7057) and is specifically required by condition 13 of the approval granted on 23 December 2015 (refer **Appendix A**).

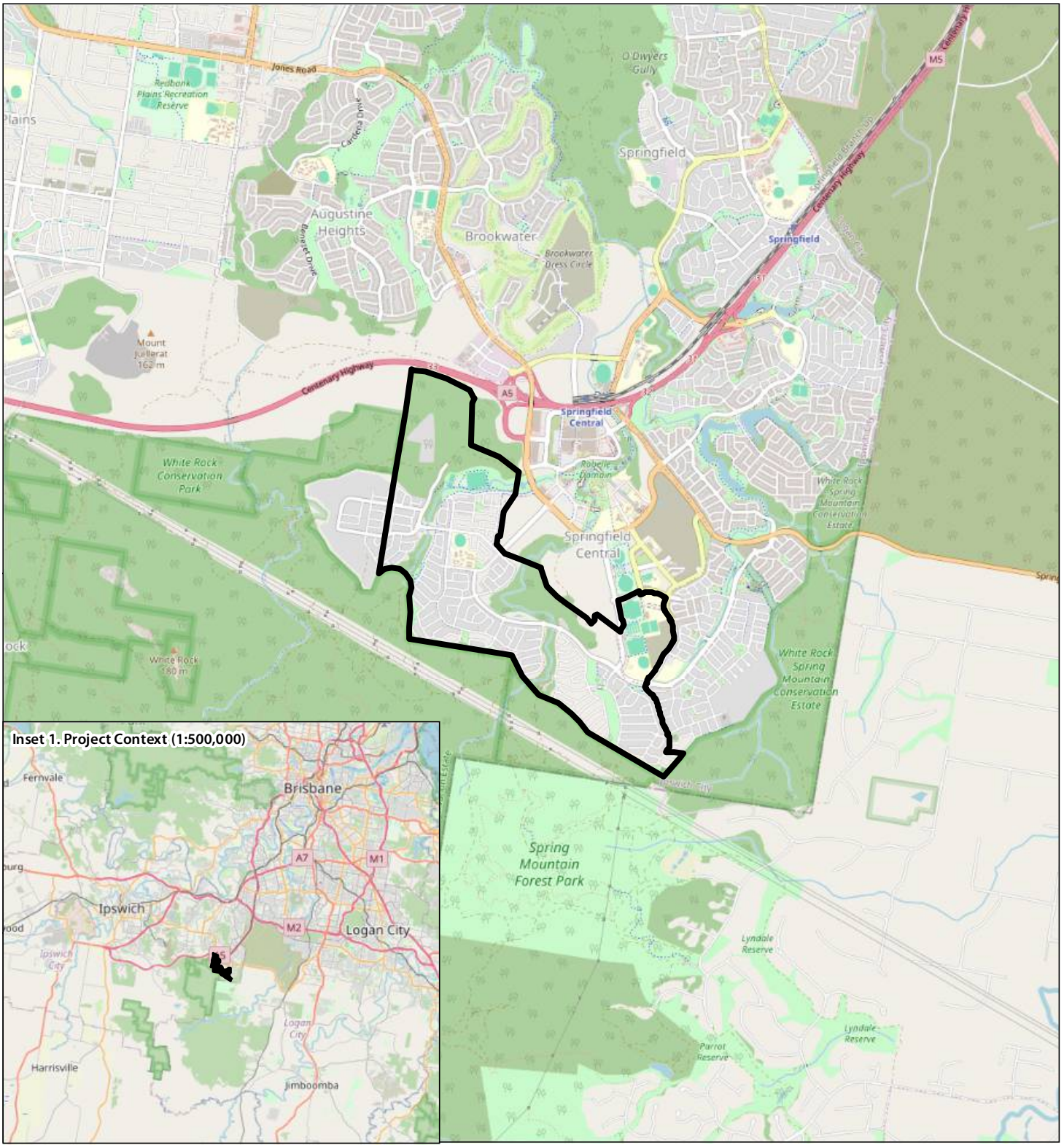
The project area covers approximately 387 hectares (ha) and is located within 1 kilometre (km) of Springfield Central (refer to project context map at **Figure 1**). Within the project area, an impact to 255 ha of Matters of National Environmental Significance (MNES) habitat being koala and grey-headed flying-fox foraging habitat was permitted under the approval conditions. Furthermore, due to the potential presence of *Plectranthus habrophyllus* (herein referred to as *Coleus habrophyllus*) in pockets throughout the project area, any impacts on these plants must be compensated by planting in the on-site conservation area. There have been no impacts to *Coleus habrophyllus* as a result of the action. The non-administrative approval conditions are related to the management of impacts and offsets for these three MNES.

1.1. EPBC approval variation

A variation to the conditions of approval was granted by DCCEEW on 18 September 2024. The key changes include the variation to condition 1 and addition of conditions 1A, 1B, 1C and 1D which recognises an increase in the approved impact area to 274.6 ha and the requirement for an additional offset area to be legally secured to compensate for the additional 19.6 ha impact. The varied decision notice is provided at **Appendix A**.

1.2. Approval details

Commonwealth reference	EPBC 2013/7057
Approval holder	Lendlease Communities (Springfield) Pty Limited
ACN	087 876 864
Approval date	23 December 2015
Expiry date of approval	31 December 2040
Approved action	To construct a mixed-use development (including residential, commercial and community development and associated infrastructure) on a 387 ha site at Spring Mountain, Queensland
Controlling provision	Approved – listed threatened species and communities (sections 18 & 18A)
Project commencement	17 October 2016
Reporting period	Year eight — 17 October 2023 to 16 October 2024
Address	Grande Avenue, Spring Mountain
Local government area	Ipswich City Council



Legend

Project area

Figure 1

Project Context

Lend Lease Communities (Springfield) Pty Ltd

File ref. 7243 E Figure 1 ACR8 Project Context A
Date 19/12/2024
Project Springfield Rise, EPBC 2013/7057 (ACR 2024)

0 1 2 km

N

Scale (A4): 1:50,000 [GDA 1994 MGA Z56]

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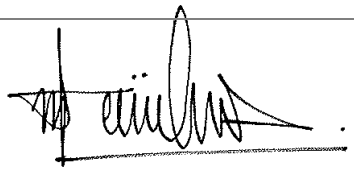
1.3. Declaration of accuracy

In making this declaration, I am aware that sections 490 and 491 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) make it an offence in certain circumstances to knowingly provide false or misleading information or documents. The offence is punishable on conviction by imprisonment or a fine, or both. I declare that all the information and documentation supporting this compliance report is true and correct in every particular. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed	
Full name	Murray Saunders
Position	Director
Organisation	Saunders Havill Group ABN 24 144 972 949
Date	14 January 2025

1.4. Description of activities

Construction activities at Springfield Rise (the estate name of the Spring Mountain mixed use master planned community) commenced on 17 October 2016 and the estate was officially launched to the public in March 2017. Throughout the eight (8) years of operation, the estate continues to be managed across several villages (*i.e.,* stages) which are at various phases of construction and completion. Villages 6, 8 and 13 were the first established, followed by further delivery of Villages 10, 11, 12, 14, 15 and 17 with several thousand residents now residing in these locales. Civil construction works are currently underway within Village 18, with further works to be undertaken in remaining Villages 7, 9 and 16 in future years. The Springfield Rise masterplan is presented in **Figure 2**.

Notable development milestones during Year 8 include the development approval of 600 lots located in Village 16 and opening of Mountain Park. While previous years findings are discussed within this report, more detail can be found in previous ACRs located on the Springfield Rise webpage:

https://www.stockland.com.au/residential/qld/springfield-rise/resources/sustainability-and-environment

This report is reflective of the activities completed and data collected during the reporting period from October 2023 to October 2024.

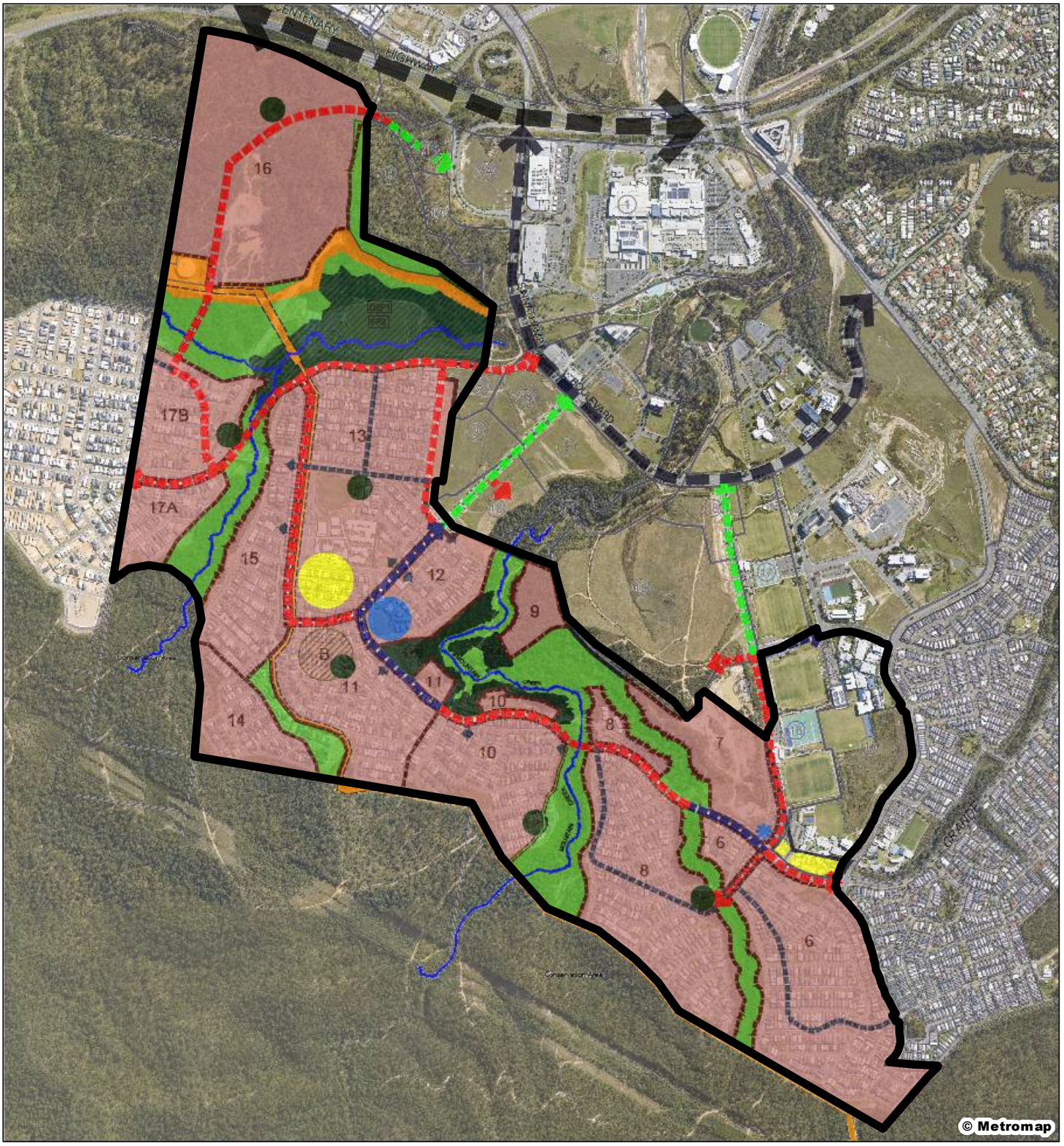
During this reporting period the following activities were initiated and/or completed during Year 8 of the project:

- Continuation of the Springfield Rise Community Grants Program;

- Community activities (supported, initiated or coordinated by Lendlease):
    - Community movie night
    - Continued community garden
    - Annual Pest Fishing Classic
    - Silver Jubilee Park opening festival
    - NAIDOC Week 2024
- Spring Mountain Offset Area works:
    - Weed management activities as per the certified Voluntary Declaration under the Queensland *Vegetation Management Act 1999*;
    - Conservation area surveys including;
        - Weed surveys,
        - SAT surveys, and
        - Motion detection camera surveys,
    - Inspection of nest boxes within the conservation area; and
    - Fencing / access restriction assessments
- Estate area works:
    - Site preparation;
    - Pre-clearance surveys and reports;
    - Temporary management infrastructure (e.g. vegetation and fauna fencing, signage);
    - Vegetation clearing in selected villages;
    - Earthworks;
    - Infrastructure installation — sewer, water, power, etc.;
    - Creating new land titles;
    - Completion of district recreation park – Mountain Park;
    - Village 16 – Development Approval – 600 lots;
    - Widespread landscaping works to support the estate;
    - Protection and weed removal measures at the *Coleus habrophyllus* locations;
    - Weed removal and replanting of environmental corridors; and
    - Ongoing management of erosion and sediment control (ESC) issues.

It is noted that ESC issues associated with the project were identified towards the end of the 2019-2020 reporting period and although not viewed as a non-compliance with the EPBC Approval, the matter continues to be addressed with rectification works in consultation with Ipswich City Council. The rectification works were

affected by the early 2022 floods, however, continue to be implemented whilst rehabilitation works continue in the broader area.



Legend

- Project area

Layout Plan

- Residential Development Area
- Existing School
- Infrastructure (Existing)
- District Park
- Major District Park
- Linear Creekline Open Space
- Centenary Highway
- Sinnathamby Boulevard
- Town Centre Road Type 2A Modified
- Major Collector Dual Lane Street
- Major Collector Street Access
- Collector Street
- Village Boundary

Figure 2

Springfield Rise
Village Layout

Lend Lease
Communities
(Springfield) Pty Ltd

File ref. 7243 E Figure 2 ACR8 Springfield Layout A
Date 19/12/2024
Project Springfield Rise, EPBC 2013/7057 (ACR 2024)

0 200 400 600 800 m

N

Scale (A4): 1:18,500 [GDA 1994 MGA Z56]

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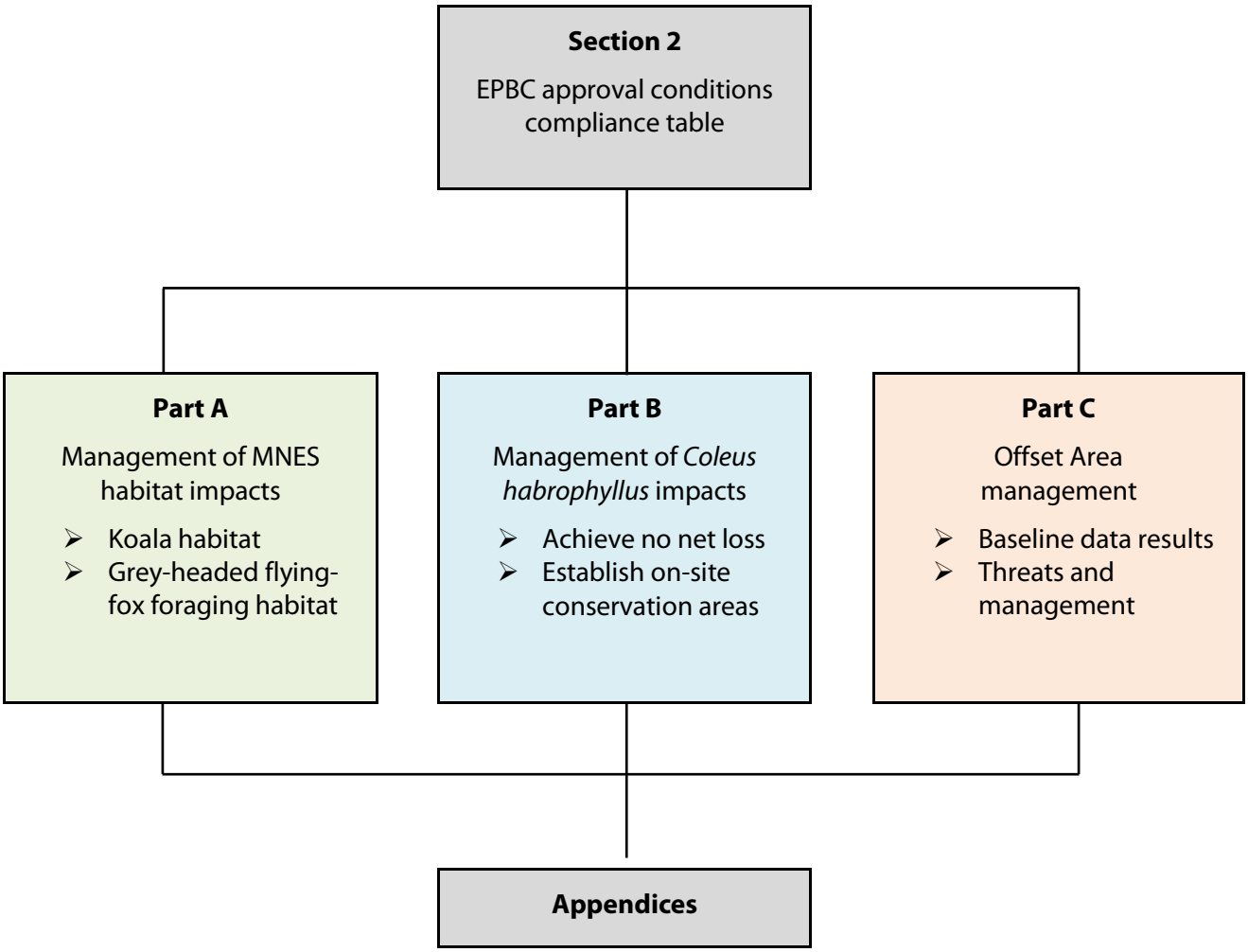
Layer Source: © State of Queensland 2024

1.5. Report structure

The approval includes ten site-specific approval conditions and a further twelve administrative approval conditions. Site-specific conditions have been categorised into:

1. Impact management
2. *Coleus habrophyllus* management
3. Offset Area management (habitat for the koala and grey-headed flying-fox)

The approval conditions include a number of 'outcomes based' conditions and Parts A, B and C of this report detail how the implemented management actions will achieve, or are achieving, the outcomes. This includes details of the management strategies and any adaptions that occur during the term of the approval. The compliance table is presented in **Section 2** followed by Parts A, B and C, and Appendices as illustrated below.



2. EPBC approval conditions compliance table

The EPBC approval conditions for the Springfield Rise residential estate are replicated in **Table 1** with a designation on compliance or non-compliance if the condition was applicable during the reporting period, and evidence and comments as necessary. A copy of the EPBC approval and conditions is provided in **Appendix A**.

Table 1: EPBC approval conditions compliance table

Condition number / reference	Condition	Is the project compliant with this condition?	Evidence / comments
1	The approval holder must not clear: a) Outside of the project site b) more than 274.6 hectares of MNES habitat.	Compliant	The approval conditions define MNES habitat as koala habitat and grey-headed flying-fox foraging habitat. A detailed review of impacts completed since the commencement of the action was undertaken as part of the application for the variation. A total of 230.3 ha of MNES habitat has been cleared since the commencement of the action.
1A	To compensate for the clearing of 19.6 ha of koala habitat and grey-headed flying-fox foraging habitat enabled by this variation decision, additional to the clearing allowed by the approval decision made on 23 December 2015, the approval holder must submit an Additional Offset Management Plan (AOMP) to the department for the Minister's approval. The AOMP must specify how a direct offset to compensate for the impacts to the 19.6 ha of MNES habitat will be provided. The approval holder must not clear more than 255ha within the project site until the AOMP has been approved by the Minister in writing. The AOMP must be prepared a suitably qualified person, be in accordance with the Environmental Management Plan Guidelines	Compliant	The Additional Offset Management Plan (AOMP) was submitted to DCCEEW for approval on 5 November 2024.

Condition number / reference	Condition	Is the project compliant with this condition?	Evidence / comments
	and the EPBC Act Environmental Offsets Policy (October 2012) to the satisfaction of the Minister and include: a) a description of the proposed direct offset, including location, size, condition, environmental values present, adjacent land uses and a map of the proposed offset that meets the mapping guidelines; b) details to demonstrate how the proposed offset will compensate for the additional clearance of 19.6 ha of MNES habitat enabled by this variation decision; c) details of how the proposed offset will provide connectivity with other habitats and biodiversity corridors and/or will contribute to a larger strategic offset for MNES; d) maps and shapefiles, prepared in accordance with the mapping guidelines, to clearly specify the location and boundaries of the proposed offset, accompanied by offset attributes. e) mitigation and management measures to achieve the outcomes required under these conditions; f) an assessment of the risks to achieving the outcomes committed to in the AOMP and risk management strategies that will be applied; g) an annual monitoring program that measures the progress of achieving the outcomes required under these conditions and includes: i. results of baseline surveys of the habitat quality of the proposed offset;		

Condition number / reference	Condition	Is the project compliant with this condition?	Evidence / comments
	ii. measurable, timebound performance indicators, including milestones to be achieved within 5, 10 and 15 years after the date of commencement of implementing the AOMP; iii. completion criteria to determine when and how the habitat quality improvements committed to in the AOMP have been fully achieved; iv. trigger values and proposed corrective actions to be implemented, if the trigger values are reached; the timing, methods and frequency of monitoring capable of detecting trigger values and changes in the performance indicators; and v. reporting and review mechanisms. h) Evidence of how management measures and corrective actions for the proposed offset consider and are consistent with conservation advice/s, recovery plans and threat abatement plans for MNES; i) Details of how the proposed offset and AOMP meet the principles of the EPBC Act Environmental Offsets Policy (October 2012); and j) Details of the mechanism and timing proposed to legally secure the proposed offset.		
1B	The approval holder must not clear more than 255 ha within the project site until the offset site proposed in the approved AOMP has	Compliant	The Proponent has cleared 230.3 ha within the project site.

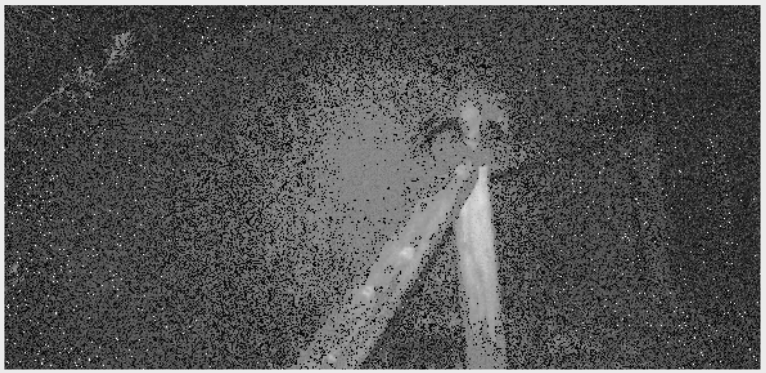
Condition number / reference	Condition	Is the project compliant with this condition?	Evidence / comments
	been legally secured. The approval holder must ensure that the offset site proposed in the approved AOMP remains secured at least until the expiry date of this approval.		
1C	The approval holder must commence implementing the approved AOMP no later than the date on which the offset site proposed in the approved AOMP is legally secured and continue to implement the AOMP until the expiry date of this approval.	Not applicable	The AOMP has not been approved.
1D	The approval holder must, within 5 business days of commencing implementation of the AOMP, notify the department of the date on which implementation of the AOMP commenced.	Not applicable	The AOMP has not been approved therefore has not triggered this condition relating to implementation.
2	To minimise adverse impacts to koalas from vegetation clearing and construction activities there must be no koala injury or mortality as a result of vegetation clearing and construction activities at the project site.	Compliant	No vegetation clearing occurred during the reporting period. During all clearing activities completed to date, a suitably qualified and experienced fauna spotter catcher has been present on-site during vegetation clearing and construction activities which had the potential to impact wildlife clearing. There have been no koala injury or mortality as a result of vegetation clearing and construction activities at the project site.
3	To minimise adverse impacts to koalas from vehicle strike and in order to maintain safe koala movement opportunities through the project site the approval holder must: a. implement the measures specified in Table 3-3 of the Fauna Management Plan prior to operation, and maintain these measures for the life of the approval; b. ensure koala road crossings are placed in the locations specified at Figure 3-1 of the Fauna Management Plan prior to operation, and maintain these measures for the life of the approval; c. implement measures sufficient to identify any koala injury and mortality at the project site; and	Compliant	The management measures in Table 3-3 are listed below with comments on the status of implementation following each measure. Some measures were under construction or not yet certified as being practically complete by Ipswich City Council, and the below details relate to operational measures only. • primary road network posted speed limit no greater than 60 kilometres per hour (km/h) and all other components of the road network posted speed limit no greater than 50 km/h. *The current constructed and operational road network has been signed 50 km/h or 60km/h in accordance with the road type designation.*

Condition number / reference	Condition	Is the project compliant with this condition?	Evidence / comments
	d. if koala injury or mortality occurs, then revise management measures in consultation with a suitably qualified person to reduce the likelihood of adverse impacts to koalas; and inform the Department, either as part of annual compliance reporting required under condition 13 or as a separate notification in writing.		• design and construct dedicated road crossing treatments where roads intersect retained habitat areas including – - Bridging structures make provision for dry land passage through the retention of either the embankments of watercourses beneath a bridge, or elevated portions of road bridging dry land wherever possible. Where this is not achievable, the bridging structure will incorporate a dedicated Koala "boardwalk" between each end of the bridge - Where culverts are required for "at grade" crossings, the design will accommodate minimum portal dimensions, fauna movement "furniture" treatments, and targeted rehabilitation of entrance areas (+ retreat/refuge poles as required). - Where grade separated crossings are not implemented, treatments associated with "at grade" crossings should include "slow zones" which limit traffic speeds and raise driver awareness (including speed reduction or other traffic calming devices, awareness signs and other awareness heightening treatments such as the use of cat's eye road reflectors). - Directional (exclusion) fencing is to be considered in conjunction with grade separated crossings (underpasses) where roads intersect with retained habitat areas. *Fauna movement 'furniture' treatments and targeted rehabilitation of entrances including refuge poles has been adapted and included in culvert design.* • Roadside vegetation management measures are to be undertaken at key locations (e.g. dedicated "at grade" and grade separated crossing locations) to increase the visibility of Koalas entering the roadway.

Condition number / reference	Condition	Is the project compliant with this condition?	Evidence / comments
			*Where road crossing treatments have been installed, vegetation management measures have been implemented (**Appendix B**). Remaining road crossing treatments are currently under construction and the associated vegetation management measures will be completed as part of practical completion works for the road area.* • Implement measures to improve driver awareness, and thereby minimise the incidence of fauna-vehicle collisions, including: a) The installation of general signage to signal the presence of Koalas within the site will be undertaken at all primary (strategic) road entry points to the site. b) More specific signage treatments will be installed to signal areas within the site where there is an increased likelihood of encountering Koalas on the road. Circumstances where such signage will be installed, including (but not limited to) any section of road or residential street which intersects with a retained habitat area. c) "Cat's eye" reflectors to be installed in conjunction with the specific signage treatment zones. *Driver awareness measures were installed as part of completing roads across the project at locations agreed with Ipswich City Council. Signage will be installed along roads traversing retained habitat areas once construction is complete for future works.* *Example of driver awareness signage and markings:*

Condition number / reference	Condition	Is the project compliant with this condition?	Evidence / comments
			 • Annual monitoring event to assess Koala usage and an integrity audit of structures to be implemented for each of five years - to be initiated at the beginning of the "off-maintenance" period for each crossing treatment. *For operational road crossings, annual monitoring events are recurring. The November 2024 survey revealed a variety of fauna utilise the dry fauna passage. However, there were no instances of koalas observed at that point in time. Remaining road crossing treatments still under construction have not entered the off maintenance/practical completion period and therefore monitoring has not commenced.* *The following photos illustrate some of the species observed in December 2024 at the functional dry passage culvert locations.*

Condition number / reference	Condition	Is the project compliant with this condition?	Evidence / comments
			 *Eastern Grey Kangaroo*  *Swamp Harrier*

Condition number / reference	Condition	Is the project compliant with this condition?	Evidence / comments
			 *Common Ringtail Possum*  *Common Brushtail Possum* Works that have the potential to impact fauna (e.g. clearing) are completed under the supervision of a fauna spotter catcher. During the reporting period, there were nil known instances of koala injury or mortality associated with project

Condition number / reference	Condition	Is the project compliant with this condition?	Evidence / comments
			construction. Therefore, no revisions to management measures in response to project works were necessary.
4	To minimise adverse impacts to koalas from domestic dog attack and to exclude koalas from entering residential areas within the project site, the approval holder must: a. implement measures to prevent domestic dog attacks on koalas, including limiting the movement of domestic dogs, creating dog exclusion zones and signage as specified at section 3.4 of the Fauna Management Plan; and b. ensure koala exclusion fencing is constructed and located as specified at section 3.4 of the Fauna Management Plan prior to operation, and maintained for the life of the approval.	Compliant	Residential allotments with frontage to retained koala habitat are issued with the *Key Design Outcome Fence Requirement* notice which stipulates the fencing requirements for particular allotments (**Appendix C**). As new residents move to the estate, they receive campaign material explaining the importance of dog control between the hours of 6pm and 6am and general management approaches to reduce the potential for dog and koala interactions. Landscaping and signage associated with retained habitat areas is installed by agreement with asset owner Ipswich City Council (future and actual). Some greenspaces for public use are not yet constructed or remain under construction. Signage will be installed as part of completing the construction works associated with these spaces. Koala exclusion fencing was observed in areas that construction has been completed.
5	To minimise adverse impacts to *Plectranthus habrophyllus*, there must be no net loss of *P. habrophyllus* at the project site as a result of the proposed action, as defined by the following milestones: a. by six months after the commencement of the action and annually for three years thereafter, there must be 0% cover of weeds of national significance in the on-site conservation areas and buffer areas; b. by one year after the commencement of construction there must be 80% survival of planted *P. habrophyllus*; c. by three years after the commencement of construction, there must be an increase in the number of mature *P. habrophyllus* in the on-site conservation areas that is	5 a) Compliant 5 b) Not applicable 5 c) Not applicable 5 d) Not applicable	Extensive site pre-clearance surveys completed in accordance with the Queensland Flora Survey Guidelines since the commencement of the action have not identified *Plectranthus habrophyllus* (now *Coleus habrophyllus*) within clearing and construction activities areas (refer to **Section 4**). Consequently, nil specimens of *C. habrophyllus* were adversely impacted by the development and there were nil plantings of the species. The only known occurrence of the species is located in the on-site conservation area on Sierra Drive which was established on 24 October 2017 following the identification of multiple specimens of the species at this location. Subsequently, a buffer area of 20 m was established. and weed removal works occurred within six months (by 24 April 2018).

Condition number / reference	Condition	Is the project compliant with this condition?	Evidence / comments
	greater than the number of *P. habrophyllus* removed during construction; and d. by three years after the commencement of construction, there must be evidence of recruitment from planted *P. habrophyllus* individuals.		**5 a)** Weed removal works occurred within six months of the establishment of the on-site conservation area (by 24 April 2018). Follow-up weed removal work was completed in October 2018 and an annual inspection in March 2019 confirmed nil weeds within the on-site conservation area. The scheduled March 2020 inspection could not proceed due to site and work restrictions resulting from COVID-19. The next inspection confirmed the *C. habrophyllus* specimens remained *in situ* throughout Year 4. An inspection was completed in February 2021 to confirm weeds of national significance are absent from the conservation area. In addition, surveys were taken to identify if recruitment observed were the threatened *C. habrophyllus*. Four samples were sent to the QLD Herbarium to confirm identification, with all species sampled were confirmed as *C. habrophyllus* (refer details of the current condition provided in **Part B** of this report). The Year 8 inspection conducted in December 2024 confirmed the presence of minor regrowth of WONS (Lantana) within the on-site conservation area which will be treated over the following months. **5 b)** No specimens of C. *habrophyllus* have been removed during clearing and construction since the commencement of the action as confirmed by detailed pre-clearance surveys. As a result, no planting has been required. This condition is not applicable. **5 c) and 5 d)**

Condition number / reference	Condition	Is the project compliant with this condition?	Evidence / comments
			At the on-site conservation area, the *C. habrophyllus* population has benefitted greatly as a result of the regular weed management and was observed having extensive coverage (juvenile and mature specimens) in the area. In 2021, an inspection confirmed extensive recruitment of the species resulting in the current on-site conservation area for the species as shown on **Figure 4**. Refer to **Section 4, Part B** for more details regarding *C. habrophyllus* management.
6	The approval holder must undertake a monitoring program. The monitoring program must be planned and undertaken so that the data gathered is adequate to: inform adaptive management; and demonstrate whether milestones and outcomes described in conditions 2, 5 and 8 have been met. The monitoring program must: a. include daily surveys for injured or dead koalas during vegetation clearing and construction activities; b. include pre-clearance surveys of all areas that will be cleared to establish the number of mature *P. habrophyllus* that will be lost as a result of the proposed action; c. establish quadrats within each of the on-site conservation areas where *P. habrophyllus* has been planted and at control sites that contain remnant *P. habrophyllus* populations where supplemental planting has not occurred; and d. be undertaken by a suitably qualified person.	Compliant	Shadforth have been engaged as the primary civil contractor since the commencement of the action which maintain a permanent office at the estate to oversee construction work. Shadforth hold a copy of all environmental approval documents which are made available to site contractors and visitors. As part of Shadforth's contract with the Proponent, a weekly report is provided to the latter which details incidents and issues and communicates general comments or concerns relating to the construction project. Site induction material is used to inform contractors and visitors of the Fauna Management Plan (FMP) obligations including the requirement to notify Shadforth of any incident pertaining to fauna including koalas. As standard protocol under the FMP, all vegetation clearing activities carried out since the commencement of the action have been completed with a fauna spotter catcher in attendance with all activities documented in pre and post clearance reports (refer example provided in **Appendix D**). The presence of a fauna spotter catcher during clearing works is a requirement under this approval and State and Local government approvals. With these controls in place, to the best knowledge of the civil contractor and the Proponent, there have been no

Condition number / reference	Condition	Is the project compliant with this condition?	Evidence / comments
			instances of an injured or dead koala as a consequence of vegetation clearing and construction activities. Pre-clearance surveys were completed for all work areas and none identified *C. habrophyllus* in the impact area (refer **Section 4, Part B**). No planting of *C. habrophyllus* within the on-site conservation area has occurred as there have been no impacts to the species as a result of the project.
7	To compensate for the loss of koala habitat and grey-headed flying-fox foraging habitat the approval holder must: a. secure, prior to the commencement of the action, the offset containing 293 hectares of MNES habitat within the Offset Area at Annex 1; b. provide the Department with the offset attributes, shapefile and map(s) clearly defining the location and boundaries of each offset, within 2 weeks of lodgement of the offset with the Titles Office; and c. ensure the Agreement is registered on the title on which each offset is located, and provide the Department with evidence of lodgement with the Titles Office, within 2 weeks of lodgement. Provide a copy of the signed agreement within 2 weeks of receipt from the Titles Office. The approval holder must ensure any proposal for alternative offsets is agreed to in writing with the Department. Note: Offsets for different species may overlap where they share the same habitat requirements.	Compliant	A voluntary declaration under the *Vegetation Management Act 1999* was certified by DNRM over the Offset Area on 10 October 2016, prior to the commencement of the action on 17 October 2017. A copy of the correspondence from DNRM confirming the certification of the Offset Area is provided in previous ACR reports. The certification area is greater than the Offset Area due to agreements between the approval holder and third parties to manage other conservation areas adjacent to the Offset Area. These other areas also comprise koala habitat and grey-headed flying-fox foraging habitat. The certification includes maps that define the location and boundaries of the Offset Area. A shapefile of the Offset Area containing 293 hectares of MNES habitat was provided to the Department on 10 October 2016. After certifying the voluntary declaration, DNRM registered the dealing on the land title as part of their internal processes. This process is triggered once the certification is granted. A copy of the Offset Area land titles with the registered voluntary declaration listed under administrative advice have been provided in previous ACR reports. DNRM lodged the administrative advice/dealing on 11 October 2016.

Condition number / reference	Condition	Is the project compliant with this condition?	Evidence / comments
			There has been no proposal for alternative offsets during the relevant period.
8	To compensate for impacts to koala habitat and grey-headed flying-fox foraging habitat the approval holder must achieve the following outcomes as compared to baseline offset habitat quality and extent, unless agreed in writing with the Department: a. by 20 years after the commencement of construction, there must be a gain in habitat quality across 90% of the offset.	Not applicable	Habitat quality data was collected in order to establish a baseline during 2017 (Year 1). These data, and data collected throughout the subsequent 19 years, will be used to assess habitat quality improvements across the Offset Area. The baseline and data recorded up to Year 8 are presented in **Part C** of this report.
9	To mitigate impacts on koala and *P. habrophyllus*, the approval holder must develop a fire management strategy for the project site and the offset, incorporating advice from a suitably qualified person regarding the impacts of the fire management strategy on koala and *P. habrophyllus*.	Compliant	Fire management strategies in the residential villages are completed in accordance with the Ipswich City Council approval conditions. Copies of the Bushfire Assessment Reports and their detailed fire management strategies have been previously provided as part of the relevant ACR. Offset Area fire management is under the direction of Ipswich City Council which takes action within the Offset Area in conjunction with the larger network of natural area estates in the local government area. A copy of the *White Rock – Spring Mountain Fire Management Strategic Plan and Risk Dashboard*—where the Offset Area is located—is provided in **Appendix E** (this document remains current). The establishment of fuel reduction zones had been initiated in late October 2018. The first annual conservation inspection was completed on 8 August 2019, where discussions on fire management, existing fuel loads and planned fuel reduction burns were had with Ipswich City Council representatives. Planned burns by Ipswich City Council were not completed within the reporting period.
10	The approval holder must adaptively manage koala habitat, grey-headed flying-fox foraging habitat and *P. habrophyllus* to achieve the outcomes described in conditions 1-9. This must include:	Compliant	Adaptive management in previous reporting periods is documented in previous ACRs.

Condition number / reference	Condition	Is the project compliant with this condition?	Evidence / comments
	a. developing and implementing a strategy (or strategies) to achieve the outcomes and milestones outlined in conditions 1-9, in consultation with a suitably qualified person (noting that the plan does not require approval by the Minister and is not an 'action management plan' under the EPBC Act); b. documented process of adaptive management and continual improvement, including using data from monitoring and experimentation trials to inform adaptive management; and c. where there is a reasonable risk (or evidence) that outcomes or milestones are not likely to be achieved: revising management measures in consultation with a suitably qualified person; increasing the level of effort to achieve the outcomes; and informing the Department, either as part of annual compliance reporting required under condition 13 or as a separate notification in writing.		Offset Area management continued to concentrate on weed management, maintaining and establishing access trails and revegetation activities. Weed removal and revegetation activities are managed under a multi-million dollar contract. As with any large-scale weed removal and revegetation project, works are timed to take advantage of seasonal variations and avoid the duplication of work that typically results from poorly timed site works. Given the size of the conservation area, it was necessary to divide the area into smaller progress areas for weed management early on in the project, and this approach has continued. The entire conservation area has now undergone weed management/treatment and are at various stages of treatment. A program for the installation of nest boxes over the larger conservation management area commenced with the construction and installation of fifty-eight (58) in total. A variety of nest boxes were installed, including bat, antechinus, possum and sugar glider nest boxes. The Proponent has committed to the installation, maintenance and monitoring of these nest boxes as they provide habitat for displaced fauna. The Nest Box Monitoring and Maintenance Report (January 2025) is provided in **Appendix F**. During December 2024 nest box inspection, the following were recorded utilising the nest boxes, • Ten (10) *Trichosurus vulpecula* (Brushtail Possum) • Two (2) *Phascogale tapoatafa* (Brush-tailed Phascogale) • One (1) *Petaurus norfolcensis* (Squirrel Glider)

Condition number / reference	Condition	Is the project compliant with this condition?	Evidence / comments
			• One (1) *Aegotheles cristatus* (Owlet-nightjar) Based on the achieved milestones and ongoing capture of information, the strategy to achieve the requirements of Conditions 1-9 is presented in **Part C** of this report. This strategy will be amended as required as part of the ACR to reflect the progress towards achieving the objectives and milestones in the approval conditions.
Administrative conditions			
11	Within 7 days after the commencement of the action, the approval holder must advise the Department in writing of the actual date of commencement of the action.	Not applicable	The action commenced on 17 October 2016. The commencement of the action and notification provided to the Department prior to this reporting period. Details regarding this condition can be found in previous ACRs.
12	The approval holder must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement the management plan, report or strategy required by this approval, and make them available upon request to the Department. Such records may be subject to audit by the Department or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the Department's website. The results of audits may also be publicised through the general media.	Compliant	The Proponent and Saunders Havill Group jointly maintain records of activities pertaining to the approval and conditions. A request to make them available to the Department did not occur during the reporting period.
13	Within three months of every 12 month anniversary of the commencement of the action, the approval holder must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of any management plans as specified in the conditions. Documentary	Compliant	The anniversary of the commencement of the action is 17 October and this ACR must be published on the Proponent website at the below weblink no later than 14 January 2025 or if the day falls on a weekend, then the next business day. When the ACR is published, DCCEEW will be notified along with evidence of the publication.

Condition number / reference	Condition	Is the project compliant with this condition?	Evidence / comments
	evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the Department at the same time as the compliance report is published, until agreed in writing with the Department.		https://www.stockland.com.au/residential/qld/springfield-rise/resources/sustainability-and-environment
14	The approval holder must notify the Department in writing of any non - compliance with conditions as soon as practicable and within no more than 2 business days of becoming aware of the non - compliance.	Compliant	No instances of non-compliance with the approval conditions were identified during the reporting period.
15	Upon the direction of the Minister, the approval holder must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the Minister. The independent auditor must be approved by the Minister prior to the commencement of the audit. Audit criteria must be agreed to by the Minister and the audit report must address the criteria to the satisfaction of the Minister.	Not applicable	A direction from the Minister was not received during the reporting period.
16	The approval holder may choose to revise a management plan, program or strategy approved by the Minister under conditions 1 - 9 without submitting it for approval under section 143A of the EPBC Act, if the taking of the action in accordance with the revised plan, program or strategy would not be likely to have a new or increased impact. If the approval holder makes this choice they must: a. notify the Department in writing that the approved plan, program or strategy has been revised and provide the Department with an electronic copy of the revised plan, program or strategy; d. implement the revised plan, program or strategy from the date that the plan, program or strategy is submitted to the Department; and	Not applicable	The approval holder did not choose to revise a management plan, program or strategy approved by the Minister during the reporting period.

Condition number / reference	Condition	Is the project compliant with this condition?	Evidence / comments
	e. for the life of this approval, maintain a record of the reasons the approval holder considers that taking the action in accordance with the revised plan, program or strategy would not be likely to have a new or increased impact.		
17	The approval holder may revoke their choice under condition 16 at any time by notice to the Department. If the approval holder revokes the choice to implement a revised plan, program or strategy, without approval under section 143A of the Act, the plan, program or strategy approved by the Minister must be implemented.	Not applicable	The approval holder did not choose to revise a management plan, program or strategy approved by the Minister during the reporting period.
18	Condition 16 does not apply if the revisions to the approved plan, program or strategy include changes to environmental offsets provided under the plan, program or strategy in relation to a matter protected by a controlling provision for the action, unless otherwise agreed in writing by the Minister. This does not otherwise limit the circumstances in which the taking of the action in accordance with a revised plan, program or strategy would, or would not, be likely to have new or increased impacts.	Not applicable	The approval holder did not choose to revise a management plan, program or strategy approved by the Minister during the reporting period.
19	If the Minister gives a notice to the approval holder that the Minister is satisfied that the taking of the action in accordance with the revised plan, program or strategy would be likely to have a new or increased impact, then: a. Condition 16 does not apply, or ceases to apply, in relation to the revised plan, program or strategy; and b. The approval holder must implement the plan, program or strategy approved by the Minister. To avoid any doubt, this condition does not affect any operation of conditions 16, 17 and 18 in the period before the day the notice is given.	Not applicable	The approval holder did not choose to revise a management plan, program or strategy approved by the Minister during the reporting period.

Condition number / reference	Condition	Is the project compliant with this condition?	Evidence / comments
	At the time of giving the notice the Minister may also notify that for a specified period of time that condition 16 does not apply for one or more specified plans, programs or strategies required under the approval.		
20	Conditions 16, 17, 18 and 19 are not intended to limit the operation of section 143A of the EPBC Act which allows the approval holder to submit a revised plan, program or strategy to the Minister for approval.	Not applicable	The approval holder did not choose to revise a management plan, program or strategy approved by the Minister during the reporting period.
21	If, at any time after five years from the date of this approval, the approval holder has not substantially commenced the action, then the approval holder must not substantially commence the action without the written agreement of the Minister.	Not applicable	The approval holder commenced construction on 17 October 2016.
22	Unless otherwise agreed to in writing by the Minister, the approval holder must publish all management plans, reports or strategies referred to in these conditions of approval on their website. Each management plan, report or strategy must be published on the website within 1 month of being approved by the Minister or being submitted under condition 1 - 9.	Compliant	The applicable management plans, reports and strategies are published on the Springfield Rise website: https://www.stockland.com.au/residential/qld/springfield-rise/resources/sustainability-and-environment

3. Part A – MNES habitat impact management

Approvals relating to impacts on ecological matters were collated from Commonwealth, State and Local governments for the project and included several overarching environmental management plans. Each contractor was provided a copy of the approval documents; however, the size of the project warranted the preparation of consolidated document packages that stipulated environmental management requirements pertinent to each stage of construction. This resulted in the preparation of Site Based Management Plans which detailed measures for vegetation management (clearing and protection), protection of MNES fauna (koala and grey-headed flying-fox) and other native wildlife, maintenance of safe wildlife movement opportunities, fauna habitat rehabilitation, threatened flora management and pest management. The Site Based Management Plans are available on the Springfield Rise website:

https://www.stockland.com.au/residential/qld/springfield-rise/resources/sustainability-and-environment

As part of managing the smaller work areas of the project, a second supporting document was developed: Springfield Rise — Environmental Pre-Start Checklist (refer Error! Reference source not found.). This checklist was integral to ensuring construction proceeded within the demarcated limits, suitable fencing was installed across the work area and the necessary checks for threatened fauna were completed prior to the clearing of any vegetation. The flow diagram below illustrates the key steps in this process. After completing the checklist and all required parties sign-off, vegetation clearance activities may proceed under the supervision of a fauna spotter catcher. An example of a completed checklist is provided in **Appendix D**.

Key steps to commencing impact work at each Village

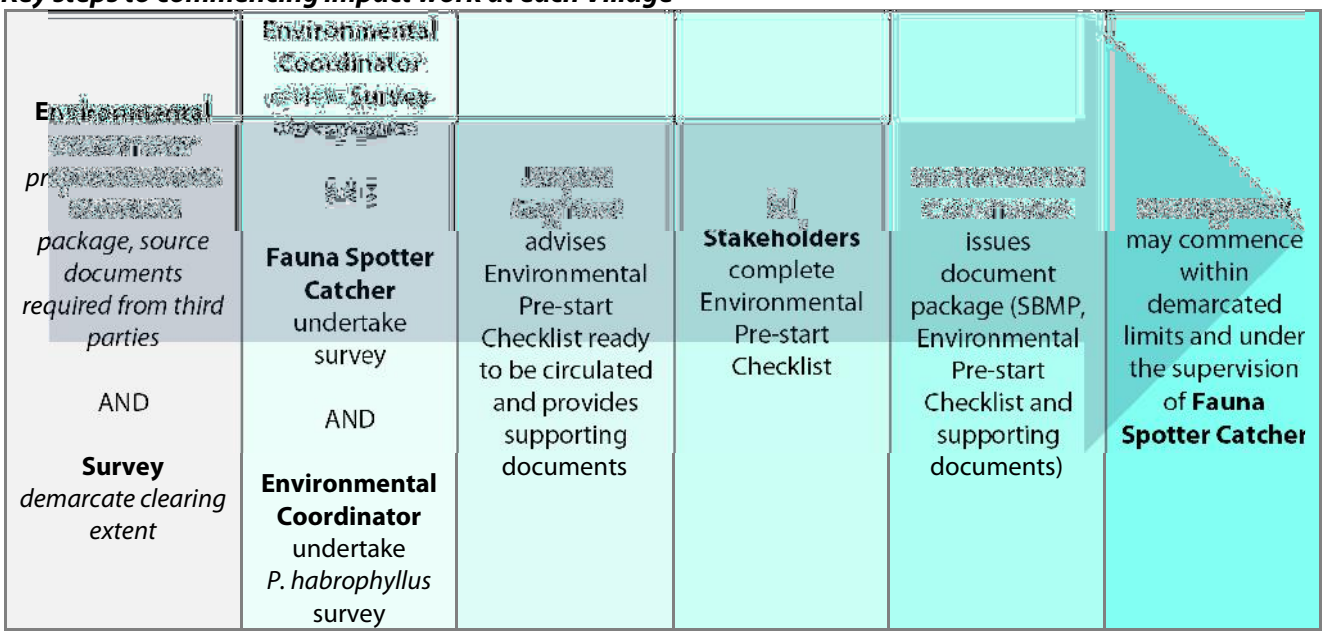


Figure 3: Environmental Pre-start Checklist template example

Springfield Rise
Environmental Pre-Start Checklist

Springfield RISE
At Spring Mountain

Project Area:	Date:				
Contractor:	Construction Stage/ Activity:				
Date work is to start:	Compliance				
Date work is to cease:					
#	Control Measure	Yes	No	N/A	Comments
1	Is the works extent within the EPBC 2013/7057 referral area?				
2	Are clearing extents marked out and fenced? (N.B. Fencing is required as per ICC permits unless instructed otherwise by Council, Fauna Spotter or Environmental Coordinator)				
2	Has the fencing of clearing extents demarcation been inspected by the Environmental Coordinator?				
3	Has sign off been provided by the Environmental Coordinator for demarcation areas?				
4	Has certification for pre-clearance flora been provided? (N.B. Exemptions/permits for protected plants under the NCA must be obtained by EHP where works occur in a High Risk Area). Please provide date and reference.				
5	Have pre-clearance checks surveys for *Plectranthus habropiyllus* been completed over the clearing area?				
6	Are *Plectranthus habrophyllus* 'no-go' zones identified within the clearing area been demarcated, fenced, signed and inspected by the Environmental Coordinator and Contractor?				
7	Will works involve clearing within a Fisheries mapped waterway for waterway barrier works? If so, are works compliant with applicable self-assessable codes and / or permits?				
8	Will works involve clearing within a watercourse defined under the Water Act 2000? If so, are works compliant with applicable exemptions and / or permits?				

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Springfield Rise
Environmental Pre-Start Checklist

Springfield RISE
At Spring Mountain

8	Has the appointed Fauna Spotter completed pre-clearance surveys and reports?			
9	Has the appointed Fauna Spotter identified any sensitive areas for consideration in clearing methods? Please provide a summary.			
10	Have all contractors, subcontractors and associated personnel been instructed on environmental procedures and controls?			
11	Has a Council pre-start been completed?			

NOTE: if the answer to any question above is NO then the clearing activity will not proceed.

Compliance Awareness

All works are to be undertaken in accordance with the *<<Project area>>* Environmental Pre-Start Package which includes the '*<<Project area>>*' and this *<<Project area>>* Environmental Pre-Start Checklist and attachments.

Signing below demonstrates acknowledgement of the environmental pre-start procedures and requirements listed in the checklist above and associated attachments.

Name	Company	Position	Signature	Date
		Client Representative		
		Site Contractor		
		Clearing Contractor		
		Fauna Spotter Catcher		
		Project Engineer		
		Environmental Coordinator		

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3.1. Adaptive management

The Environmental Pre-Start Checklist and Site Based Management Plan support an adaptive management framework for vegetation clearance activities. During the first year of construction a change to the on-ground procedure for demarcating and confirming the vegetation clearance area became necessary. The change was the result of the survey contractor demarcating a clearing area that differed slightly to that stipulated in the Site Based Management Plan prepared by the environmental coordinator. The error was an artefact of contractors utilising different software to manage spatial data. To avoid this error reoccurring, after the survey contractor demarcates the vegetation clearance area, the environmental coordinator attends site to confirm the demarcated area is as per the Site Based Management Plan.

During the second year of works, the identification of a sick koala in the clearing area occurred. The koala's health was unrelated to vegetation clearing or construction activities, however, the management plans in place for such occurrences did not include a procedure to manage this type of event. Action taken at the time included stopping work and establishing an exclusion area around the koala. Following this, a site meeting was held to discuss the procedure forward. In conjunction with consultation with a representative from the Ipswich Koala Protection Society, it was decided to trap the koala (using approved methods) and transport the koala to Moggill Koala Hospital. This work was completed by the project fauna spotter catcher. As a result of this, management plans associated with pre-clearance survey and reporting include a procedure for this scenario.

Since the revision discussed above, the Environmental Pre-Start Checklist and Site Based Management Plan have not required further revisions.

3.2. Review of impacts

The removal of vegetation from the development area impacted MNES habitat which is defined under the approval conditions as koala habitat and grey-headed flying-fox foraging habitat.

A detailed review of vegetation clearing completed over the course of the action was undertaken as part of the application to vary the conditions of the approval. The review indicated that by the end of the Year 8 reporting period (16 October 2024), a total of 230.3 ha of vegetation has been cleared. As noted in Section 1.1, the approval conditions permit an impact of 274.6 ha of MNES habitat therefore the approval holder has complied with the approved limit (Condition 1A). No vegetation clearing was completed during the reporting period.

The Site Based Management Plan and Environmental Pre-Start Checklist ensure procedures are in place to control impacts on MNES habitat and prevent injuries to wildlife during construction works. A fauna spotter catcher has been present throughout clearing works and the post-works reporting indicates the implementation of the current management system is successful as nil Koala injuries or mortalities resulting from vegetation clearing or construction activities have occurred.

As villages throughout the estate become operational, the measures relating to ongoing fauna management will be established. These include culverts for fauna movement, vehicle speed control signage, driver

awareness signage and fencing controls to prevent koala and domestic dog interactions. Many of these became operational in Year 3 (*i.e.*, certified as meeting practical completion by Ipswich City Council) with the final fauna passage located on London Avenue becoming operational in Year 7.

Inspection photos from this year of these fauna measures are presented in in the Fauna Culvert Audit Report at **Appendix B**. This includes 'furniture' for fauna movement through culverts, fauna exclusion fencing to prevent fauna crossing highly frequented roads, and suitable fencing bounding residence to prevent dog-Koala interactions.

4. Part B – *Coleus habrophyllus* Impact Management

4.1. Background

During the assessment and approval phase for the project, consultant Yurrah undertook a detailed analysis (desktop and ground-truthing) of potential *Coleus habrophyllus* (*C. habrophyllus)* habitat throughout the referral area. It should be noted that phylogenetic analyses conducted in 2019 separated *Plectranthus habrophyllus* into the genus *Coleus* therefore for consistency with the current taxonomic status, has been referred to as *Coleus habrophyllus* in this document and in all subsequent documents. Specimens and potential habitat were found to occur in several locations as shown in the referral documentation.

Coleus habrophyllus has similar attributes to other *Plectranthus/Coleus sp.* including the non-threatened *P. suaveolens* and *P. parviflorus*. In order to clarify how to distinguish *C. habrophyllus* from the non-threatened *Plectranthus/Coleus sp.* during pre-clearance surveys, Saunders Havill Group liaised with the Queensland Herbarium to ensure a conclusive understanding of the differences between the species was held. Pre-clearance surveys during most of the Year 1 reporting period used this knowledge to determine if *C. habrophyllus* would be impacted and subsequently, no specimens were located in either the impact or on-site conservation areas. During the subsequent years of monitoring several samples have been collected and sent to the Queensland Herbarium for identification, with the results being a mixture of both *C. habrophyllus* and *P. parviflorus.*

As part of completing the Environmental Pre-Start Checklist for each stage, proposed impact locations were surveyed prior to any clearing work to determine if the plant was present and if so, how many individuals would be removed. The latter information was required as part of complying with Condition 5 which stipulates there must be an increase in the number of mature *C. habrophyllus* in the on-site conservation areas that is greater than the number removed during construction.

4.2. Weeds of National Significance (WONS) monitoring and treatment

Weed removal work in these areas was completed within six months of their establishment—by April 2018 (Year 2) —and repeated in early October 2018 (Year 2) to address regenerating *Lantana camara* (Lantana). The weed treatment, specifically targeting weeds of national significance (WONS) was conducted by Evolve Environmental Solutions within the on-site conservation area.

An inspection of the on-site conservation area was conducted by Ecologists from Saunders Havill Group on 12 December 2024. This inspection confirmed some recruitment of Lantana within the on-site conservation area which will be actioned for treatment.

4.3. Population Density Assessment

As time and the development has progressed, as have the number and density of the population within the conservation area. Due to the increased number of observed *C. habrophyllus* individuals an assessment to determine the species density within the conservation area was performed on 15 July 2021 by Ecologists from Saunders Havill Group. Due to the high number of the species observed, a density-based population assessment was used as it was not feasible to count every specimen. The assessment was carried out in accordance with the Queensland *Flora Survey Guidelines – Protected*. During this assessment, a small cluster of *C. habrophyllus* specimens was identified approximately 10 m west of the existing demarcated conservation area. As a result, the buffer area was extended from 20 m to reflect the on-ground extent of the *C. habrophyllus* population.

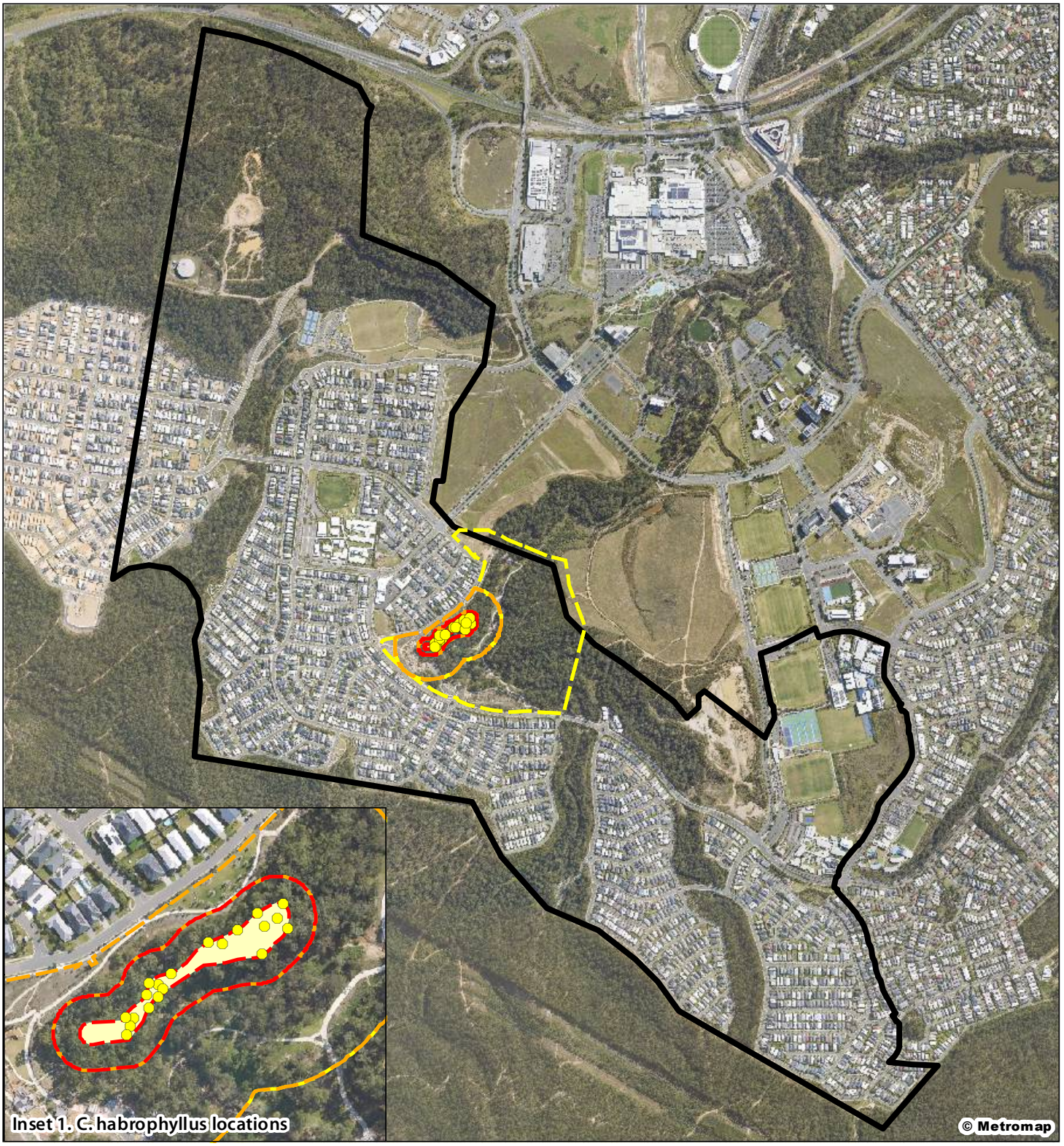
Annual inspections over the following years (*i.e.,* 2022, 2023 and 2024) confirmed abundant *C. habrophyllus* specimens within the conservation area including a mix of established and juvenile specimens, indicating ongoing natural recruitment and stable population growth (refer **Photo set 2**). The extent of the *C. habrophyllus* population remain protected within the demarcated limits of the conservation area (refer Error! Reference source not found. for location of specimens *C. habrophyllus*). Lantana has been treated as needed since the establishment of the on-site conservation area, with some minor regrowth noted in December 2024 (refer **Photo set 2**).

The construction of Mountain Park, located south of the on-site conservation area, was completed during the reporting period.

There remains potential for other habitat areas throughout the project site to contain *C. habrophyllus* specimens. As construction expands across the site, additional surveys for the species will take place and on-site conservation areas established where *C. habrophyllus* specimens are confirmed in retained habitat areas.

Photo set 1: Observed specimens of *C. habrophyllus* specimens within the on-site conservation area.

Photo set 2: Treated Lantana (left) and regrowth Lantana (right) within on-site conservation area.



Legend

- Project area
- C. habrohpyllus
- Confirmed locations of Coleus habrophyllus specimens
- Zone A
- Zone B
- Zone C

Figure 4

Location of In situ *C.habrophyllus*

Lend Lease Communities (Springfield) Pty Ltd

File ref. 7243 E Figure 4 ACR8 In situ C habrophyllus A
Date 14/01/2025
Project Springfield Rise, EPBC 2013/7057 (ACR 2024)

0 200 400 600 800 m

N

Scale (A4): 1:18,500 [GDA 1994 MGA Z56]

saunders havill group

Layer Source: © State of Queensland 2025

5. Part C – Offset area management

The 293 ha offset under Condition 7 of the approval comprises seven land parcels that provide koala and grey-headed flying-fox foraging habitat (refer **Appendix A** and Error! Reference source not found.). The offset parcels (listed below) surround the project area and form part of the regional biodiversity corridors. The Offset Area was legally secured on 10 October 2016 prior to the commencement of construction on 17 October 2016 using the Voluntary Declaration process administered under the *Vegetation Management Act 1999*.

The Offset Area land parcels are:

1. part 740/SP179412
2. 747/SP189043
3. 748/SP189044
4. part 751/SP189053
5. 752/SP189053
6. part 753/SP189054
7. 745/SP242282

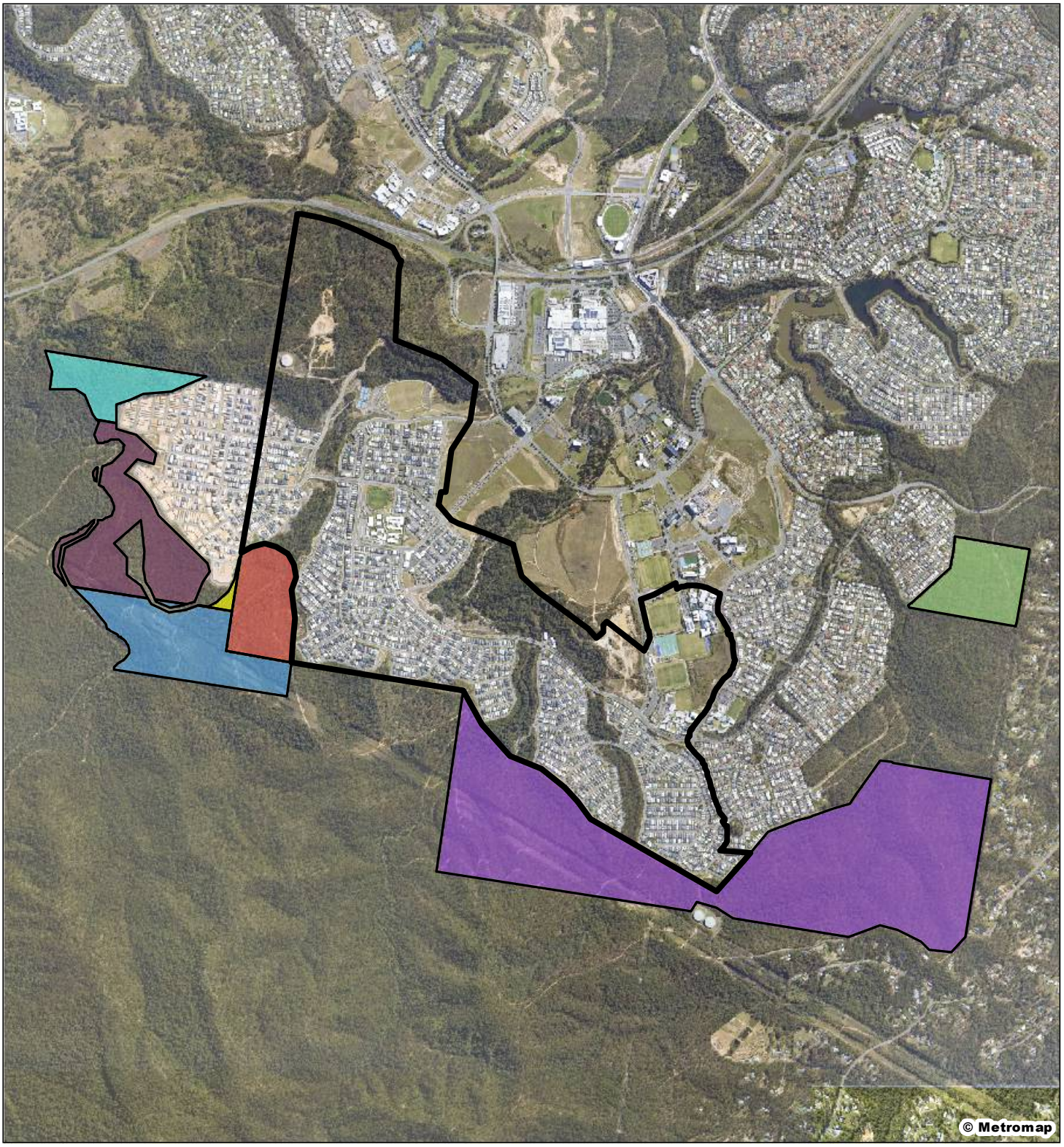
The primary objective to managing the Offset Area is to achieve a gain in habitat quality across 90% of the offset before 17 October 2036. The approval conditions define this as:

An improvement in the quality and extent of koala habitat and grey-headed flying-fox foraging habitat in comparison to baseline environmental conditions at the offset compared with an unmanaged control site.

The current quality and extent are influenced by several factors including the presence of weeds and pest animals, and vegetation attributes (e.g. species diversity, ecological dominant layer). To arrive at a baseline metric, habitat quality assessments were completed across the Offset Area and at a control site south of the Offset Area during the first year of the action. The assessment was completed using the *Guide to Determining Terrestrial Habitat Quality* published by the Queensland Department of Environment and Heritage Protection (2017). The current version of this guide was published February 2020 by the Department of Environment and Science. A comparison between the baseline habitat quality score and habitat quality score during the year five (5) reporting period are summarised in **Table 2**.

Table 2: Habitat quality 2016/2017 – 2020/2021

Location	Baseline habitat quality score	Year Five (5) habitat quality score
Offset Area	7.44	7.68
Control site	6.92	7.15



Legend

Project area

Offset area lot/plan

- 740/SP179412
- 745/SP242282
- 747/SP189043
- 748/SP189044
- 751/SP189053
- 752/SP189053
- 753/SP189054

Figure 5

Legally Secured Offset Area

Lend Lease Communities (Springfield) Pty Ltd

File ref. 7243 E Figure 5 ACR8 Offset Area A
Date 19/12/2024
Project Springfield Rise, EPBC 2013/7057 (ACR 2024)

0 200 400 600 800 1,000 m

N

Scale (A4): 1:30,000 [GDA 1994 MGA Z56]

saunders havill group

Layer Source: © State of Queensland 2024

5.1. SAT survey

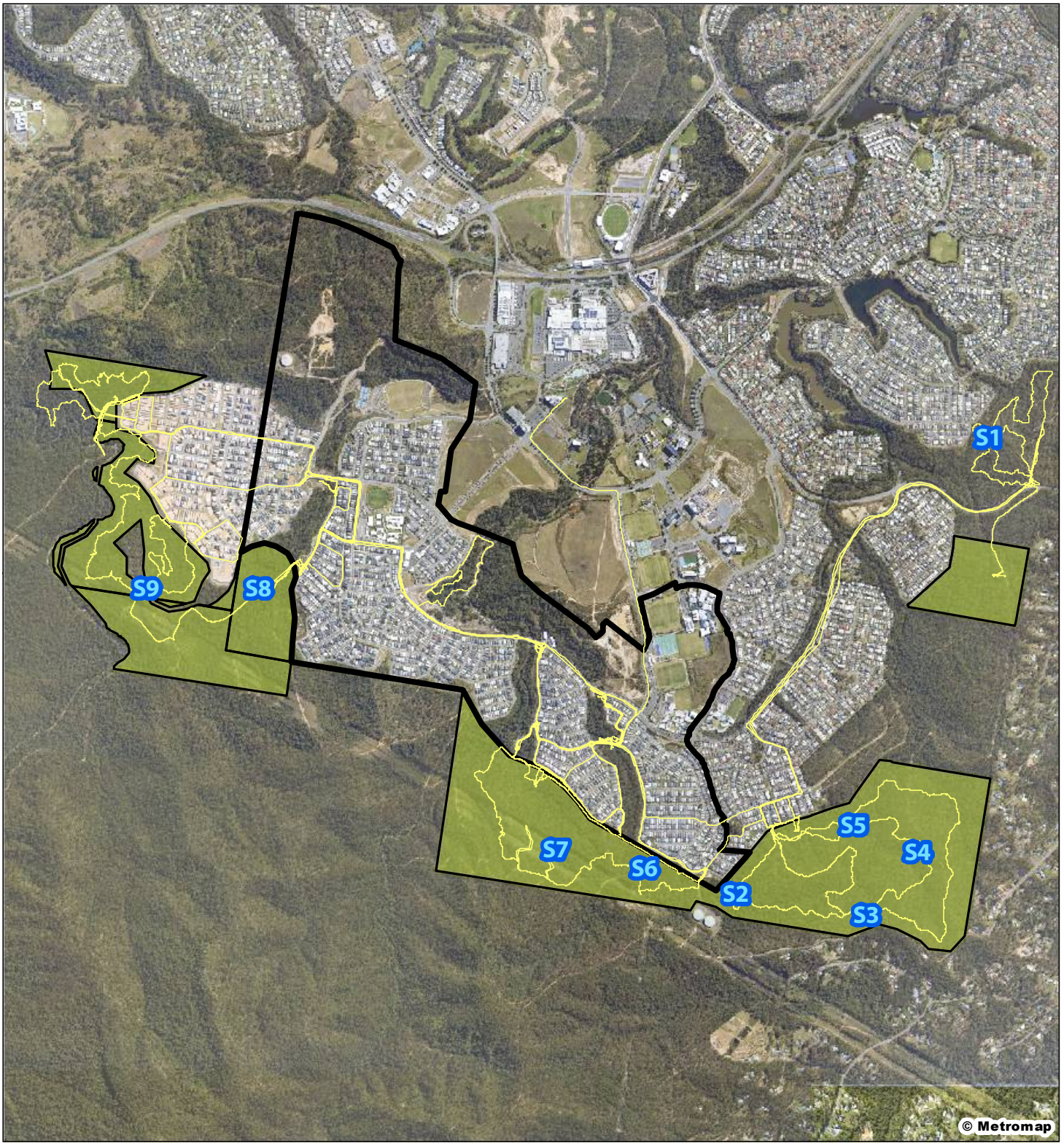
Spot Assessment Technique (SAT) surveys have been undertaken across the conservation area in accordance with the methodology developed by the Australian Koala Foundation (as per Phillips & Callaghan 2011). The SAT method is an assessment of Koala activity involving a search for any Koalas and signs of Koala usage. The SAT involves identifying a non-juvenile tree of any species within the site that is either observed to have a Koala or scats or is known to be a food tree or otherwise important for Koalas and recording any evidence of Koala usage of that tree including presence, identifiable scratches, or scats. The nearest non-juvenile tree is then identified, and the same data recorded. The next closest non-juvenile tree to the first tree is then assessed and so on until 30 trees have been surveyed. The number of trees showing evidence of Koala activity is expressed as a percentage of the total number of trees sampled to indicate the frequency of Koala usage. Assessment of each tree involves a systematic search for Koala scats beneath the tree within one metre radius of the trunk. After approximately two-person minutes of searching for scats, the base of the trunk is observed for scratches and the crown for Koala (refer Phillips & Callaghan, 2011).

A total of 98 SAT surveys have been completed over the site over the past eight years using a combination of methods to determine location including stratification via a grid and performing a SAT survey where either scats or a koala have been detected. Further details on previous SAT surveys conducted please refer to corresponding ACR available on the Springfield Rise webpage or **Appendix G.**

The SATs conducted in the eighth year of compliance monitoring are presented in **Table 3**. The locations of the nine (9) SATs conducted during the reporting period were randomly selected (refer **Figure 6)**.

Table 3: Year Eight (8) SAT Results

Survey Year	SAT site no.	Evidence of koala use (%)	Koala use (high/medium/low)
8	**1**	0	Low
8	**2**	0	Low
8	**3**	3.33	Low
8	**4**	3.33	Low
8	**5**	0	Low
8	**6**	0	Low
8	**7**	10.00	Low
8	**8**	0	Low
8	**9**	0	Low



Legend

- Project area
- Offset Area
- ACR Year 8 Track Log
- ACR Year 8 SAT Survey Locations

Figure 6

SAT Survey Locations

Lend Lease Communities (Springfield) Pty Ltd

File ref. 7243 E Figure 6 ACR8 SAT Surveys A
Date 7/01/2025
Project Springfield Rise, EPBC 2013/7057 (ACR 2024)

0 200 400 600 800 1,000 m

N

Scale (A4): 1:30,000 [GDA 1994 MGA Z56]

saunders havill group

Layer Source: © State of Queensland 2025

5.2. Nest Boxes

Year 4 of the development marked the initiation of the nest box monitoring program across the conservation area with the installation of twenty-seven units, and the following year an additional thirty-one nest boxes were installed. All fifty-eight (58) boxes were constructed by the Springfield Camira Men's Shed inc.

The results for Year Eight (8) of the compliance reporting and therefore Years 3) and 4 of the nest box programs are displayed in **Appendix F.** The annual inspection was completed on 10th and 11th December 2024, of the fifty-eight nest boxes installed, majority were found to be in good condition, of which ten (10) were housing *Trichosurus vulpecula* (Brushtail possum) individuals, two (2) *Phascogale tapoatafa* (Brush-tailed Phascogale), one (1) *Petaurus norfolcensis* (Squirrel Glider) and one (1) *Aegotheles cristatus* (Owlet-nightjar). Several nest boxes were found to have spider webs, ant, caterpillar and insect nests. Four (4) of the nest boxes were recorded at being on an angle which may decrease accessibility and one (1) required a replacement lid.

5.3. Threats

There are several environmental threats that may interfere with the approval holder's efforts towards achieving the milestone and these were assessed alongside opportunities to counteract or control each with active management measures.

These threats are:

1. Weeds — specifically weeds of national significance such as *Lantana sp.*
2. Pest animal management — wild dogs and other predatory species are known to occur within the region
3. Erosion — restorative actions will rectify the historical and recent impacts
4. Unlawful access — prevent unauthorised access during the management period

To support the future achievement of the gain in habitat quality milestone for benefit of the grey-headed flying-fox and koala, several management actions are underway to address the threats. These actions are discussed in the following subsections and detailed in **Table 4**. This table will be reviewed annually as part of completing the Annual Compliance Report and the status/results of actions discussed accordingly.

5.3.1 Weed management

An extensive survey of dominant weeds throughout the Offset Area was completed in Year 1 which identified *Lantana camara* (*L. camara*) as the dominant weed species. This survey informed a weed management works package for persons undertaking the weed eradication work (refer **Appendix H**). Weed removal will provide an opportunity for the natural regeneration of koala habitat and grey-headed flying-fox foraging habitat in these areas therefore expanding on and improving the available habitat for these species. Habitat quality is expected to improve considerably in these areas which currently provide very little value wherever *L. camara* is a dominant species in the landscape.

Lantana camara (Lantana) was identified throughout the Offset Area during the Year 8 reporting period, particularly within the north-western corner of the site. Surveys are usually completed concurrently with the weed eradication program which commenced in August 2018 and has a 120-month maintenance period

between the practical completion and off maintenance of works. While assessing the eighth year of compliance monitoring. Weed survey and revegetation results documented over the course of the project are provided in previous ACRs located on the Springfield Rise webpage.

The overall management objective is to reduce the presence of weeds of national significance to 5% of the total 293 ha Offset Area. Detailed weed meanders were conducted across the Offset Area during the Year 8 reporting period to determine the extent of weeds across the area (refer **Figure 7**). These surveys found an increase in Lantana camara cover likely associated with seasonal growth periods. A total coverage of approximately 5% of the total 293 ha Offset Area was mapped as containing *Lantana camara* (Lantana). These surveys indicate where treatment is required to ensure weed levels are maintained below 5% for the course of the project approval. Subsequent follow-up and maintenance works programmed across various parts of the Offset Area are scheduled to ensure this is improved and maintained.

Planting of native vegetation to assist natural regeneration was undertaken in areas where weeds had a stronghold and once treated, revegetation was employed to provide bank stability and assist the establishment of koala and grey-headed flying-fox habitat. A total of 3,120 seedlings were planted in the Offset Area (Area 2) during the year four (4), and ~1,400 were planted during year two (2). Surveys to assess the two (2) rehabilitation areas were conducted in year five (5), and results from this reporting period can be found in the year five (5) ACR.

Due to the minimal weed management and rehabilitation that had occurred on-site during the current reporting period, rehabilitation areas were not reported on in this ACR. The proponent will continue to work with the offset area management contractor to maintain and improve areas of weed management and report on the progress in the next ACR. The measure required for continued management include:

- Removal and maintenance of regenerating WONS, and
- maximising surface roughness to slow runoff, which reduces erosion and provides more time for plants to absorb water.

5.3.2 Pest animal management

Periodic inspections and third-party publications have confirmed wild dogs are a threat in the Offset Area. The airborne thermal camera survey also confirmed their presence. Other threats include red foxes, feral pigs and cane toads. Managing pest animals in the Offset Area and greater locality is a combined effort with the landowner, Ipswich City Council.

Camera traps were installed across the Offset Area for the purpose of tracking and documenting annual the presence of feral dogs and other vertebrate pest species (refer Error! Reference source not found.). Monitoring confirmed the presence of pest species including *Vulpes vulpes* (European red fox), and *Canis lupus familiaris* (wild dog) within the Offset Area.

Pest management is coordinated across the local government area by council in conjunction with adjacent councils. Previously, the approval holder identified the scope of works required to address the dog presence.

However, discussions with Ipswich City Council determined that pest management through the trapping, baiting and shooting would not be appropriate across the Offset Area for the following key reasons:

1. Health and safety concerns given the proximity to residential areas; and
2. Trapping and removal of individuals will allow for others to move into the Offset Area.

While supplementary pest animal management is not supported by Ipswich City Council, the approval holder will continue to monitor the presence of pest animals within the Offset Area for the duration of the project.

5.3.3 Erosion

Several parts of the Offset Area are heavily eroded for a multitude of reasons:

- historical unlawful access and use of the Offset Area by 4WD vehicles, trail bikes and all-terrain vehicles (ATV); and
- historical management of the area as part of a larger network of land did not focus solely on addressing erosion in the Offset Area.

Consequently, as part of weed eradication and general management works, the approval holder has continued to address areas of significant erosion and establishing tracks for maintenance and access purposes. As part of erosion remediation work, native vegetation that will benefit the grey-heading flying-fox and koala is planted in areas to assist.

Upon the survey conducted during the Years 7 and 8 ACR, all tracks which are required to be maintained were found to be accessible and well-maintained (refer **Photo set 3**). There was no evidence found that would suggest areas of significant erosion.

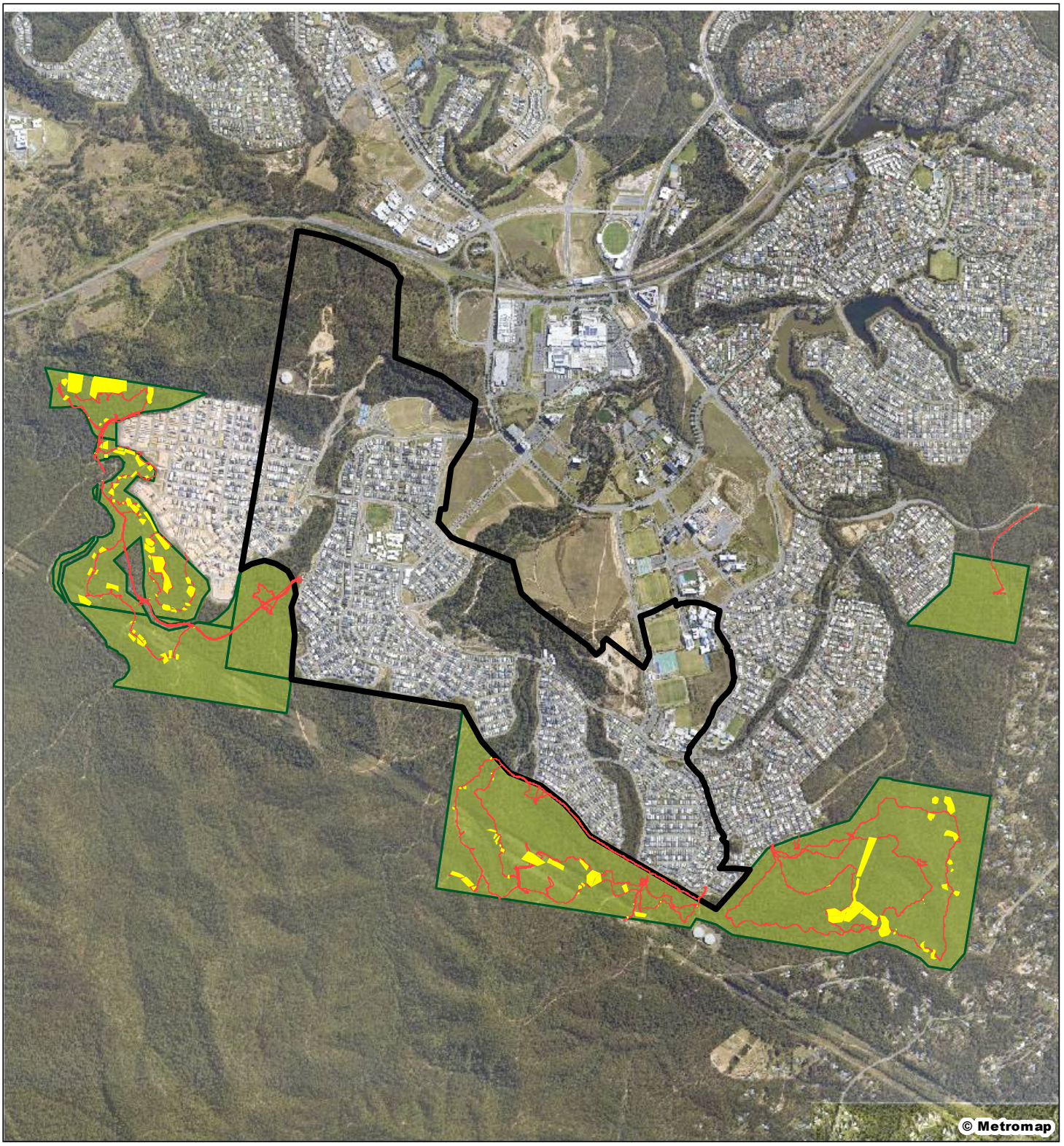
Photo set 3: Access tracks within the Offset Area indicating minimal erosion.

5.3.4 Unlawful access

The Offset Area has been accessed unlawfully in the past by people utilising the area for recreational purposes (e.g. 4WD, trail bikes and ATV). Preventing access is difficult when a presence in the area is not ongoing, however, since the approval holder commenced construction, undesired access to the Offset Area has become easier to prevent due to the works area adjoining the Offset Area. Many fences and gates that prevent access are keyed and therefore secure, and the civil contractor's daily presence deters trespassers onto the adjoining Offset Area. Nonetheless, unlawful access will continue to be monitored and action implemented where necessary.

During the reporting period a review of the current security was undertaken to ensure fencing, gates and other physical deterrents were adequate to prevent access by unauthorised vehicles. The review determined that the existing security measures implemented by the approval holder were sufficient in deterring unauthorised access. Minor damage to a section of Koala exclusion fencing along the north-western boundary of the development (refer **Appendix I**) was noted. Although efforts have been made to secure the Offset Area and deter trespassers through the installation of keyed access points and fencing, the reviews indicate that the issue is ongoing. However as stated above, incidences significantly reduced as a result of construction works and presence of contractors within the project and Offset Areas

Long-term management of the Offset Area will require diligent monitoring of access points (*i.e.,* gates) and fences to ensure trespassers do not gain access and negate the approval holder's efforts towards improving the Offset Area. While the civil contractor maintains an on-site presence, reviews of Offset Area security will occur in conjunction with other Offset Area management actions. Specific issues regarding trespassing and access will continue to be resolved in consultation with Ipswich City Council as they occur.



Legend

- Project area
- Weed meander
- Areas containing Lantana
- Offset Area

Figure 7

Vegetation data collection sites

Lend Lease Communities (Springfield) Pty Ltd

File ref. 7243 E Figure 7 ACR8 Veg Collection Sites A
Date 14/01/2025
Project Springfield Rise, EPBC 2013/7057 (ACR 2024)

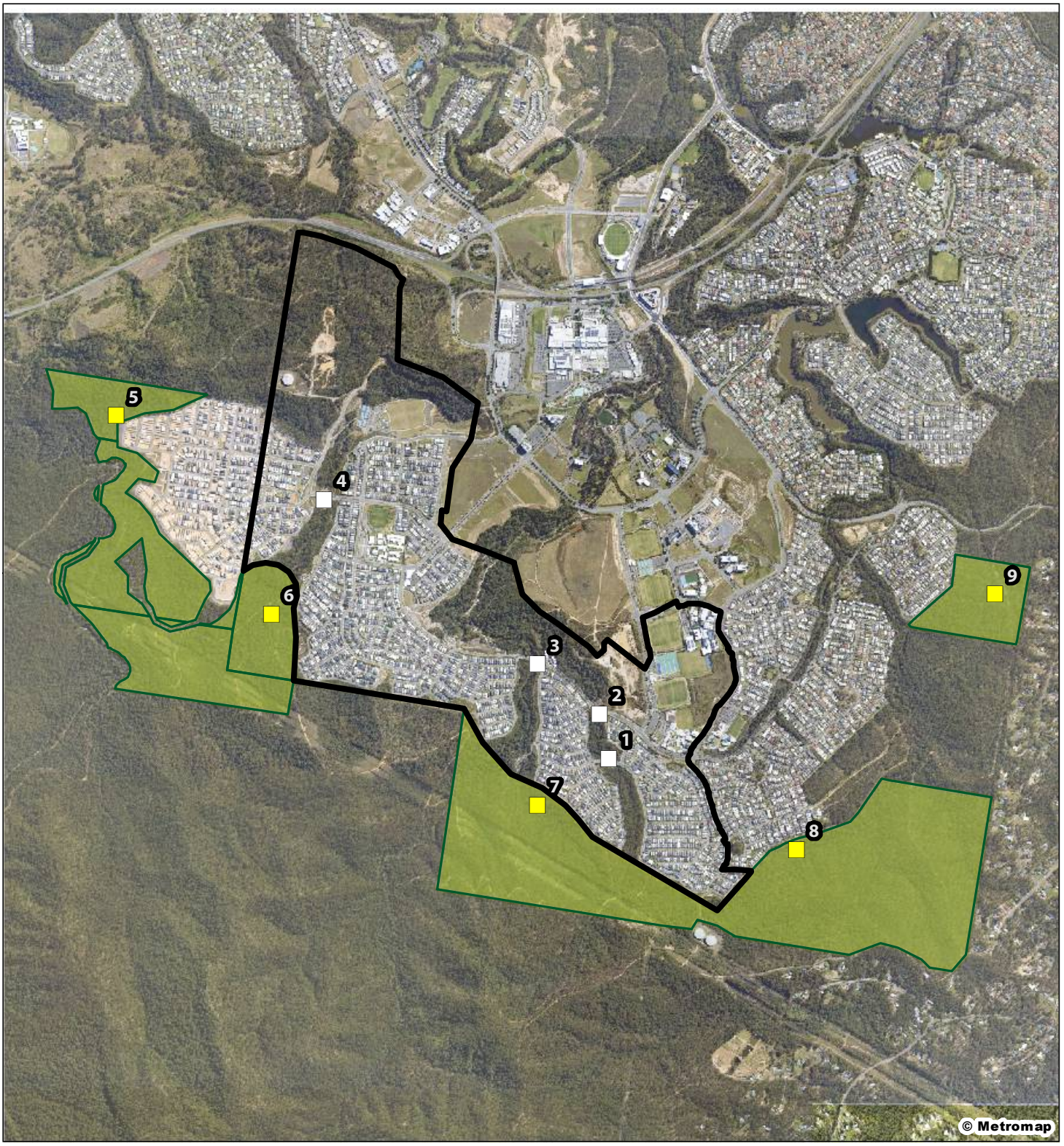
0 200 400 600 800 1,000 m

N

Scale (A4): 1:30,000 [GDA 1994 MGA Z56]

saunders havill group

Layer Source: © State of Queensland 2025



Legend

- Project area
- Offset Area
- Camera location (conservation area)
- Camera location (no bait)

Figure 8

Fauna data collection sites

Lend Lease Communities (Springfield) Pty Ltd

File ref. 7243 E Figure 8 ACR8 Fauna Collection Sites A
Date 14/01/2025
Project Springfield Rise, EPBC 2013/7057 (ACR 2024)

0 200 400 600 800 1,000 m

N

Scale (A4): 1:30,000 [GDA 1994 MGA Z56]

saunders havill group

Layer Source: © State of Queensland 2025

Table 4: Offset area management actions summary

Current threat / quality improvement restoration	Base case	Improvement proposed	Achievement criteria	Measured by	Timeframes	Reporting	Funded by:
1. Removal of Weeds of National Significance (WONS — namely *Lantana sp.*)	17% of the 293 ha Offset Area has been assessed as containing *Lantana sp.* of varying infestations (approx. 50 ha effected by weeds).	Reduction and management of WONS through the Offset Area	Decrease and maintain WONS cover in the offset area to 5% or less (12% improvement to area of offset = 35 ha of land)	Weed Survey Extent Mapping – repeated annually / measured against base line study already completed.	WONS reduced through the offset area to 5% by 3 years post the commencement of the Action. WONS maintained at 5% or below for 10 years post the Commencement of Construction.	Weed Survey Extent Mapping results included in the ACR for the project. In 2018, weed management works commenced and continued throughout each subsequent reporting period (refer **Appendix H**). Following the legal securement of the offset area, weed management was gradually implemented across the offset area within weed management areas. Each weed management area has now been subject to weed management and are at various stages of follow-up treatment. A weed extent survey and mapping was undertaken during this reporting period. The surveys confirmed an	All weed management to be funded by the Approval Holder using licensed and registered contractors.

Current threat / quality improvement restoration	Base case	Improvement proposed	Achievement criteria	Measured by	Timeframes	Reporting	Funded by:
						increase in WONS coverage attributed to seasonal variation and will be scheduled for treatment over the following year to ensure WONS levels are maintained below 5%. A combination of randomised and targeted searches of previous known infestation areas have been completed as part of annual surveys. Results in the Year 8 survey found that there is an increase in regrowth of *L. camara* plants scattered across the offset area scheduled for treatment in the following year of management to ensure WONS coverage will remain less than 5% over the course of the project.	
2. Pest Management — Wild (& Unwanted) Dog	1. Site survey observed Wild Dog species and	Monitor pest species (namely Wild Dogs) to	No increase of pest species throughout the 293 ha Offset Area.	Camera trapping and thermal imagery surveys as required.	Pest species are to be monitored for the life of the offset (20 years).	Camera trapping and thermal imagery surveys as required	Monitoring surveys to be funded by the Approval Holder.

Current threat / quality improvement restoration	Base case	Improvement proposed	Achievement criteria	Measured by	Timeframes	Reporting	Funded by:
usage of Offset Area	located fresh Wild Dog prints across the Offset Area. 2. Ipswich City Council White Rock – *Spring Mountain Conservation Estate – Tier 2 Management Plan* lists Wild Dogs, Red Foxes, Feral Pigs and Cane Toads as significant pest issues. This conservation estate land is contiguous with the Offset Area (*i.e.,* no dividing fence). 3. *2011 Environmental Impact Assessment* (Aurecon) for the adjoining Department of Defence bushland property to the east of the Offset Area located wild dogs as part of site surveys.	ensure no increase of presence/density.				were conducted and results reported in the relevant ACR section. The survey completed during the current reporting period recorded several pest species on camera including European red fox (*Vulpes vulpes*) and wild dog (*Canis lupus familiaris*).	

Current threat / quality improvement restoration	Base case	Improvement proposed	Achievement criteria	Measured by	Timeframes	Reporting	Funded by:
	4. Wild Dogs and Foxes were recorded on the Spring Mountain project as listed in the *November 2013 Austecology MNES vertebrate Fauna Assessment.* This land is contiguous with the Offset Area.						
3. Koala Habitat and Grey-headed Flying Fox Foraging Habitat Replanting and Regeneration	At existing major erosion points and areas of extensive weed removal, revegetation — inclusive of MNES habitat trees — will be reinstated. Low-level vegetation values within the powerline easement which connects habitat areas.	Increases in koala habitat and grey-headed flying-fox foraging habitat resources (food and shelter trees). Improve vegetation values within the powerline easement in accordance with planting protocols for such infrastructure.	Reinstated existing degraded areas, and those created through mass weed removal with revegetation, inclusive of suitable habitat species.	Number of MNES habitat trees replanted within the offset area = equal or greater than 1,500 trees. *(Estimated 20-25% of land infested with Lantana sp. —50.1 ha, sporadically requiring patch and broad areas of revegetation. Assume MNES habitat tree density of 150 trees per hectare = total 1,503-1,880 trees.)* Biennial surveys of koala and grey-headed flying-fox presence.	All tree planting complete on or before 3 years post commencement of construction (*i.e.,* 17 October 2019). *(Timeframe to allow for weed management measures to occur prior to tree planting.)*	Tree installation reporting within the ACR period for which it occurs. The Year 3 ACR confirms the total tree milestone was achieved during Year 3. Success of tree planting and survival rates reported on annually for life of the offset (20 years). *(Note 1,500 trees is the minimum outcome therefore additional trees have been planted*	Replanting to be completed by a registered and experienced contractor at the cost of the Approval Holder.

Current threat / quality improvement restoration	Base case	Improvement proposed	Achievement criteria	Measured by	Timeframes	Reporting	Funded by:
				Methods employed may include SAT surveys, drone survey, general/ad hoc observations and meander surveys. Easement area comprises a vegetated corridor that supports adjoining habitat values.		*to account for stock failure or other losses. Where determined by the ACR, additional trees will be planted.)* Relevant ACR period to present results of biennial surveys that assess the presence of koala and grey-headed flying-fox. SAT surveys have been completed annually thus far, with the exception of Year 6 ACR. A total of 98 SAT surveys have been conducted over the eight years (**Appendix G**). Evidence of koala usage in the form of scats was predominately calculated as being 'low usage' at most locations. With exceptions being during Year 2 where	

Current threat / quality improvement restoration	Base case	Improvement proposed	Achievement criteria	Measured by	Timeframes	Reporting	Funded by:
						one (1) high usage data point was recorded, year 3 where one (1) high and one (1) medium recording was identified, and Year 7 where one (1) medium usage location was identified. The area where high usage was recorded has undergone rehabilitation in August 2018. A koala was observed within the conservation area during Year 6 surveys.	
4. Reduce unlawful access and use of the Offset Area by 4WD, trail bikes and all-terrain vehicles (ATV)	Historically the Offset Area included a number of unlawful access tracks and entry points resulting in degraded and eroded sections throughout the Offset Area. Six locations around the periphery of the	Reduce unlawful access and use by 4WD, trail bikes and ATV.	Installation of new or substantial upgrades and extensions to barrier fencing at identified locations of unlawful entry. Maintenance of access point during the offset management period	Evidence of securement (e.g. photographs) provided during ACR. Annual review of installed and upgraded security measures for measurement of success (observation	Two securement points completed every two years. All six securement points constructed and operational with six years of the commencement of the action.	Evidence of barrier installation, monitoring and success provided as part of relevant period ACR. A review of Offset Area security was undertaken as part of	The Approval Holder will continue to monitor and maintain barrier and access point infrastructure.

Current threat / quality improvement restoration	Base case	Improvement proposed	Achievement criteria	Measured by	Timeframes	Reporting	Funded by:
	offset land have been identified as being historically used to unlawfully access the Offset Area.		to confirm success of securement works. Alteration and further upgrades to security points where demonstrated to be unsuccessful.	evidence of tyre tracks and damage circumventing barrier structures) Reporting on any adaptive alterations to security not shown to be successful (e.g. extension of fencing where new tracks show access occurring around the fence).	Infrastructure to be in place for the life of the offset (20 years).	contractor works in Year 8. Locked gates have been installed across the site, preventing unlawful access throughout the conservation area. No evidence of forced entry at access points was recorded during the Year 8 inspection.	
5. Overall improvement of the quality of the Offset Area to 9/10.	Offset quality value of 7-8/10 under the *Guide to Determining Terrestrial Habitat Quality* – Queensland Department of Environment and Heritage Protection. Value score is derived from eight transects completed throughout the Offset Area.	Achieve a 2 point gain in the quality of MNES habitat .	By measure of achieving a 9/10 average score at the transect locations from surveys completed in accordance with the *Guide to Determining Terrestrial Habitat Quality* – Queensland Department of Environment and Heritage Protection.	Data collected from the transect locations at 5 year intervals for the life of the offset (20 years). If the quality is assessed as not improving at the first five year interval, this will trigger a review of management measures to determine suitable actions that can be implemented to achieve the 9/10 objective.	Achieve a 2 point gain in MNES habitat quality at the year 20 ACR. Demonstrate an improvement of Offset Area quality, subject to external factors (e.g. fire), at each five year interval.	Transect data to be presented in a report completed in accordance with *Guide to Determining Terrestrial Habitat Quality* – Queensland Department of Environment and Heritage Protection and to form part of the ACR for the relevant period. Transects were undertaken in the Year 5 reporting period and showed an increase in	The Approval Holder will fund the transect data collection and reporting.

Current threat / quality improvement restoration	Base case	Improvement proposed	Achievement criteria	Measured by	Timeframes	Reporting	Funded by:
	Reference area transect also completed — score 6.92/10.					MNES habitat quality from baseline. The project is considered on track to achieve the target for MNES habitat quality. Habitat transects are scheduled to be completed again in Year 10.	

6. Appendices

Appendix A

EPBC approval and conditions granted 23 December 2015

Appendix B

Dry Passage Culvert Audit 2024

Appendix C

Key Design Outcome Fence Requirement Notice

Appendix D

Fauna Spotter Catcher Post-works reporting Example

Appendix E

White Rock – Spring Mountain Fire Management Strategic Plan and Risk Dashboard

Appendix F

Nest Box Monitoring and Maintenance Report 2025

Appendix G

SAT Results – Year 1 to Year 8

Appendix H

Weed Management Plans

Appendix I

Securement Point Review 2024

Appendix A

EPBC approval and conditions granted 23 December 2015

Australian Government
Department of Climate Change, Energy, the Environment and Water

Variation of conditions attached to approval

Spring Mountain Mixed Use Master Planned Community Development, Queensland (EPBC 2013/7057)

This decision to vary conditions of approval is made under section 143 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Approved action

approval holder	Lendlease Communities (Springfield) Pty Limited ACN 087 876 864
approved action	To construct a mixed use development (including residential, commercial and community developments and associated infrastructure) on a 387ha site at Spring Mountain, Queensland**.** See EPBC Act referral 2013/7057

Variation

variation of conditions attached to approval	The variation is: Delete condition 1 attached to the approval and substitute with the condition specified in the table below. Add conditions 1A, 1B, 1C and 1D specified in the table below. Add definitions of **Clear/Clearing/Cleared**, **Conservation advice/s, recovery plans and threat abatement plans, Environmental Management Plan Guidelines, Mapping guidelines** and **Offset**. Delete definitions of **Secure or secured** and **Weeds of national significance** and substitute with the definition specified in the table below. Delete **Annex A** and **Annex B** and substitute with the annexures specified in the table below.
date of effect	This variation has effect on the date this instrument is signed.

Person authorised to make decision

name and position	Natasha Amerasinghe Acting Branch Head Environment Assessments (Vic, Tas) and Post Approvals Branch

signature	
date of decision	18 September 2024

date of decision	**conditions attached to approval**
As varied on the date this instrument was signed	1) The approval holder must not clear: a) outside the **project site** b) more than 274.6 hectares (ha) of **MNES habitat**.
As varied on the date this instrument was signed	1A) To compensate for the **clearing** of 19.6 ha of **koala habitat** and **grey-headed flying-fox foraging habitat** enabled by this variation decision, additional to the **clearing** allowed by the approval decision made on 23 December 2015, the approval holder must submit an Additional Offset Management Plan (AOMP) to the **department** for the **Minister's** approval. The AOMP must specify how a direct offset to compensate for the impacts to the 19.6 ha of **MNES habitat** will be provided. The approval holder must not **clear** more than 255ha within the **project site** until the AOMP has been approved by the **Minister** in writing. The AOMP must be prepared a **suitably qualified person**, be in accordance with the **Environmental Management Plan Guidelines** and the **EPBC Act Environmental Offsets Policy (October 2012)** to the satisfaction of the **Minister** and include: a) a description of the proposed direct offset, including location, size, condition, environmental values present, adjacent land uses and a map of the proposed offset that meets the **mapping guidelines**; b) details to demonstrate how the proposed offset will compensate for the additional clearance of 19.6 ha of **MNES habitat** enabled by this variation decision; c) details of how the proposed offset will provide connectivity with other habitats and biodiversity corridors and/or will contribute to a larger strategic offset for **MNES**; d) maps and **shapefiles,** prepared in accordance with the **mapping guidelines**, to clearly specify the location and boundaries of the proposed offset, accompanied by **offset attributes**.

	e) mitigation and management measures to achieve the outcomes required under these conditions; f) an assessment of the risks to achieving the outcomes committed to in the AOMP and risk management strategies that will be applied; g) an annual monitoring program that measures the progress of achieving the outcomes required under these conditions and includes: i. results of baseline surveys of the **habitat quality** of the proposed offset; ii. measurable, timebound performance indicators, including milestones to be achieved within 5, 10 and 15 years after the date of commencement of implementing the AOMP; iii. completion criteria to determine when and how the habitat quality improvements committed to in the AOMP have been fully achieved; iv. trigger values and proposed corrective actions to be implemented, if the trigger values are reached; the timing, methods and frequency of monitoring capable of detecting trigger values and changes in the performance indicators; and v. reporting and review mechanisms. h) Evidence of how management measures and corrective actions for the proposed offset consider and are consistent with **conservation advice/s**, **recovery plans and threat abatement plans** for **MNES;** i) Details of how the proposed offset and AOMP meet the principles of the **EPBC Act Environmental Offsets Policy (October 2012)**; and j) Details of the mechanism and timing proposed to legally **secure** the proposed offset.
As varied on the date this instrument was signed	1B) The approval holder must not **clear** more than 255 ha within the **project site** until the offset site proposed in the approved AOMP has been legally **secured**. The approval holder must ensure that the offset site proposed in the approved AOMP remains **secured** at least until the expiry date of this approval.
As varied on the date this instrument was signed	1C) The approval holder must commence implementing the approved AOMP no later than the date on which the offset site proposed in the approved AOMP is legally **secured** and

	continue to implement the AOMP until the expiry date of this approval.
As varied on the date this instrument was signed	1D) The approval holder must, within 5 **business days** of commencing implementation of the AOMP, notify the **department** of the date on which implementation of the AOMP commenced.
Original dated 23/12/2015	2) To minimise adverse impacts to **koalas** from **vegetation clearing and construction activities** there must be no **koala** injury or mortality as a result of **vegetation clearing and construction activities** at the **project site.**
Original dated 23/12/2015	3) To minimise adverse impacts to **koalas** from vehicle strike and in order to maintain safe **koala** movement opportunities through the **project site** the approval holder must: a) implement the measures specified in Table 3-3 of the **Fauna Management Plan** prior to **operation,** and maintain these measures for the life of the approval; b) ensure **koala road crossings** are placed in the locations specified at Figure 3-1 of the **Fauna Management Plan** prior to **operation,** and maintain these measures for the life of the approval; c) implement measures sufficient to identify any **koala** injury and mortality at the **project site**; and d) if **koala** injury or mortality occurs, then revise management measures in consultation with a **suitably qualified person** to reduce the likelihood of adverse impacts to **koalas**; and inform the **Department**, either as part of annual compliance reporting required under condition 13 or as a separate notification in writing.
Original dated 23/12/2015	4) To minimise adverse impacts to **koalas** from domestic dog attack and to exclude **koalas** from entering residential areas within the **project site,** the approval holder must: a) implement measures to prevent domestic dog attacks on **koalas**, including limiting the movement of domestic dogs, creating dog exclusion zones and **signage** as specified at section 3.4 of the **Fauna Management Plan**; and b) ensure **koala exclusion fencing** is constructed and located as specified at section 3.4 of the **Fauna Management Plan** prior to **operation,** and maintained for the life of the approval.

Original dated 23/12/2015	5) To minimise adverse impacts to ***Plectranthus habrophyllus***, there must be no net loss of ***P. habrophyllus*** at the **project site** as a result of the proposed action, as defined by the following milestones: a) by six months after the **commencement of the action** and annually for three years thereafter, there must be 0% cover of **weeds of national significance** in the **on-site conservation areas** and **buffer areas**; b) by one year after the **commencement of construction** there must be 80% survival of planted ***P. habrophyllus***; c) by three years after the **commencement of construction**, there must be an increase in the number of mature ***P. habrophyllus*** in the **on-site conservation areas** that is greater than the number of ***P. habrophyllus*** removed during **construction**; and d) by three years after the **commencement of construction**, there must be evidence of recruitment from planted ***P. habrophyllus*** individuals.
Original dated 23/12/2015	6) The approval holder must undertake a monitoring program. The monitoring program must be planned and undertaken so that the data gathered is adequate to: inform adaptive management; and demonstrate whether milestones and outcomes described in conditions 2, 5 and 8 have been met. The monitoring program must: a) include daily surveys for injured or dead koalas during **vegetation clearing and construction activities**; b) include pre-clearance surveys of all areas that will be **cleared** to establish the number of mature ***P. habrophyllus*** that will be lost as a result of the proposed action; c) establish quadrats within each of the **on-site conservation areas** where ***P. habrophyllus*** has been planted and at **control sites** that contain remnant ***P. habrophyllus*** populations where supplemental planting has not occurred; and d) be undertaken by a suitably qualified person.
Original dated 23/12/2015	7) To compensate for the loss of **koala habitat** and **grey-headed flying-fox foraging habitat** the approval holder must: a) **secure**, prior to the **commencement of the action**, the **offset** containing 293 hectares of **MNES habitat** within the offset area at **Annex 1**;

		b) provide the Department with the **offset attributes**, **shapefile** and map(s) clearly defining the location and boundaries of each offset, within 2 weeks of lodgement of the offset with the **Titles Office**; and c) ensure the **Agreement** is registered on the title on which each offset is located, and provide the Department with evidence of lodgement with the **Titles Office**, within 2 weeks of lodgement. Provide a copy of the signed **agreement** within 2 weeks of receipt from the **Titles Office**. The approval holder must ensure any proposal for alternative offsets is agreed to in writing with the **Department**. **Note:** Offsets for different species may overlap where they share the same habitat requirements.
Original dated 23/12/2015	8)	To compensate for impacts to **koala habitat and grey-headed flying-fox foraging habitat** the approval holder must achieve the following outcomes as compared to baseline **offset** habitat quality and extent, unless agreed in writing with the **Department**: a) by 20 years after the **commencement of construction**, there must be a **gain in habitat quality** across 90% of the **offset**.
Original dated 23/12/2015	9)	To mitigate impacts on **koala** and ***P. habrophyllus***, the approval holder must develop a fire management strategy for the **project site** and the **offset,** incorporating advice from a **suitably qualified person** regarding the impacts of the fire management strategy on **koala** and ***P. habrophyllus*****.**
Original dated 23/12/2015	10)	The approval holder must adaptively manage **koala habitat, grey-headed flying-fox foraging habitat** and ***P. habrophyllus*** to achieve the outcomes described in conditions 1-9. This must include: a) developing and implementing a strategy (or strategies) to achieve the outcomes and milestones outlined in conditions 1-9, in consultation with a **suitably qualified person** (noting that the plan does not require approval by the **Minister** and is not an 'action management plan' under the **EPBC Act**); b) a documented process of adaptive management and continual improvement, including using data from

	monitoring and experimentation trials to inform adaptive management; and c) where there is a reasonable risk (or evidence) that outcomes or milestones are not likely to be achieved: revising management measures in consultation with a **suitably qualified person**; increasing the level of effort to achieve the outcomes; and informing the **Department**, either as part of annual compliance reporting required under condition 13 or as a separate notification in writing.
	administrative conditions
Original dated 23/12/2015	11) Within 7 days after the **commencement of the action**, the approval holder must advise the **Department** in writing of the actual date of **commencement of the action**.
Original dated 23/12/2015	12) The approval holder must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement the management plan, report or strategy required by this approval, and make them available upon request to the **Department**. Such records may be subject to audit by the **Department** or an independent auditor in accordance with section 458 of the **EPBC Act**, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the **Department's** website. The results of audits may also be publicised through the general media.
Original dated 23/12/2015	13) Within three months of every 12 month anniversary of the **commencement of the action**, the approval holder must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of any management plans as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the **Department** at the same time as the compliance report is published, until agreed in writing with the **Department**.
Original dated 23/12/2015	14) The approval holder must notify the **Department** in writing of any non - compliance with conditions as soon as practicable and within no more than 2 business days of becoming aware of the non - compliance.
Original dated 23/12/2015	15) Upon the direction of the **Minister**, the approval holder must ensure that an independent audit of compliance with the

	conditions of approval is conducted and a report submitted to the **Minister**. The independent auditor must be approved by the **Minister** prior to the commencement of the audit. Audit criteria must be agreed to by the **Minister** and the audit report must address the criteria to the satisfaction of the **Minister**.
Original dated 23/12/2015	16) The approval holder may choose to revise a management plan, program or strategy approved by the **Minister** under conditions 1 - 9 without submitting it for approval under section 143A of the EPBC Act, if the taking of the action in accordance with the revised plan, program or strategy would not be likely to have a **new or increased impact**. If the approval holder makes this choice they must: a) notify the **Department** in writing that the approved plan, program or strategy has been revised and provide the **Department** with an electronic copy of the revised plan, program or strategy; b) implement the revised plan, program or strategy from the date that the plan, program or strategy is submitted to the **Department**; and c) for the life of this approval, maintain a record of the reasons the approval holder considers that taking the action in accordance with the revised plan, program or strategy would not be likely to have a **new or increased impact**.
Original dated 23/12/2015	17) The approval holder may revoke their choice under condition 16 at any time by notice to the **Department**. If the approval holder revokes the choice to implement a revised plan, program or strategy, without approval under section 143A of the Act, the plan, program or strategy approved by the **Minister** must be implemented.
Original dated 23/12/2015	18) Condition 16 does not apply if the revisions to the approved plan, program or strategy include changes to environmental offsets provided under the plan, program or strategy in relation to a matter protected by a controlling provision for the action, unless otherwise agreed in writing by the **Minister**. This does not otherwise limit the circumstances in which the taking of the action in accordance with a revised plan, program or strategy would, or would not, be likely to have **new or increased impacts**.
Original dated 23/12/2015	19) If the **Minister** gives a notice to the approval holder that the **Minister** is satisfied that the taking of the action in accordance

	with the revised plan, program or strategy would be likely to have a **new or increased impact**, then: a. Condition 16 does not apply, or ceases to apply, in relation to the revised plan, program or strategy; and b. The approval holder must implement the plan, program or strategy approved by the **Minister**. To avoid any doubt, this condition does not affect any operation of conditions 16, 17 and 18 in the period before the day the notice is given. At the time of giving the notice the **Minister** may also notify that for a specified period of time that condition 16 does not apply for one or more specified plans, programs or strategies required under the approval.
Original dated 23/12/2015	20) Conditions 16, 17, 18 and 19 are not intended to limit the operation of section 143A of the **EPBC Act** which allows the approval holder to submit a revised plan, program or strategy to the **Minister** for approval.
Original dated 23/12/2015	21) If, at any time after five years from the date of this approval, the approval holder has not **substantially commenced the action**, then the approval holder must not **substantially commence the action** without the written agreement of the **Minister**.
Original dated 23/12/2015	22) Unless otherwise agreed to in writing by the **Minister**, the approval holder must publish all management plans, reports or strategies referred to in these conditions of approval on their website. Each management plan, report or strategy must be published on the website within 1 month of being approved by the **Minister** or being submitted under condition 1 – 9.

date of decision	**definitions attached to approval**
Original dated 23/12/2015	**Agreement** - the executed agreement between the approval holder and the relevant landowner, to secure the land for long-term protection.
Original dated 23/12/2015	**Buffer areas** means 20 metre buffers around areas containing remnant or planted ***P. habrophyllus***.

As varied on the date this instrument was signed	**Clear/Clearing/Cleared** means the cutting down, felling, thinning, logging, removing, killing, destroying, poisoning, ringbarking, uprooting or burning of vegetation excluding **Weeds of national significance.**
Original dated 23/12/2015	**Commencement of the action** means the date **construction** is first undertaken, excluding fences and signage, associated with the proposed action.
As varied on the date this instrument was signed	**Conservation advice/s**, **recovery plans and threat abatement plans** means conservation advice/s (including listing advice/s), recovery plans and threat abatement plans for **MNES** approved by the **Minister.**
Original dated 23/12/2015	**Construction** includes any preparatory works required to be undertaken including clearing vegetation, the erection of any onsite temporary structures and the use of heavy duty equipment for the purpose of breaking the ground for buildings or infrastructure including any works for the creation of vegetation buffers.
Original dated 23/12/2015	**Control sites** means sites to be monitored concurrently with a **project site** or **offset** site, to provide evidence of the relative impacts or improvements as a result of the proposed action.
Original dated 23/12/2015	**Department** means the Australian Government Department or any other agency administering the **EPBC Act** from time to time.
As varied on the date this instrument was signed	**Environmental Management Plan Guidelines** means the *Environmental Management Plan Guidelines*, Commonwealth of Australia 2024, as published at the following webpage address: Environment Management Plan Guidelines
Original dated 23/12/2015	**EPBC Act** means the *Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth).*
Original dated 23/12/2015	**EPBC Act Environment Offsets Policy (October 2012)** is the Policy guiding the use of offsets under the Environment Protection and Biodiversity Conservation Act 1999, published by the then Department of Sustainability, Environment, Water, Population and Communities, October 2012.
Original dated 23/12/2015	**Fauna Management Plan** means the document titled *Saunders Havill Group's Spring Mountain Fauna Management Plan 17 July 2015* (FMP).
Original dated 23/12/2015	**Gain in habitat quality** means an improvement in the quality and extent of **koala habitat** and **grey-headed flying-fox foraging habitat**

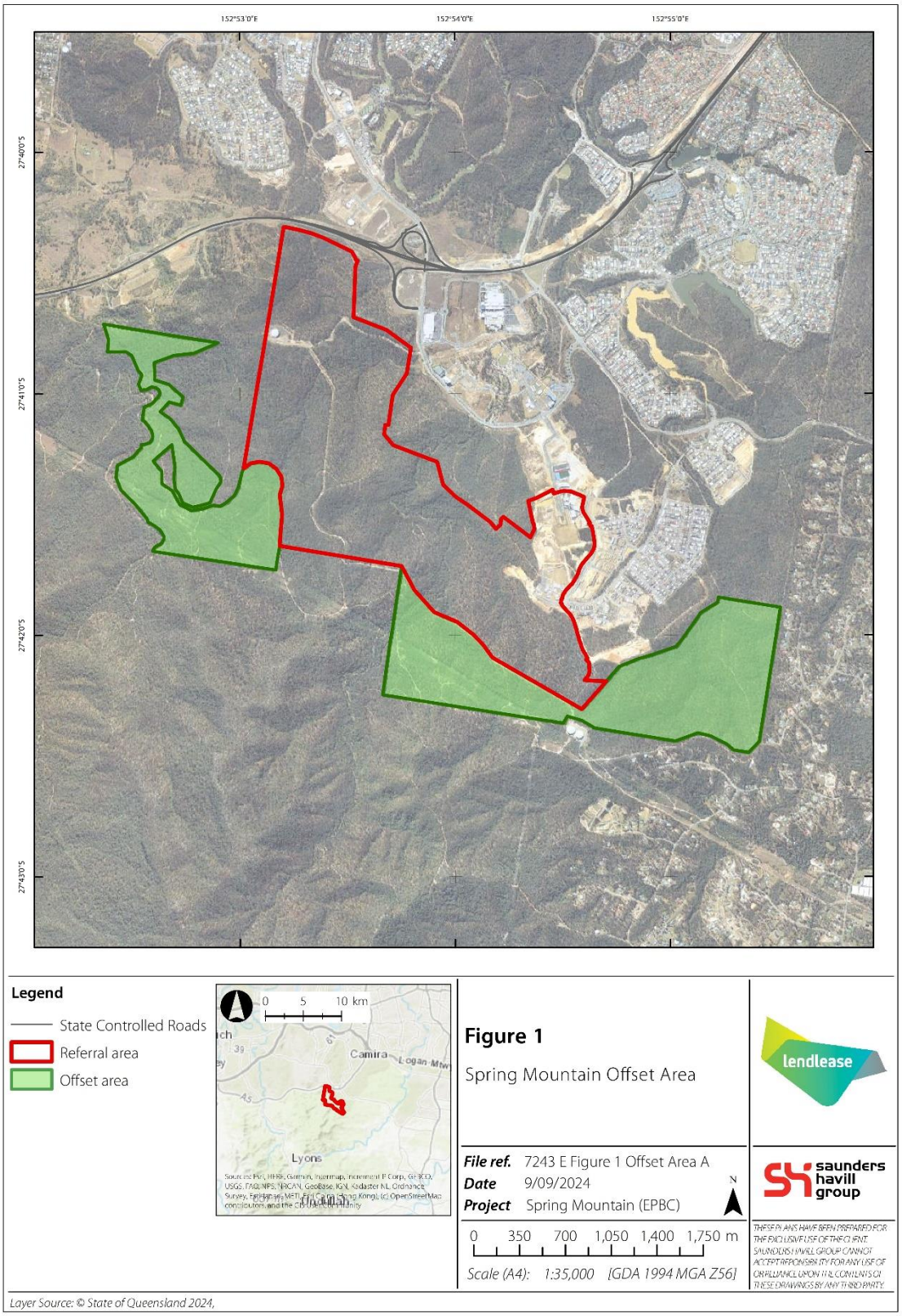
	in comparison to baseline environmental conditions at the **offset** and compared with an unmanaged control site.
Original dated 23/12/2015	**Grey-headed flying-fox** means the native species *Pteropus poliocephalus*, protected under the **EPBC Act**.
Original dated 23/12/2015	**Grey-headed flying-fox foraging habitat** means the known native food trees, including eucalypts (genera *Eucalyptus*, *Corymbia* and *Angophora*), melaleucas and banksias that are the primary food for the species.
Original dated 23/12/2015	**Koala** means the native species *Phascolarctos cinereus* (combined populations of Qld, NSW and the ACT), protected under the **EPBC Act**.
Original dated 23/12/2015	**Koala habitat** means any forest or woodland containing species that are known **koala** food trees or shrubland with emergent food trees. This can include remnant and non – remnant vegetation in natural, agricultural, urban and peri-urban environments and is defined by the vegetation community present and the vegetation structure; **koalas** do not necessarily have to be present.
Original dated 23/12/2015	**Koala exclusion fencing** is fencing constructed and located to prevent access by **koalas** to residences within the **project site**.
Original dated 23/12/2015	**Koala road crossings** are road crossings, including underpasses, which are specifically designed to facilitate the movement of **koalas**.
As varied on the date this instrument was signed	**Mapping guidelines** means *Guide to providing maps and boundary data for EPBC Act projects (2021),* as published at the following webpage address: Maps and boundary data for EPBC Act projects
Original dated 23/12/2015	**Minister** means the Minister administering the EPBC Act and includes a delegate of the Minister.
Original dated 23/12/2015	**MNES** means matters of national environmental significance.
Original dated 23/12/2015	**MNES habitat** means **koala habitat** and **grey-headed flying-fox foraging habitat**.
Original dated 23/12/2015	**New or increased impact** means a new or increased impact on any matter protected by the controlling provisions for the action, when compared to the plan, program or strategy that has been approved by the **Minister**.
As varied on the date this instrument was signed	**Offset** means 293 hectares of **MNES habitat** located where represented in the map at Annex 1 by the three green shaded zones, each enclosed by a green solid line designated 'Offset area (293 ha)'.

Original dated 23/12/2015	**Offset attributes** means a '.xls' file capturing relevant attributes of the **offset** site, including the EPBC reference ID number, the physical address of the **offset** site, coordinates of the boundary points in decimal degrees, the **EPBC Act** protected matters that the **offset** compensates for, any additional **EPBC Act** protected matters that are benefiting from the **offset**, and the size of the **offset** in hectares.
Original dated 23/12/2015	**On-site conservation areas** means areas containing remnant or planted ***P. habrophyllus*** that are managed primarily for conservation.
Original dated 23/12/2015	**Operation** means the date of commencement of functioning as a residential development.
Original dated 23/12/2015	***Plectranthus habrophyllus*** or ***P. habrophyllus*** means the native species protected under the **EPBC Act**.
Original dated 23/12/2015	**Project site** is the area defined as 'referral area' in the map at **Annex 2**.
As varied on the date this instrument was signed	**Secure** or **secured** means to provide enduring conservation protection on the title of land under relevant Queensland legislation, or another enduring protection mechanism agreed to in writing by the **department** to provide protection for the site against development incompatible with conservation.
Original dated 23/12/2015	**Shapefile** means an ESRI Shapefile containing '.shp', '.shx' and '.dbf' files and other files capturing attributes including at least the EPBC reference ID number and EPBC protected matters present at the relevant site. Attributes should also be captured in '.xls' format.
Original dated 23/12/2015	**Signage** is appropriately located signs designed to raise awareness of the presence of **Koalas** within the **project site** or mitigate against impacts to **Koalas**.
Original dated 23/12/2015	**Substantially commence (d) the action** means commencement of clearing the land and construction of infrastructure (i.e. sewerage, power, water, stormwater) associated with the action. This does not include preparatory works.
Original dated 23/12/2015	**Suitably qualified person** means a person with qualifications in environmental science, ecology or biology from a recognised institute and a minimum of 5 years field experience in flora and fauna management, or as agreed in writing by the **Department**.
Original dated 23/12/2015	**Titles Office** means the relevant authority responsible for registering the land title transaction.

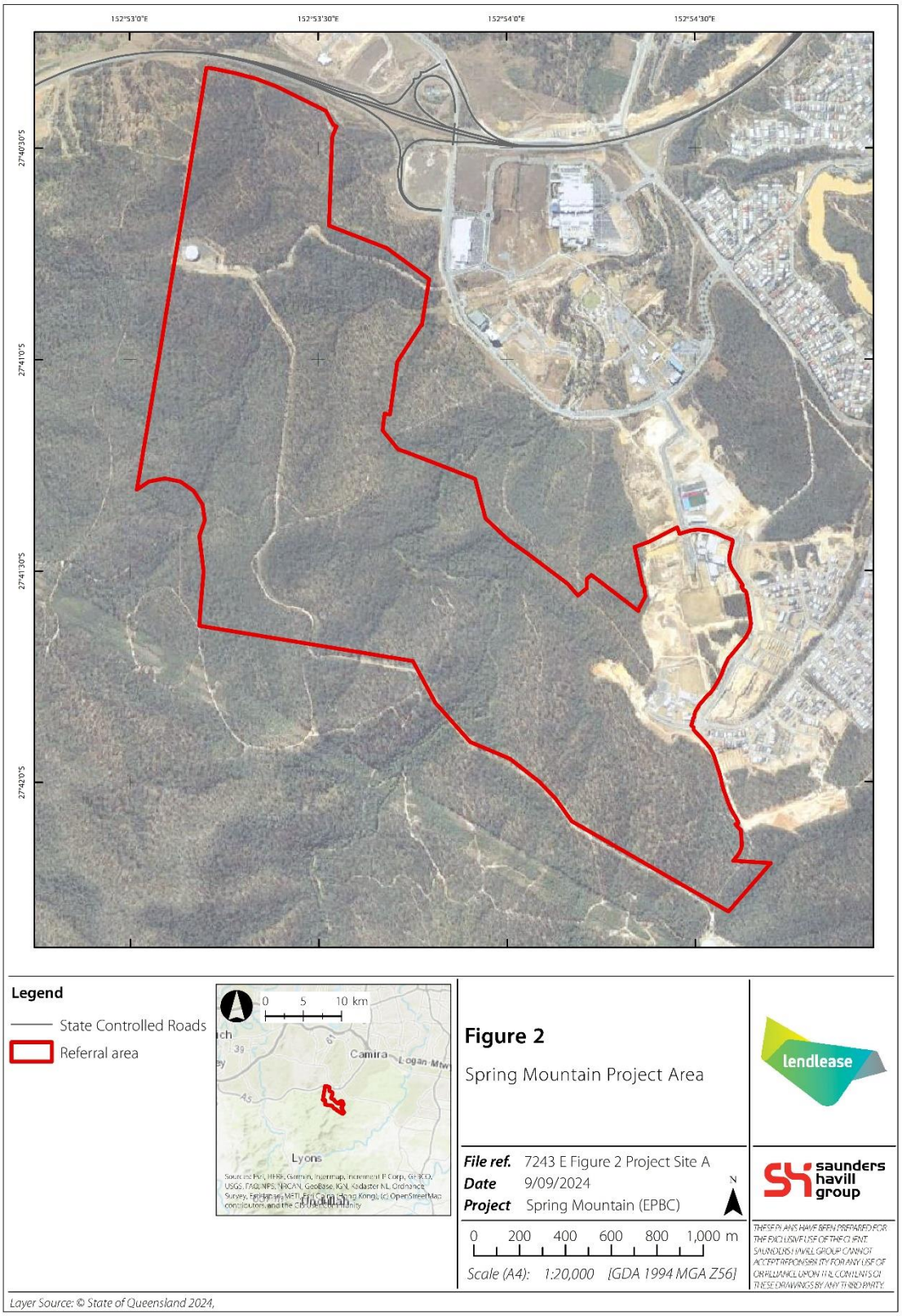
Original dated 23/12/2015	**Vegetation clearing and construction activities** means any activities that destroy, modify or remove vegetation within the **project site**, and those activities required during the construction of infrastructure for the duration of the approval.
As varied on the date this instrument was signed	**Weeds of national significance** means the 32 weed species listed in Appendix B of the *Australian weeds strategy 2017 to 2027*, Australian Commonwealth of Australia 2017, which, at the time of this decision, is published at the following webpage address: Australian Weeds Strategy 2017-2027 (agriculture.gov.au)

date of decision	**annexures**
As varied on the date this instrument was signed	**Annex A – Spring Mountain offset area**
As varied on the date this instrument was signed	**Annex B – Spring Mountain project site**

Annex A - Spring Mountain offset area



Annex B - Spring Mountain project site



Appendix B

Dry Passage Culvert Audit 2024

Dry Passage Culverts Inspection Photos - December 2024

Non-Functional Dry Passage Culverts

Village 17 –London Avenue – Northern End POV




Village 17 – London Avenue – Southern End POV




Village 17 – London Avenue - Glider Poles

Functional Dry Passage Culverts

Grande Avenue (Western) – Southern End POV




Grande Avenue (Western) – Northern End POV

Grande Avenue (Western) – Glider Poles

Grande Avenue (Eastern) – Southern End POV




Grand Avenue (Eastern) – Northern End POV




Grande Avenue (Western) – Glider Poles

Woodline Drive – Northern End POV

Woodline Drive – Southern End POV

Woodland Drive – Glider Poles

Appendix C

Key Design Outcome Fence Requirement Notice

KEY DESIGN OUTCOME

Fence Requirement

Village 14 Stage 1: Lot 3525

The following requirements set out further items you must consider when designing and siting your home on your block. These requirements are additional to the Springfield Rise Home Design Guidelines. You must comply with the Springfield Rise Home Design Guidelines and this Key Design Outcome.

Springfield Rise at Spring Mountain is subject to a Federal Government environmental approval. This approval has certain conditions that must be complied with. As part of the Federal Approval, the specified lots in this key design outcome are located at the interface of a conservation and/or linear space area and suburban residential area, and as such, these lots must incorporate koala exclusion type fencing to avoid koalas entering into your property.

Requirements

1. Front boundary fencing to the front alignment of the specified lots is prohibited. NB. Where on a corner lot, fencing is allowed to the secondary frontage if it meets the requirements as specified in 2.
2. Fencing must be installed between the house and the side boundary. Any fencing and/or gates to house and side boundary fencing is to be constructed of the following:
    - Solid powder-coated metal sheet fencing; or
    - Any other solid, non-climbable fence/gate materials as approved by Lendlease.

Please sign below to indicate that you have read this document, understand the requirements and will comply with this document as required by the conditions of your contract.

Lot: _____

Name: _____	Name: _____
Signature: _____	Signature: _____
Date: _____	Date: _____

KEY DESIGN OUTCOME

Fence Requirement

Village 14 Stage 2: Lots 3526-3531, 3541-3547, 3498-3499

The following requirements set out further items you must consider when designing and siting your home on your block. These requirements are additional to the Springfield Rise Home Design Guidelines. You must comply with the Springfield Rise Home Design Guidelines and this Key Design Outcome.

Springfield Rise at Spring Mountain is subject to a Federal Government environmental approval. This approval has certain conditions that must be complied with. As part of the Federal Approval, the specified lots in this key design outcome are located at the interface of a conservation and/or linear space area and suburban residential area, and as such, these lots must incorporate koala exclusion type fencing to avoid koalas entering into your property.

Requirements

1. Front boundary fencing to the front alignment of the specified lots is prohibited. NB. Where on a corner lot, fencing is allowed to the secondary frontage if it meets the requirements as specified in 2.
2. Fencing must be installed between the house and the side boundary. Any fencing and/or gates to house and side boundary fencing is to be constructed of the following:
    - Solid powder-coated metal sheet fencing; or
    - Any other solid, non-climbable fence/gate materials as approved by Lendlease.

Please sign below to indicate that you have read this document, understand the requirements and will comply with this document as required by the conditions of your contract.

Lot: _____

Name: _____	Name: _____
Signature: _____	Signature: _____
Date: _____	Date: _____

KEY DESIGN OUTCOME

Fence Requirement

Village 14 Stage 3: Lots 3472, 3497

The following requirements set out further items you must consider when designing and siting your home on your block. These requirements are additional to the Springfield Rise Home Design Guidelines. You must comply with the Springfield Rise Home Design Guidelines and this Key Design Outcome.

Springfield Rise at Spring Mountain is subject to a Federal Government environmental approval. This approval has certain conditions that must be complied with. As part of the Federal Approval, the specified lots in this key design outcome are located at the interface of a conservation and/or linear space area and suburban residential area, and as such, these lots must incorporate koala exclusion type fencing to avoid koalas entering into your property.

Requirements

1. Front boundary fencing to the front alignment of the specified lots is prohibited. NB. Where on a corner lot, fencing is allowed to the secondary frontage if it meets the requirements as specified in 2.
2. Fencing must be installed between the house and the side boundary. Any fencing and/or gates to house and side boundary fencing is to be constructed of the following:
    - Solid powder-coated metal sheet fencing; or
    - Any other solid, non-climbable fence/gate materials as approved by Lendlease.

Please sign below to indicate that you have read this document, understand the requirements and will comply with this document as required by the conditions of your contract.

Lot: _____

Name: _____	Name: _____
Signature: _____	Signature: _____
Date: _____	Date: _____

KEY DESIGN OUTCOME

Koala Fence Requirement

Village 14 Stage 4: Lots 3440, 3548-3558

The following requirements set out further items you must consider when designing and siting your home on your block. These requirements are additional to the Springfield Rise Home Design Guidelines. You must comply with the Springfield Rise Home Design Guidelines and this Key Design Outcome.

Springfield Rise at Spring Mountain is subject to a Federal Government environmental approval. This approval has certain conditions that must be complied with. As part of the Federal Approval, the specified lots in this key design outcome are located at the interface of a conservation and/or linear space area and suburban residential area, and as such, these lots must incorporate koala exclusion type fencing to avoid koalas entering into your property.

Requirements

1. Front boundary fencing to the front alignment of the specified lots is prohibited. NB. Where on a corner lot, fencing is allowed to the secondary frontage if it meets the requirements as specified in 2.
2. Fencing must be installed between the house and the side boundary. Any fencing and/or gates to house and side boundary fencing is to be constructed of the following:
    - Solid powder-coated metal sheet fencing; or
    - Any other solid, non-climbable fence/gate materials as approved by Lendlease.

Please sign below to indicate that you have read this document, understand the requirements and will comply with this document as required by the conditions of your contract.

Lot: _____

Name:	_____	Name:	_____
Signature:	_____	Signature:	_____
Date:	_____	Date:	_____

Appendix D

Fauna Spotter Catcher Post-works reporting Example

BEMROSE
WILDLIFE MANAGEMENT SERVICES

2021

Site: Village 13 – District Park/Sports precinct,

Stormwater infrastructure. Springfield.

Date of service: June/July 2021. Dewatering October 2021.

Fauna Management and Consultancy
Onsite Fauna and habitat management compliance.
RDS Group of Companies.
Post Clearance compliance report.

Dean Bemrose.

Bemrose Wildlife Management Services.

June/July 2021. Dewatering October 2021

Village 13 Sports Oval and additional works.

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1.0

SCOPE OF WORKS

Bemrose Wildlife Management Services (Queensland Government Rehabilitation Permit number WA0021286) was engaged by the RDS Group of Companies via the principal client LendLease to conduct the onsite fauna management and habitat management compliance Fauna/Koala Spotter scope of works service at the authorised developmental site in conjunction with the onsite vegetation and habitat management scope of works program; specifically pertaining to the reconfiguration of the site for the purposes of a greater Sports complex within the Village 13 precinct with additional supervision of stormwater works adjacent to the primary site. Primarily the scope of works entailing fauna management within this scope of works site was to conduct fauna and habitat inspections, onsite consultancy and management at all times of vegetation dismantling and the capture and relocation of fauna assets into analogue green zones. Prior to vegetation removal, the site was traversed to witness the TPZ demarcation. All lines of TPZ and EPZ establishment was observed and did offer compliance as per all referenced documentation that was provided, and stipulations enforced.

Traversing the site, grid transect mechanisms were activated in order to cover the land that was required and authorised to be reclaimed for the greater growth of social infrastructure for Springfield Rise at Spring Mountain. Large areas of the primary scope of works site had been previously disturbed and vegetation assets removed prior to the mobilisation of this work Civil works effort. Floristic assets and morphological transitions (flowering) did not occur in significant levels for the ecological assessment of the site to alter. *Acacia* species were the dominant understory regrowth. No fauna (Avian, Mammalian or Reptilian) breeding places of low or high ecological values were identified or disturbed during vegetation removal throughout the entire program. Habitat values that were salvaged were re-installed within the greater EPZ footprint to act as refugia assets. No scheduled species under the EPBC Act or Nature Conservation Act that are listed as CREVNT or CREVCD was observed on any of the days of service. This applied to the greater terrestrial based vegetation removal program within the scope of works site known as V13 Springfield Rise.

The extent of the fauna management program was inclusive of the dewatering supervision and subsequent solid dead stag removal from within the water way that is located within the scope of works footprint. No access or egress points were located within any of the dead stags, reducing the potential for encountering Australian Wood Duck breeding chambers or any alternate Avian species or fauna species in general to be zero potential. Maximum egress points were available via the dewatering phase in order to enable self-relocation of amphibians, semi-aquatic fauna and any sedentary and mobile fauna assets. The water body was consistently checked for fauna assets during this program with no semi -aquatic fauna (Turtles) being located. Twenty-six frog species were captured and relocated during the dewatering phase and general vegetation removal phase from within this specific

area. Amphibian species that were detected and relocated were scheduled under the pertinent regulations and legislative frameworks as Least Concern. Striped Rocket Frog, Dainty Green Tree Frog, Eastern Dwarf Tree Frog and Australian Green Tree Frog. Suitable analogue habitat was sourced as a relocation point. Cane Toads were also observed throughout the site. It is critical to mention no amphibian species scheduled as CREVNT were located or aural when utilising a mechanism – amphibian aural point survey effort under the Nature Conservation (Animals) Regulation 2020. No fauna as listed as CREVCD under the Commonwealth Environment Protection and Biodiversity Act 1999 were observed or audible.

Pseudo-riparian zones established along the shorelines were checked and cleared comprehensively during the program, Macropod and Avian tracks were observed along the entire transect. Bullrushes and endemic and native floristic variances of differing structure and trophic levels were evident and known to provide refugia and habitat values for several fauna species (focus – amphibian and semi-aquatic fauna). A fauna recovery plan was actioned during this phase and relayed to the client (RDS/Lendlease). The Saunders Havill Group site delegate (Jordan Bachmann – Senior Environmental Planner) was informed of the program via verbal communications.

Monitoring of any formation that may have been conducive to burrow breeding places (Rainbow Bee-eater, Striated Pardelote) was checked and cleared, resulting in no breeding places being identified. Special Least Concern Platypus was not a viable species to be inhabiting this scope of works footprint. During this phase and all phases associated with this site, RDS consistently provided information as to the progressive site works that could potentially have ecological impacts for fauna management principles to be observed and adhered to.

Introduced animal anecdotal evidence that was definitively observed. Red Fox and Domestic Cat spoor was identified traversing the riparian areas of the water body. No Red Fox den sites were located. No actual visual observations did occur. Red Fox and feral cats are commonly observed within the greater Springfield district. The scope of works is within the Ipswich City Council shire. Engagement of specialist companies inclusive of The Saunders Havill Group and Cardno enabled detailed information data sets pertinent to this scope of works program. The RDS Group of Companies has delineated the categorical extent demarcation lines for vegetation management. As the existing site has been previously cleared and in correlation to the remaining regrowth floristic variances the impact to the area in reference to the ecological significance was minor. It is essential to note that the rear perimeters (adjacent to the clearance lines) will not be impacted and did provide suitable analogue relocation habitat values.

Two sites formed this greater project extent, with compliance offered for all areas. The first being the general V13 Sports precinct and secondary ancillary site where a stormwater vein system was installed. The stormwater site was considered of lower value in specific

reference to the primary constriction of scheduled and declared weed tree species (*Leucaena)* located throughout the site. No fauna was observed within this area that required to be captured and relocated. No breeding places were observed to be active and no historical breeding places were located. A significant section of this site was slashed grass enabling comprehensive line of sight fauna and habitat pre-clearance daily inspections. The established primarily ephemeral waterway running through this site is not to be impacted significantly. No fauna assemblages of high-level ecological significance was observed. Adjacent vegetation assets outside of the scheduled scope of works program are to remain providing habitat features essential to and correlated with survivorship potentials. No EVNT fauna was observed. No Koala/s were observed nor any active anecdotal evidence.

Wren and Finch species were observed (Suburb Blue Fairy Wren) during this phase of operation, however the assemblages were not impacted and were able to continue normal behaviours. These Avian species do require strategically close habitat values in order to maintain survivorship characteristics. Therefore, the zones demarked within the EPZ/TPZ were critical vegetation assets. Both areas were traversed on foot with a delegate of the RDS Group of Companies. All protocols were adhered to.

An Ecological site desktop review inclusive of an authorised Vegetation Management Plan/Fauna Management Plan was constructed and forwarded to the Client and Bemrose Wildlife. This pertinent document was constructed by the Saunders and Havill Group. The VMP/FMP has detailed the constructed TPZ/EPZ in addition to stipulations cross governed by Bemrose Wildlife in specific mention to the sequential vegetation management action plan. During the fauna and habitat management program the TPZ's (numbered tree asset species) was itemised and followed.

Natural assets within these zones were scheduled Non-Juvenile Koala Habitat Trees. No anecdotal Koala climbing scratches were observed within these zones. No Physical observations of Koala was observed. During vegetation management works a Koala Spotter supervised this site in accordance with State protocols regarding Koala management. No hollow bearing natural assets were observed within the bulk of the vegetation communities.

No additional clearance parameters other than that authorised was actioned within the biodiversity overlay framework adopted for this project. Remnant floristic species within the framework does conform with endemic and native floristic species known to be established within the environ/s; *Acacia, Angophora, Corymbia, Eucalyptus* and *Lophostemon*. Floristic species within the schedule are a strong floristic asset as they are known fauna (Koala habitat and food trees) and are essential for a continued functioning ecological system.

No low or high level ecologically significant species or breeding places were observed inclusive of RAMSAR fauna species during the fauna and habitat management program that

are within the proposed scope of works envelope. No additional fauna species or fauna assemblages were observed. No EVNT fauna was observed nor was there any anecdotal evidence to suggest recent or historical evidence of Koala or Glider activity. If a Koala was to be observed, full and actionable Koala management programs would have been activated. The direct client managing the works (RDS Group of Companies) is hyper-vigilant in maintaining the greater habitat and ecological core values to this project whilst maintaining a strong professional standard with the principal client (Lendlease). Lendlease has engaged several Environmental, professional and experienced companies to ascertain the levels of ecological core values, environmental impacts and resolution action plans, planning regimes and implementation plans and desktop and onsite field reviews. No breeding places of low or high risk was observed within the floristic communities. EWP activation was not utilised on this site. Strict adherence to fauna management and habitat controls were enforced.

Potential ecological enhancements installed into the greater area is a strong function and mechanism that could be utilised to maintain a level of species richness for endemic fauna species within this regional ecosystem post works. Installations of habitat boxes are based on a ratio of one to three naturally occurring habitat hollows (potential organic breeding places - reclaimed) if located within the scope of works site or adjacent areas could be advantageous. It is essential to note hollow bearing natural assets were identified in a low level. *Acacia* and *Eucalyptus* species are known forage for Glider species. Phyto morphologically the floristic divergence and age of the vegetation inclusive that are scheduled under the developmental approval phase did not have significant observable hollow bearing natural assets. Habitat boxes would be advantageous within the Ecological Protection Zones and any alternate offset green zone for the re-establishment of fauna abundance within the greater area providing natural ecosystem enrichment, it could also act as a significant interpretation and extension tool for the greater residential communities. Historically, the areas regional ecosystem values were high in Open Eucalypt Forest systems inclusive of strong populations of Avian, Mammalian and Reptilian species.

The area of proposed selective vegetation clearance was traversed via a senior Koala Spotter/Fauna consultant to categorically observe the clearance lines that were installed under the strict governance of the State Governmental overlays in correlation with the strict D.E.S and Developmental Approval conditions. Under the program's approval 'Development application that was properly made, clearing was allowable under the provisions offered by the Nature Conservation (Koala) Conservation Plan 2017. Assessable information and direction of the program activation is adhered to under Ipswich City Council.

The program under the ICC directives did not stipulate the inclusion of a fauna load reduction trapping program assessment for this phase. Open egress pathways and the assessment of the area did not warrant this survey effort to be activated.

The property is within Koala District A, therefore the sequential clearance conditions prescribed in the Koala Conservation Plan are pertinent to this scope of works. The program has been scrutinised as the general area of proposed clearance is limited to the scope of works site, which has been previously cleared. It is categorised as within areas of the bioregion that is essential and within a core Koala area mapping zone. Environs within the greater area at the time of inspection and scheduled works is consistent with analogue habitat features within this R.E, inclusive of EVNT (Koala inclusive) fauna. The loss of selective habitat within the scope of works site is not considered highly disruptive to endemic fauna at this time. This is a formed opinion based on the floristic variations on site. No significant disturbances to fauna in specific relation to the potential effects of increase to the aggregated distribution of fauna into adjacent vegetated areas correlated with a potential in advancing the possibilities of aggregation of risk and an aggregative response of predator activity is anticipated. The site was confirmed to be a heavily fragmented site with large open areas and limited NJKHT's.

During the transect walkthrough phases of the onsite works schedule, no high-level fauna of listed significance was observed and no ecological values of significance that would suspend the site clearance works in specific regard to the fauna/Koala spotter and consultancy perspective. Comprehensive check and clear grid transect lines did occur on the days of service, activating the fulfilment of the fauna and habitat clearance compliance at the scope of works site known as V13 Springfield Sports precinct. No Koala's were located at any stage. No clearance other than that certified did occur during the onsite works program. Toolbox pre-clearance talks did occur to inform those onsite pertinent to the program of the program implementation.

No levels of floristic or structural variations or levels of high ecological significance was observed. Potential Koala home and food trees were existent on the property in general, however no indicators of recent active utilisation of the native and endemic floristic varieties within the proposed clearance area was observed.

All levels of due diligence were afforded by the site owner. Inspections of the site involved observations of habitat trees and the terrestrial stratum levels. No habitat trees contained hollow bearing natural assets.

Vegetation will be lowered in the direction stipulated by the fauna consultant and design plan in order to afford maximum safe egress pathways for fauna that is deemed not be required to be captured.

2.0

PROJECT DESCRIPTION

The site is not a remnant vegetation site within the relevant Regional Ecosystem values. No determinations of significance were evaluated by the listed companies. Several declared invasive weed species were located throughout the project. No significant ecological factors have been flagged.

Floristic variances within the scope of works were inclusive of *Eucalyptus* and *Corymbia* non-juvenile Koala habitat trees and *Acacia* species commonly observed within this regional ecosystem framework in addition to commonly planted and observed landscape/garden varieties and assemblages. Weed intrusions were observed at varying locations within the project. *Lantana* and Singapore Daisy was observed throughout the site.

Dewatering of dams (water bodies) onsite were inspected and recovery plans have been actioned to assess the semi-aquatic and aquatic fauna assets. Site observations during the inspection level did not indicate fauna assemblages. Exotic and declared invasive Red-eared Slider Turtles (if observed and captured) in accordance with Legislative conditions be euthanised via Veterinarian processes. No Red-eared Sliders were observed. Appropriate PPE and collection equipment will be utilised during dewatering phases.

The principal contractor on behalf Lendlease has forwarded the pertinent information to formulate a concise action and implementation fauna and habitat management plan for this site. The level of vegetation removal is confined to the actual property and has been assessed. This action was for the delineation and categorical transparency of vegetation to be removed and is acknowledged by Bemrose Wildlife Management Services and is in accordance with the specified due diligence compliance framework stipulated by the governing authority.

A line of sight was afforded generally, with some areas with a greater density then others. Observations of herpeto-fauna, terrestrial Avian species and terrestrial mammals was the focus of the fauna and habitat management program. A low to medium load of vegetative felled leaf and debris, which is natural for this class of Regional Ecosystem was observed. Minor terrestrial based refugia is present on the site and was checked and searched accordingly when the works are authorised. Minor shrubbery – or low-level vegetation is present on site, dominated by *Acacia* regrowth and *Melaleuca*.

All stratum levels of flora within the site was managed according to the regulations. Control mechanisms for the site in determining the vegetation clearance zones were activated under the appropriate D.A. The onsite management inspection and onsite protocols that were activated was to conduct a walk through to categorically determine the vegetation assets that are approved to be managed.

All vegetation removal works were monitored and supervised by a suitably qualified and experienced Koala Spotter – Bemrose Wildlife Management Services. All actions and instructions will be adhered to corresponding to the stipulations.

Reclaimed and salvageable habitat hollows extracted from arboreal assets were re-incorporated onto the terrestrial base. Observed terrestrial based fauna and habitat assets will be translocated into the EPZ's.

As with sites that do have NJKHT's within the scope correlated to the Koala habitat mapping zones, Koala's are possible, however no Koala was observed during the inspection.

3.0

FAUNA AND HABITAT PROJECT DESCRIPTION

The immediate site offered viability for Koala inhabitation (Greater Springfield area) in correlation with the alternate areas especially with the proximity to strong analogue habitat. The greater Shire and the greater region are renown to have robust and remnant Koala populations extending to historical records decades old. There is a divergence of Koala food and home trees within the greater site.

The habitat that was present on the site does potentially conform with accessible Koala habitat or connectivity corridors. As a precautionary principle, relevant and con-current observational management techniques actioned were 360°Basal to Canopy (inclusive of Canopy over-lapping) the remaining grids predominately contained narrow gauge individual NJKHTs. Koala focused searches, with the aim of locating Koala, Koala scat and or evidence of climbing scratches did occur during the scheduled clearance. Grid and randomized transect search techniques were additionally utilized inclusive of Dique et al Koala search methodologies and S.P.O.T mechanisms. Non-Juvenile Koala Habitat trees on this site have been assessed and approved for removal via State and Shire regulations and compliance systems. As no scheduled or listed species of higher significance were observed correspondingly no specific FMP or SMP documents were constructed.

During the phase of site inspection to the dates of vegetation clearance works no transitional variance of vegetation structure and floristic variations is anticipated to be observed. No terrestrial based Masked-Lapwing breeding sites (Avian species) was identified during the fauna management phase to have terrestrial based nests or chicks. No alternate ground nesting Avian species – Quail – were observed.

No at-risk Special Least concern Platypus was affected or observed in any area. No Echidna or Pardalote or migratory Avian species were observed. Earthen embankments are not expected to be significantly disturbed during this phase, therefore the impact to Striated Pardelote, Australasian Bee eaters should be mute. No Arboreal termitaria was observed.

Therefore, field experience indicates the probability of encountering arboreal mammals or herpeto-fauna that commonly utilise or excavate arboreal termitaria should remain at a low-probability level. Lace Monitor are known to utilise termitaria assets to lay the clutch of eggs, with the resident termites cementing the access/egress points. The juvenile Lace Monitors then self-extricate. It is essential to note that the proposed schedule is to take effect during Winter, when theoretically breeding activity phases should not be active.

No indicators of potential terrestrial based Mammalian fauna, for example Bandicoot species was observed – suitable grasses or habitat was observed, however. No fauna derived habitat burrows were identified, or Bandicoot derived grass nests observed. A static watch and observe technique was activated to determine activity or active presence during the clearance phase. No breeding chambers activity was recorded. No alternate breeding sites were identified. Arboreal mammalian indictors pertaining to Glider and Possum species were not identified within the immediate scheduled vegetation clearance zone. No herpeto-fauna was identified – inclusive of sedentary or highly transient species was observed at any location during the transects. Action and Implementation plans are in effect to capture and relocate fauna. The proposed clearance methodology does allow maximum line of sight to successfully manage the objective. No Antechinus hides or alternate endemic or native small mammal hides, or nests were observed. As the seasonal variation is extending into the Winter months the level of fauna activity observed should correspond to low levels.

Observations of Common Garden skinks were observed, relocating into habitat garden areas not scheduled for vegetation clearance, therefore considered safe. No commonly encountered S.E. Qld Bearded Dragon, S.E Qld Water Dragon or S.E Qld Blue-tongue species were observed. Staff managing this site (Bemrose Wildlife and Skerman Civil) are hyper-vigilant and pro-fauna preservation. Therefore, the commitment in preserving habitat and fauna is very high.

It was determined that the bulk of the vegetation is at an age whereby phyto-morphologically, the potential for suitable hollow bearing natural assets was correspondingly a low volume – Nil recovered. This assumption was proven during the pre-clearance program. Inhabitation by Glider, Phascogale, Possum, Micro-bat, Herpeto-fauna and or Psittaciformes (Parrot species) is possible, however not probable.

4.0

LEGISLATIVE FRAMEWORK

This report acknowledges the principles and values regarding the Koala-sensitive Design Guideline. A guide to Koala-sensitive design measures for planning and development activities prepared by: Koala Conservation Unit, Department of Environment and Heritage Protection © State of Queensland (Department of Environment and Heritage Protection) 2012. All Koala based guidelines and Policy frameworks were adhered to, inclusive of counts pertaining to Non-Juvenile Koala Habitat Trees that were required to be removed.

Acknowledgement is accepted, pertaining to the Queensland Animal Care and Protection Act 2001 which provides legislative protection to animals generally, and the relevant Legislature: Queensland Nature Conservation Act 1992, the Queensland Vegetation Management Act 1999, and the Federal Environmental Protection and Biodiversity Conservation Act 1999, inclusive of the legislature piece: Nature Conservation (Koala) Conservation Plan 2017 were referred to.

5.0

KOALA SPOTTER SCOPE OF WORKS

A Non-Juvenile Koala Habitat Tree is an individual tree that is greater than 300mm diameter at 1.3 meters above ground level and 4 meters above ground level. Any NJKHT over the height of 4 meters will be checked and cleared utilising high-powered binoculars. This was activated regardless of if the tree is singular or bifurcated. Minor continuous over-lapping potential NJKHT canopy cover was located within a grid transect.

Koala/s as a precautionary principle potentially inhabit this site as potential habitat trees and home trees are potentially existent. Koala Doe's and Bucks during the month of the scope of works vegetation clearance if observed may have semi-independent joeys on their backs, therefore observations and high-level actions are a potential for this site. Winter is not a known behavioural breeding activity period for Koala within South-east Queensland, however due to the heightened risk and highly mobile activities of Koala and the welfare of the Doe and joey and mobilised Koala searching for mates, extended 'no entry Koala zones may be activated. Protocol check and clear implementation was enforced to ascertain the observable condition of the animal. Should any trace of Chlamydia or Koala retro virus be observed immediate Koala management capture and Veterinarian support be activated. The positive outcome for this phase is the high-level ecological systems adjacent to the scope of works site with a greater number and values of suitable NJKHT's that can provide egress potentials.

If a Koala is demonstrating facets of myopathy in general, actions to re-mobilise the plant machinery to an area that is a suitable distance away from the Koala will also be activated if the site area allows this protocol. Contact points for Koala rescue and Veterinarian support has been sourced if required.

It is a fundamental role of the Koala Spotter to maintain and traverse linear transects where vegetation removal is scheduled and to stay onsite until vegetation checks had been completed by an accredited Fauna/Koala Spotter. These actions are to determine and enact fauna mitigation strategies to maximise fauna survivorship whilst minimizing potential myopathy concerns. Habitat retention and assessment is a component of this program in order to maximise potential fauna habitat.

The role of the Fauna/Koala manager (Spotter) for this site, requires onsite management, controlled under the general VMP for the site for observable fauna, anecdotal evidence, analogue habitat assessment and correlated consultancy and direction about the potential on-site fauna that may be encountered and the subsequent fauna management. Fauna management actions are comprehensively scheduled in direct correlation to fauna species observed and habitat anecdotal evidence acquired.

No Koala observations in observance of the regulatory legal protection offered by the Queensland government and Commonwealth government were recorded within this scope of works site. No anecdotal evidence to indicate present activity was observed on any vegetation, specifically on any NJKHT. Techniques utilised to investigate Koala presence entailed a 360° basal to upper canopy of all NJKHT's and scat search around the basal regions and drip line of the canopies. Over-hanging canopy searches did occur to ensure no Koala activity. Continual Koala searches did occur during vegetation transect clearance.

No significant native trees, specifically pertaining to Non-juvenile Koala Habitat trees (*Angophora, Corymbia, Eucalyptus, Melaleuca*) were in abundant flower or seed.

This report pertains to the activities that were and are scheduled to be conducted lawfully at the scope of works site. Fauna management is required for compliance and to supervise vegetation removal (not delineate where clearance lines have been established prior to works commencing) as approved within the Developmental Approval phase issued by the governing Council and approved by the QPWS and DES. A Koala Spotter /Fauna Consultant with over ten years of experience will be monitoring this site.

Comprehensive check and clear protocols were enacted to ensure all potential hollows are lowered safely and with maximum control mechanisms activated. No fauna was observed within any structure at the time of inspection. No EVNT colonial breeders, inclusive of micro-bat, arboreal mammal (Glider species), nor any Avian species was observed within any NJKHT's.

6.0

GENERAL SITE OBSERVATIONS – FAUNA AND HABITAT

The site offered a low to medium level of R.E (Regional Ecosystem) vegetation communities observed throughout S.E.Qld. Vegetation species are evident and were checked and cleared for fauna inclusive of terrestrial Herpeto-fauna and small mammal species. The structural variation of the habitat on site varies in specific reference to the and *Acacia* and *Eucalypt* species. The *Acacia* and garden floristic varieties onsite are established and mature, were in flower. *Acacia* when in flower provide an energy source for endemic and native fauna throughout this ecosystem.

Least concern Avian species were observed egressing from the transects and transitioning into alternate habitat values.

Ephemeral water bodies can pool and run-off attributing to potential assemblages of small to medium amphibians within the classed EVNT ranges and scheduled classes of abundance. Aspect and design of the program should negate any pooling of water. No acid frogs, Wallum frogs or Tusked frog species were observed via visual searches nor was audible resonance heard.

Arboreal termitaria was not observed to be excavated. Therefore, no Kingfisher species were observed in breeding chambers. Extensive and comprehensive pre-clearance monitoring of any potential breeding chamber site did occur. No alternate inhabitation by Parrot species, Kingfisher species, or Lace Monitor was observed. Any tree that was lowered with a termitaria construction was checked and cleared as a precaution. No medium to large Herpeto-fauna or egg chambers was observed.

No migratory Avian species or sedentary Avian species was observed to be breeding or utilising naturally occurring assets as breeding chambers or roosts. Inclusive of RAMSAR Avian species. No earthen banks were scheduled to be affected or disturbed significantly during this phase. No earthen banks were active. Works were authorised to proceed, with a strict purpose to minimise disturbance impacts to any zone where active Straited Pardelote or Australasian Rainbow Bee-eater zones are possible during vegetation management and supervision. It is recorded that no earthen banks are located onsite. No Special Least Concern Low or High-risk Species Management Plan/s were activated.

Maximum precautionary human safety was observed on-site as the potential for observing potentially venomous snakes is evident. Specifically, Eastern Brown, Red-Bellied Black, Yellow-faced Whip and was possible. During the broader program inclusive of the inspection, any potential ground hollow and sedge/tussock grass clumping was checked and cleared. Extreme caution and precautionary fauna management principles were also

enacted in order to maximise human and animal safety. All areas were subsequently probed utilizing specialized PPE.

The area did not appear at the time of fauna management to contain a significant active biodiversity level to be critically significant or halt the minor works from progressing.

7.0

CONCLUSIONS

Information pertaining to the site and the pro-active influence of the site owners, governing authorities has activated for the greater conservation and protection of fauna that inhabits the general scope of works footprint. Entailed within the information was the commitment to habitat preservation and protection where feasible.

Working positive communication relationships have been activated on this site.

Strong observational techniques were activated to ensure the health and behavioural parameters of fauna management will be adhered to when felling was scheduled.

The aim of the on-site fauna management is to minimize any event that would potentially injure or displace mammals, herpeto-fauna or Avian species. For this to be achieved a pre-clearance toolbox talk was activated for all those involved with this process to be fully aware of the protocols and actions that were required to be achieved for a successful program to occur. Actions such as a high level of positive communication is necessary.

Concise actions were afforded on this site due to the interaction of all those on site and the methodology enacted; subsequently the vegetation clearance schedule was managed by an experienced, fauna value conscience operator.

All on-site management guidelines and protocols have been enacted to ensure minimal myopathy events, whilst ensuring the highest level of survivorship potential for all fauna potentially inhabiting the site on the days of the scope of works and for the immediate habitat values of the site. It should be noted that all care and due diligence regarding the habitat values and immediate fauna ethical values has been observed by all staff on ground allowing a highly vigilant and successful fauna management program.

At all times of the vegetation clearance program a strong level of positive communication will be maintained by the Contractor, onsite Fauna Manager and the Vegetation felling crews in order to maintain the integrity of the site and potential habitat retention possibilities.

Slow and controlled tree felling techniques and specialist management are authorized to be utilised by the vegetation clearance contractor under the direction of the RDS Group of Companies and Bemrose Wildlife Management Services to successfully lower potential habitat trees on site. All protocols have been adhered to by the site owners and RDS in order to satisfy the approval requirements. RDS have engaged a registered Rehabilitation permit holder to complete this program and to provide certification. The management and instructions given by Bemrose Wildlife Management Services and RDS will be adhered to during the fauna management program along the designated and approved sections of the scope of works site for a successful fauna management program.

Kind regards,

Dean Bemrose.

Diplomawildernessreservesandwildlifemanagement.

Rehabilitation Permit. WA0021286. EHP. DES. QPWS.

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DISCLAIMER

This report has been prepared by Dean Bemrose Trading as Bemrose Wildlife Management Services in accordance with the terms and conditions as detailed in the quotation and agreed to by both parties upon offer and acceptance of an order for services as per that quotation.

The survey results are accurate at the time that the onsite compliance scope of works was completed. However, no responsibility or liability is taken for any actions or works occurring at the site post the completion of the on-site compliance survey or fauna consultancy scope of works. The information as detailed in the report is for the sole use of the contracted parties and not for reproduction, reliance or supply to any other party without express consent of Bemrose Wildlife Management Services.

To the extent that it can be shown that the survey results and report was not accurate at the time of the on-site survey, this company's liability shall be strictly restricted to re-performance of the on-site survey and supply of an update report. Should you have any queries regarding this report or require additional copies please contact Dean Bemrose at Bemrose Wildlife Management Services.

Categorical surveyed demarcation vegetation clearance perimeter fauna friendly fencing was witnessed offering onsite fauna management compliance.

Low numbers of NJKHT's were scheduled for removal during this phase. Open egress areas are evident throughout the site.

TPZ were established.

Water bodies were comprehensively checked and cleared.

Aquatic vegetation assets will be checked and cleared.

Stags within the water way did not contain hollow bearing natural assets.

Appendix E

White Rock – Spring Mountain Fire Management Strategic Plan and Risk Dashboard

Attachment 8: White Rock – Spring Mountain Fire Management Strategic Plan and Risk Dashboard

Ipswich Fire Management Strategic Plan 2017

Version Number: 1 | Created by: GHD | Version Date: APRIL 2017

Background

This risk dashboard identifies and ranks factors that might be influencing bushfire risk within and surrounding Ipswich City Council's Natural Area Estate (NAE). This map based plan is complimented by a Fire Management Strategic Plan (2017) report which provides greater detail of the range of factors which may contribute to risk at ICC NAE, in addition to the site specific factors identified here.

Protection Zones automatically apply around all *Fire Vulnerable Assets* located on ICC lands. A minimum of ten metres radius for unoccupied assets and twenty metres for occupied assets, or to the existing mown extent for picnic/facility areas.

Approach

Each ICC NAE has been considered using nine bushfire risk factors (Listed A to I in the risk matrix opposite) to generate a relative priority score between reserves.

	Bushfire Vulnerability Factor	Column
	Ecological Asset Bushfire Sensitivity Risk	A
	Ecological Health Risk	B
	Fire Severity Risk	C
	Bushfire Attack Level Risk	D
	Access Risk	E
	Housing Stock Risk	F
	Fire Vulnerable and Smoke Sensitive Asset Risk	G
	Landscape Vegetation Cover Risk	H
	Fire Suppression Risk	I

Risk Summary

A nature refuge lies south west of White Rock – Spring Mountain Reserve and transmission line runs south east through the reserve. Paperbark Flats Picnic Area is located in the north west corner near the Centenary Highway that runs north of the 2992 hectare reserve. The day use and mountain bike areas are in the northern section of the reserve. A number of *Very High* risk blocks (vulnerable to radiant heat, ember attack and smoke impact from bushfires) are adjacent to the new Springfield Lakes estate.

The reserve is mainly surrounded by unmanaged, *Very High* and *High* Potential Bushfire Intensity vegetation. Fires may start in the reserve or run into it from the surrounding area. The reserve is capable of supporting a large scale fire run.

The main factors driving bushfire risk at White Rock – Spring Mountain Reserve are:
- **Fire Severity and Surrounding Landscape Vegetation Cover risks** (most blocks are rated as *High* or *Very High* fire severity and the surrounding area is unmanaged forest);
- **Fire vulnerable and Smoke Sensitive Asset risk** (the Picnic and day-use areas, transmission line and highway all contribute to this risk); and
- **Fire Suppression Success risk** (steep topography).

The following risk table contain mitigation actions. The acronyms used are explained in the two tables below.

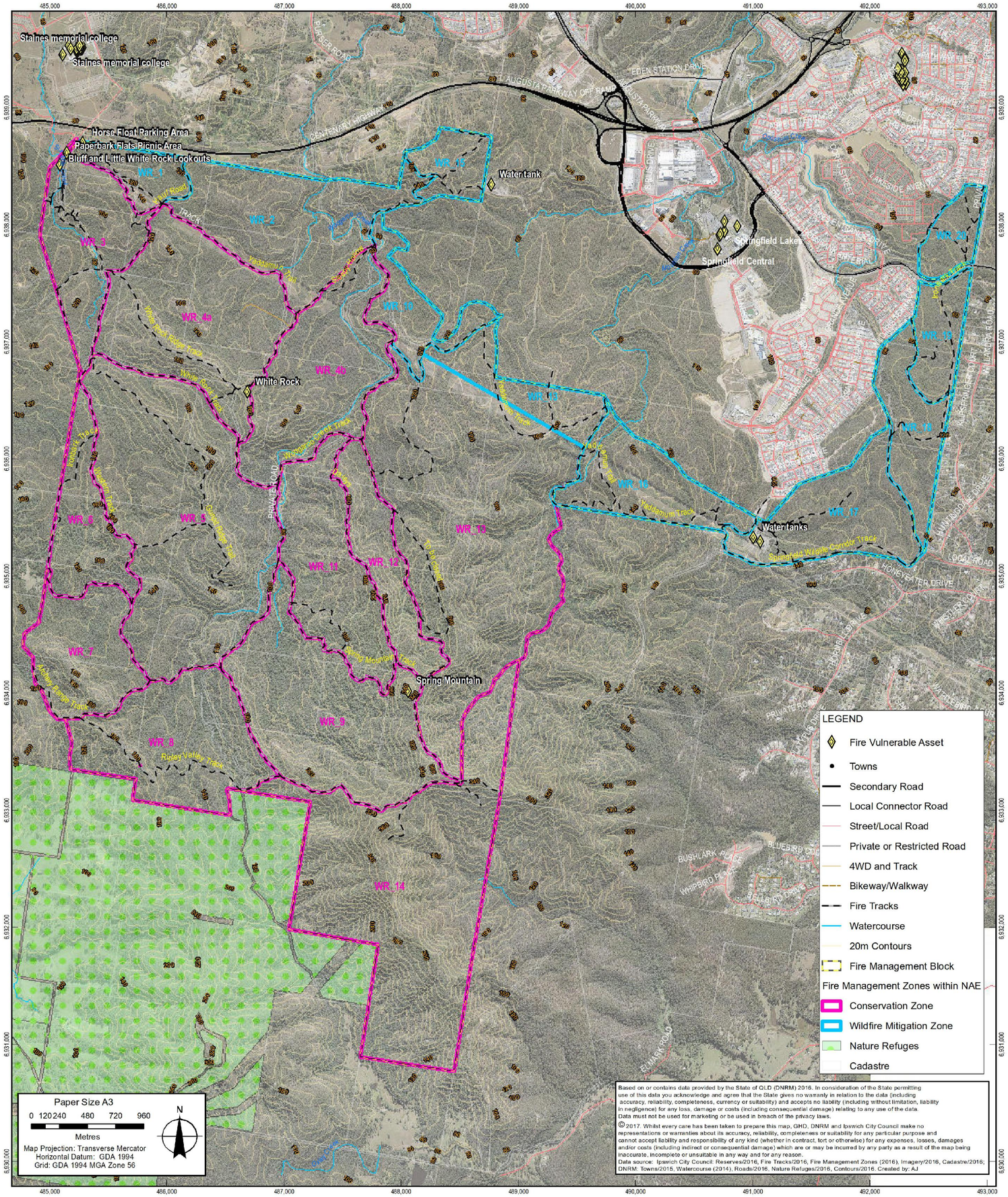
ICC MITIGATION

PZ	Maintain Protection Zone to required standard
FT	Maintain fire trails in accessible and stable condition, as per the NAE Standard (Service Tracks and Firebreaks)
PR	Maintain public roads in accessible and stable condition
PB	Maintain routine prescribed burning of blocks to maintain lower fuel levels, reduce fire intensity and rate of spread. The desired OFH should correspond to the block zoning class.
CR	Close reserve on total fire ban days and when fires are burning in the surrounding landscape
VR	Vegetation removal/ modification through activities such as slashing, manual removal, tree pruning (no fire)
EF	Exclude fire from vegetation communities which are fire-sensitive
CF	Exclude fire from the reserve to avoid coal fires starting

SHARED RESPONSIBILITY

RA	Residences adjoining the reserve may be vulnerable to bushfire impacts (direct flame, radiant heat and ember attack) due to the poor separation between residences and the adjoining hazard. Residents take action to reduce their vulnerability by actively modifying vegetation and /or maintaining structures to improve bushfire resistance
BSP	Prepare and implement QFES Bushfire Survival Plan
PZ	Prepare and maintain structures and protection zones around buildings
CE	QFES Community education
PO	Plantings Owner: Maintain internal slash break between plantings and reserve border, investigate possibility of thinning plantings around mature eucalypts.
TL	Transmission Line Owner: Maintain easement in accordance with industry standards
FO	Facilities owners to maintain protection zone around asset

Bushfire Asset Zone	Hectares	(A) Ecological Asset Bushfire Sensitivity Risk	(B) Ecological Health Risk	(C) Fire Severity Risk	(D) Bushfire Attack Level Risk	(E) Access Risk	(F) Housing Stock Risk	(G) Fire Vulnerable and Smoke Sensitive Asset Risk	(H) Surrounding Landscape Vegetation Cover Risk	(I) Fire Suppression Success Risk	Prioritisation Score	Summary notes	*Unmitigated risk*	ICC Mitigation Strategy	*Residual Risk after ICC actions*	Property owner and Fire Emergency Service Actions	*Residual Risk after shared responsibility actions*
WR_1	32.76	*Low*	*Moderate*	*Moderate*	*Low*	*Low*	*N/A*	*Very High*	*High*	*Moderate*	16	This block contains a picnic area. It is separated from Block 2 and 3 by fire trails. The reserve will support a fire run which may enter adjoining blocks within the reserve. Smoke may impact Centenary Highway and Transmission Line.	*High [intolerable]*	PZ, FT, PR, PB, CR, VR, EF	*Medium [tolerable]*	BSP, PZ, CE, TL	*Low [acceptable]*
WR_2	143.32	*Low*	*High*	*Moderate*	*N/A*	*Low*	*N/A*	*Very High*	*Very High*	*Moderate*	17	This block is utilised as a mountain bike area. The reserve will support a fire run which may enter adjoining blocks within the reserve. Smoke may impact Centenary Highway and Transmission Line.	*High [intolerable]*	FT, PR, PB, CR, VR, EF	*Medium [tolerable]*	BSP, PZ, CE, TL	*Low [acceptable]*
WR_3	95.51	*Low*	*High*	*Moderate*	*N/A*	*Moderate*	*N/A*	*Very High*	*Very High*	*Moderate*	18	This block a picnic area and is heavily used for day hiking. The reserve will support a fire run which may enter adjoining blocks within the reserve. Smoke may impact Centenary Highway and Transmission Line.	*High [intolerable]*	PZ, FT, PR, PB, CR, VR, EF	*Medium [tolerable]*	BSP, PZ, CE, TL	*Low [acceptable]*
WR_4a	183.96	*Low*	*High*	*High*	*N/A*	*High*	*N/A*	*Very High*	*Very High*	*High*	21	This block is used for day hiking. The reserve will support a fire run which may enter adjoining blocks within the reserve. Smoke may impact the Transmission Line.	*High [intolerable]*	FT, PB, CR, EF	*Medium [tolerable]*	BSP, PZ, CE, TL	*Low [acceptable]*
WR_4b	143.81	*Low*	*High*	*High*	*N/A*	*High*	*N/A*	*Very High*	*Very High*	*High*	21	This block is used for day hiking. The reserve will support a fire run which may enter adjoining blocks within the reserve. Smoke may impact the Transmission Line.	*High [intolerable]*	FT, PB, CR, EF	*Medium [tolerable]*	CE, TL	*Low [acceptable]*
WR_5	301.31	*Low*	*High*	*High*	*N/A*	*N/A*	*N/A*	*Low*	*Very High*	*Very High*	16	Fire trails bound the block with additional trails through the block. The reserve will support a fire run which may enter adjoining blocks within the reserve.	*Medium [tolerable]*	FT, PB, CR, EF	*Low [acceptable]*	CE	*Low [acceptable]*
WR_6	69.59	*Low*	*High*	*High*	*N/A*	*N/A*	*N/A*	*Low*	*Very High*	*Very High*	16	A rural residental block lies west of WR_6. Fire trails almost bound the block. The reserve will support a fire run, including external fire runs, which may move through adjoining blocks.	*Medium [tolerable]*	FT, PB, CR, EF	*Low [acceptable]*	BSP, PZ, CE	*Low [acceptable]*



Bushfire Asset Zone	Hectares	(A) Ecological Asset Bushfire Sensitivity Risk	(B) Ecological Health Risk	(C) Fire Severity Risk	(D) Bushfire Attack Level Risk	(E) Access Risk	(F) Housing Stock Risk	(G) Fire Vulnerable and Smoke Sensitive Asset Risk	(H) Surrounding Landscape Vegetation Cover Risk	(I) Fire Suppression Success Risk	Prioritisation Score	Summary notes	*Unmitigated risk*	ICC Mitigation Strategy	*Residual Risk after ICC actions*	Property owner and Fire Emergency Service Actions	*Residual Risk after shared responsibility actions*
WR_7	85.97	*Low*	*High*	*High*	*N/A*	*N/A*	*N/A*	*Low*	*Very High*	*Very High*	16	A rural residental block lies west of WR_7. The block is almost bounded by fire trails. The reserve will support a fire run which may enter adjoining blocks within the reserve.	*Medium [tolerable]*	FT, PB, CR, EF	*Medium [tolerable]*	BSP, PZ, CE	*Low [acceptable]*
WR_8	140.14	*Low*	*High*	*High*	*N/A*	*High*	*N/A*	*Low*	*Very High*	*Very High*	19	A rural residental block lies west of WR_8. The block is almost bounded by fire trails. A nature refuge adjoins the southern boundary of the block. The reserve will support a fire run which may enter adjoining blocks within the reserve.	*Medium [tolerable]*	FT, PB, CR, EF	*Medium [tolerable]*	BSP, PZ, CE	*Low [acceptable]*
WR_9	193.35	*Low*	*High*	*Very High*	*N/A*	*N/A*	*N/A*	*Low*	*Very High*	*Very High*	17	Fire trails bound the block. The reserve will support a fire run which may enter adjoining blocks within the reserve.	*Medium [tolerable]*	FT, PB, CR, EF	*Low [acceptable]*	CE	*Low [acceptable]*
WR_10	46.98	*Low*	*High*	*High*	*N/A*	*N/A*	*N/A*	*Very High*	*Very High*	*Very High*	19	Fire trails bound the western boundary. The reserve will support a fire run which may enter adjoining blocks within the reserve. Smoke may impact the Transmission Line.	*High [intolerable]*	FT, PB, CR, EF	*Medium [tolerable]*	CE, TL	*Low [acceptable]*
WR_11	117.75	*Low*	*High*	*Very High*	*N/A*	*N/A*	*N/A*	*Low*	*Very High*	*Very High*	17	Fire trails bound the block. The reserve will support a fire run which may enter adjoining blocks within the reserve.	*Medium [tolerable]*	FT, PB, CR, EF	*Low [acceptable]*	CE	*Low [acceptable]*
WR_12	65.46	*Low*	*High*	*Very High*	*N/A*	*N/A*	*N/A*	*Low*	*Very High*	*Very High*	17	Fire trails bound the block. The reserve will support a fire run which may enter adjoining blocks within the reserve.	*Medium [tolerable]*	FT, PB, CR, EF	*Low [acceptable]*	CE	*Low [acceptable]*
WR_13	368.22	*Low*	*High*	*Very High*	*N/A*	*N/A*	*N/A*	*Very High*	*Very High*	*Very High*	20	The reserve will support a fire run which may enter adjoining blocks within the reserve. Smoke may impact the Transmission Line.	*High [intolerable]*	FT, PB, CR, EF	*Medium [tolerable]*	CE, TL	*Low [acceptable]*
WR_14	327.66	*Low*	*High*	*Very High*	*N/A*	*Very High*	*N/A*	*Very High*	*Very High*	*Very High*	24	A fire trail bounds the northern boundary and the nature refuge bounds the western boundary. A rural residential building lies south of the block. The reserve will support a fire run which may enter adjoining blocks within the reserve. Smoke may impact the residence and Transmission Line.	*High [intolerable]*	FT, PB, CR, EF	*Medium [tolerable]*	CE, TL	*Low [acceptable]*
WR_15	32.06	*Low*	*High*	*Very High*	*N/A*	*High*	*N/A*	*High*	*Very High*	*High*	21	This block contains fire trails. A water storage tank lies east of the block. The reserve will support a fire run which may enter adjoining blocks within the reserve. Smoke may impact Centenary Highway and Transmission Line.	*High [intolerable]*	FT, PB, CR, EF	*Medium [tolerable]*	BSP, PZ, CE, FO	*Low [acceptable]*
WR_16	81.04	*Low*	*High*	*High*	*Low*	*High*	*N/A*	*Very High*	*Very High*	*High*	22	This block contains fire trails. A residential area lies to the north east of the block. The reserve will support a fire run which may enter adjoining blocks within the reserve. Smoke may impact residences and Transmission Line.	*High [intolerable]*	FT, PB, CR, EF	*Medium [tolerable]*	BSP, PZ, CE, TL	*Low [acceptable]*
WR_17	99.4	*Low*	*High*	*High*	*Very High*	*High*	*Low*	*Very High*	*High*	*High*	25	This block contains fire trails and water storage facilities. Residential areas lie north and south of the block. The reserve will support a fire run which may enter adjoining blocks within the reserve. Radiant heat and smoke may impact residences, water storage facilities and Transmission Line.	*High [intolerable]*	FT, PR, PB, CR, VR	*High [Intolerable]*	RA, BSP, PZ, CE, TL, FO	*Medium [tolerable]*
WR_18	60.86	*Low*	*High*	*High*	*Very High*	*High*	*Low*	*Low*	*High*	*High*	22	This block contains fire trails. Residential areas bound the northwest and eastern boundaries. The reserve will support a fire run which may enter adjoining blocks within the reserve. Radiant heat and smoke may impact residences.	*High [intolerable]*	FT, PR, PB, CR, VR	*High [Intolerable]*	RA, BSP, PZ, CE	*Medium [tolerable]*
WR_19	40.11	*Low*	*High*	*High*	*Very High*	*High*	*Low*	*Low*	*High*	*High*	22	This block contains fire trails. Residential areas bound the eastern and northwestern boundaries. The reserve will support a fire run which may enter adjoining blocks within the reserve. Radiant heat and smoke may impact residences.	*High [intolerable]*	FT, PR, PB, CR, VR	*High [Intolerable]*	RA, BSP, PZ, CE	*Medium [tolerable]*
WR_20	28.15	*Low*	*High*	*High*	*Very High*	*High*	*Low*	*Low*	*High*	*High*	22	This block contains fire trails. It is separated from WR_19 by a arterial road. Residential areas bound the northwestern boundary. The reserve will support a fire run which may enter adjoining blocks within the reserve. Radiant heat and smoke may impact residences.	*High [intolerable]*	FT, PR, PB, CR, VR	*High [Intolerable]*	RA, BSP, PZ, CE	*Medium [tolerable]*

Appendix F

Nest Box Monitoring and Maintenance Report 2025

Nest Box Monitoring and Maintenance Report

(No. 5, December 2024)

Spring Mountain Conservation Area

Prepared for Lendlease Communities (Springfield) Pty Ltd.
14 January 2025

Job Number: 7243

saunders havill group

Document Control

Document: Nest Box Monitoring and Maintenance Report for Spring Mountain Conservation Area (No. 5), prepared by Saunders Havill Group for Lendlease Communities (Springfield) Pty Ltd, dated December 2024.

Document Issue

Issue	Date	Prepared By	Checked By
Draft A	17/12/2024	XGJ	KR

Prepared by

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Reports and plans by others may be included in this document.

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Acronyms and Abbreviations

EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
FMP	Fauna Management Plan
ICC	Ipswich City Council
NCA	*Nature Conservation Act 1992* (Qld)
RE	Regional Ecosystem
SEQ	South East Queensland
SHG	Saunders Havill Group

1. Introduction

Saunders Havill Group (SHG) was engaged by Lendlease Communities (Springfield) Pty Ltd to prepare this Nest Box Maintenance and Monitoring Report for the nest boxes installed in accordance with the Fauna Management Plan (FMP) (SHG, 2015) associated with the Spring Mountain Estate residential development, located at Sinnathamby Boulevard, Springfield. The development is a master planned residential community with ancillary commercial and retail purposes with designated open space and conservation areas.

The Spring Mountain Estate was referred under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and declared a 'controlled action' (EPBC 2013/7057). The FMP was prepared in accordance with the EPBC Preliminary Documentation submissions and the *Environmental Management Plan Guidelines* (Department of Environment, 2014). The FMP provides technical detail on the management issues and strategies for all fauna, including specific nest box maintenance and management requirements, prior to, during and post-vegetation clearing and construction activities.

1.1. Property Summary

Key site details are provided in **Table 1** below.

Table 1: Property Summary

Address	Grande Avenue, Spring Mountain
RPD	753 SP189054 751 SP189053 748 SP189044 747 SP189043 745 SP242282 740 SP179412 705 SP151175 11 S31533
Area	293 hectares (for Lend Lease offset requirements)
Local Government Area	Ipswich City Council (ICC)
Zone	Conservation

1.2. Context

Of the 396 hectare (ha) conservation area, a 293 ha portion has been set aside for Lendlease to fulfil their offset requirements for the Spring Mountain Estate project. Lendlease have the written permission and agreements in place with Springfield Land Corporation (now Springfield City Group) to utilise areas of the existing Conservation Land as it is considered an "advanced offset" under the EPBC Act Environmental Offset Policy for resolutions of impacts created in the Spring Mountain project.

The Offset site (aka Conservation area) adjoins the White Rock-Spring Mountain Conservation Estate as part of the Flinders–Karawatha Bioregional Corridor, providing additional bushland along the edge of these regionally significant habitat areas. The offset is characterised by remnant vegetation made up of Least Concern and Of Concern Regional Ecosystems.

Contextually, the offset area provides the only available public conservation land to form a protected corridor connecting the northern and southern portions. The remaining width of the Flinders-Karawatha Bioregional Corridor is occupied by residential land uses.

1.3. Objectives

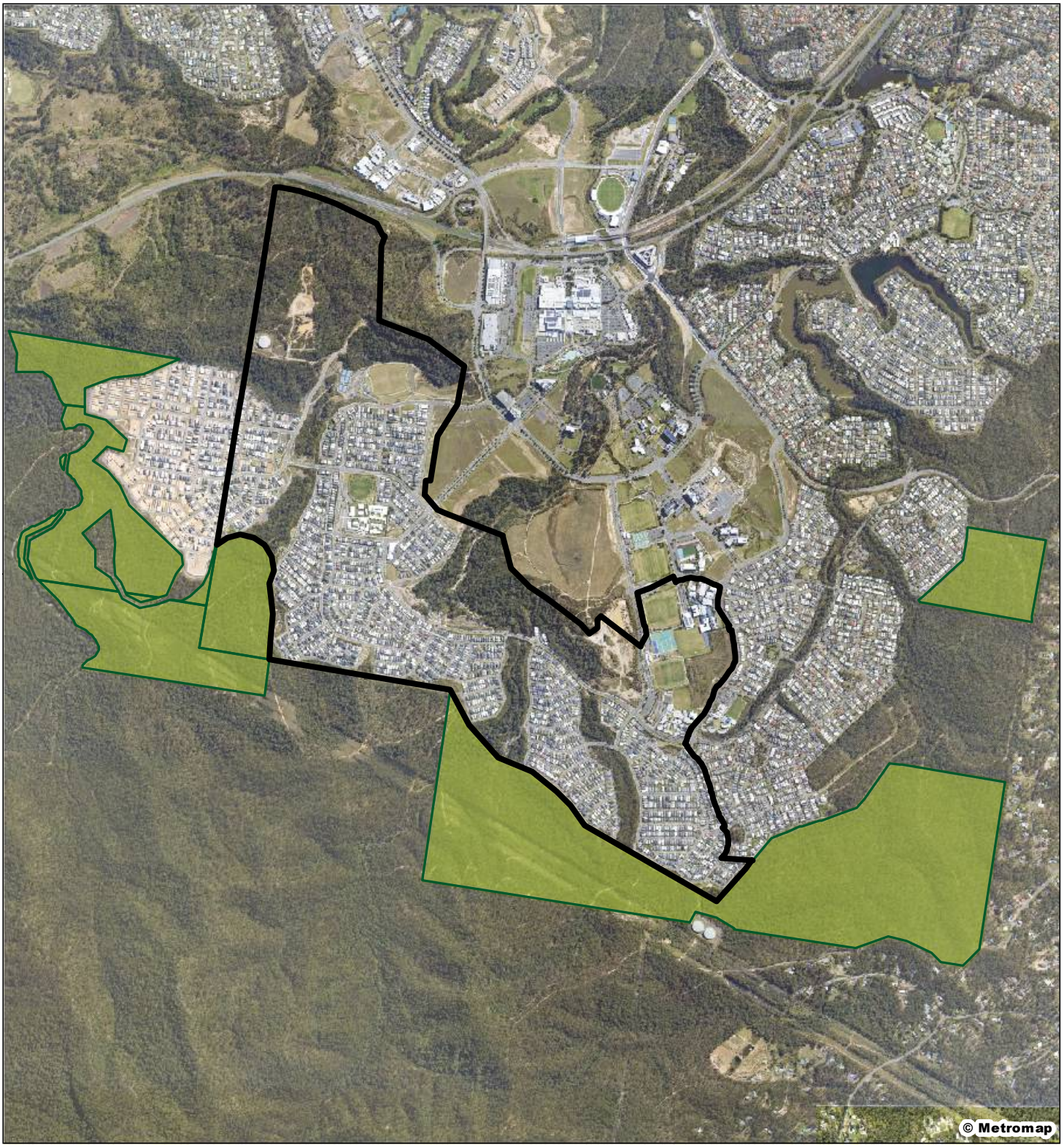
The purpose of this report is to detail the continued monitoring and maintenance activities of replacement hollows (i.e. nest boxes) associated within the development of Spring Mountain Estate. To compensate for potential loss of fauna habitat and features, nest boxes have been installed within the conservation area surrounding the Spring Mountain Estate.

This report aims to detail the monitoring and maintenance of the existing nest boxes installed within the conservation area. Further, this report will provide corrective actions and recommendations where necessary.

This report is designed to be a "dynamic document" which can be continuously updated with every subsequent nest box monitoring and maintenance inspection. The document has been prepared for issue to ICC upon request and will be included within the annual compliance reporting for the EPBC Approval (EPBC 2013/7057).

This report should be read in conjunction with the following documents:

- Annual EPBC Approval Compliance Report;
- FMP, prepared by SHG (2015); and
- Offset Management Plan, prepared by SHG (2015).



Legend

- Project area
- Offset Area

Figure 1

Site Aerial

Lend Lease Communities (Springfield) Pty Ltd

File ref. 7243 E Figure 1 ACR8 NB Site Aerial A
Date 20/12/2024
Project Springfield Rise, EPBC 2013/7057 (ACR 2024)

0 200 400 600 800 1,000 m

N

Scale (A4): 1:28,500 [GDA 1994 MGA Z56]

saunders havill group

Layer Source: © State of Queensland 2024

2. Nest Box Summary

Natural tree hollows form an important part of many South East Queensland (SEQ) ecosystems. There are at least 134 fauna species in SEQ that are dependent on hollows for survival— including protection from weather and predators and a safe place to eat, sleep and raise young. Natural hollows can take between 80 to 350+ years to develop and form a range of sizes and shapes overtime that suit the requirements of different fauna species. Therefore, the removal of hollow-bearing trees is considered only as a last option.

In circumstances where clearing of hollow-bearing trees cannot be avoided, the installation of nest boxes can provide a functional alternative to natural tree hollows. The lifespan of a nest box is relatively short (usually up to 15 years) compared to natural hollows, and may be complimented by bushland regeneration, to ensure long-term provision of hollow habitat.

Nest box design and installation is highly specialised to suit individual fauna species requirements, and requires: prior knowledge of hollow-dependent fauna at the development and receiving areas; and nest box specifications for target fauna species. Ongoing monitoring and maintenance is also essential to ensure nest boxes are achieving beneficial outcomes for fauna, particularly threatened species.

The environmental values identified within the site are essential to determining the types and optimal installation locations for nest boxes. A brief overview of these values and resulting nest box choice is discussed within the *Nest Box Monitoring and Maintenance Report No. 1* prepared by SHG, dated December 2020.

There are currently nil regulatory guidelines in Queensland for the implementation, monitoring and maintenance of nest boxes. The information in this strategy is based on best knowledge and practices provided on ICC, Moreton Bay Regional Council, Redlands City Council online services and *Nest boxes for wildlife, a practical guide* by Alan and Stacey Franks (2015). The information is intended as a guide and is subject to alteration by the qualified nest box installer.

2.1. Scientific Permits

Fauna surveys were conducted under the following permits held by Saunders Havill Group:

- Scientific Purposes Permit **WA0022007** granted under Section 12(f) of *Nature Conservation (Administration) Regulation 2017*
- Department of Agriculture and Fisheries Ethics clearance **CA 2020/02/1355**
- Scientific User Registration **SUR000451**

2.2. Existing Nest boxes

Twenty-seven (27) nest boxes were installed within the Conservation Area on 30 March 2020, including twelve (12) large (possum sized) and fifteen (15) small (parrot sized). The construction and installation of these nest boxes was detailed in the *Nest Box Monitoring and Maintenance Report No. 1* prepared by SHG, dated December 2020.

A further thirty-one (31) nest boxes were installed within the Conservation Area in November 2021, with a variety of nest box sizes including five (5) bat boxes, fifteen (15) antechinus boxes, four (4) possum boxes and seven (7) sugar glider boxes (refer to **Table 2**).

Table 2: Nest Box Locations

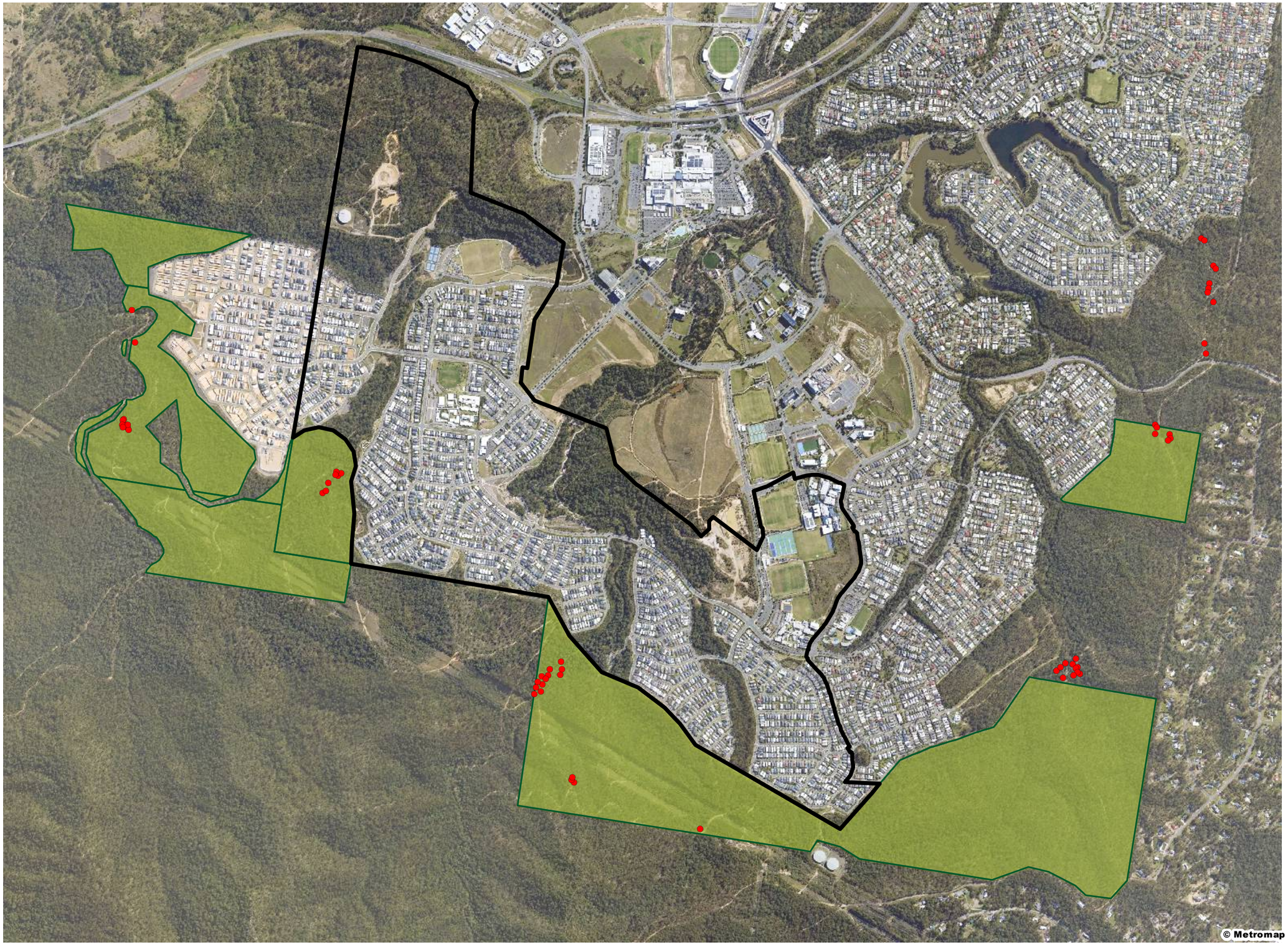
Box ID	Box Size	Longitude	Latitude
1	Large	27°40'47.96"S	152°55'37.52"E
2	Small	27°40'48.33"S	152°55'38.10"E
3	Small	27°40'52.14"S	152°55'39.59"E
4	Small	27°40'52.71"S	152°55'39.97"E
5	Small	27°40'54.83"S	152°55'38.82"E
6	Small	27°40'55.63"S	152°55'38.72"E
7	Small	27°40'56.28"S	152°55'38.53"E
8	Large	27°40'57.75"S	152°55'39.52"E
9	Small	27°41'4.03"S	152°55'37.97"E
10	Large	27°41'5.67"S	152°55'38.37"E
11	Small	27°41'16.61"S	152°55'29.47"E
12	Large	27°41'16.94"S	152°55'29.84"E
13	Small	27°41'17.90"S	152°55'29.53"E
14	Large	27°41'18.09"S	152°55'31.97"E
15	Large	27°41'18.66"S	152°55'32.22"E
16	Large	27°41'18.89"S	152°55'31.74"E
17	Large	27°41'53.24"S	152°55'15.34"E
18	Small	27°41'52.28"S	152°55'15.93"E
19	Large	27°41'53.72"S	152°55'16.20"E
20	Small	27°41'53.83"S	152°55'15.82"E
21	Large	27°41'54.66"S	152°55'16.57"E
22	Small	27°41'54.50"S	152°55'16.15"E
23	Small	27°41'55.00"S	152°55'15.41"E
24	Large	27°41'55.32"S	152°55'13.60"E
25	Large	27°41'54.25"S	152°55'12.52"E
26	Small	27°41'53.69"S	152°55'13.27"E
27	Small	27°41'53.08"S	152°55'14.11"E

Second Round			
28	Bat	27° 42' 18.44" S	152° 54' 11.10" E
29	Antechinus	27° 42' 11.28" S	152° 53' 49.41" E
30	Possum	27° 42' 10.82" S	152° 53' 49.03" E
31	Sugar glider	27° 42' 10.52" S	152° 53' 49.11" E
32	Sugar glider	27° 41' 57.35" S	152° 53' 43.77" E
33	Antechinus	27° 41' 56.22" S	152° 53' 43.98" E
34	Possum	27° 41' 55.41" S	152° 53' 44.55" E
35	Bat	27° 41' 54.94" S	152° 53' 45.02" E
36	Sugar glider	27° 41' 54.73" S	152° 53' 47.10" E
37	Antechinus	27° 41' 53.85" S	152° 53' 47.41" E
38	Antechinus	27° 41' 52.75" S	152° 53' 47.20" E
39	Antechinus*	27° 41' 53.89" S	152° 53' 45.33" E
40	Sugar glider	27° 41' 55.04" S	152° 53' 43.86" E
41	Antechinus	27° 41' 55.72" S	152° 53' 42.87" E
42	Possum	27° 41' 56.79" S	152° 53' 42.92" E
43	Sugar glider	27° 41' 57.89" S	152° 53' 42.05" E
44	Antechinus	27° 41' 25.33" S	152° 53' 7.20" E
45	Bat	27° 41' 26.81" S	152° 53' 6.28" E
46	Antechinus	27° 41' 26.67" S	152° 53' 6.82" E
47	Sugar glider	27° 41' 24.23" S	152° 53' 8.88" E
48	Possum	27° 41' 23.88" S	152° 53' 9.37" E
49	Antechinus	27° 41' 23.61" S	152° 53' 8.62" E
50	Antechinus	27° 41' 24.12" S	152° 53' 8.39" E
51	Bat	27° 41′ 16.43″ S	152° 52′ 32.53″ E
52	Antechinus	27° 41′ 16.87″ S	152° 52′ 32.70″ E
53	Antechinus	27° 41′ 17.19″ S	152° 52′ 32.77″ E
54	Antechinus	27° 41′ 16.39″ S	152° 52′ 32.65 E
55	Bat	27° 41' 15.57" S	152° 52' 32.04" E
56	Antechinus	27° 41' 15.64" S	152° 52' 31.82" E
57	Sugar glider	27° 41' 16.46" S	152° 52' 31.72" E
58	Antechinus	27° 41' 16.74" S	152° 52' 31.82" E

NB Antechinus boxes were recorded as such at time of installation, however the nest box specification at the October 2022 inspection resembled a Glider box.

The proponent has committed to the installation, maintenance and monitoring of these nest boxes to ensure adequate provision of habitat for any displaced fauna. Further, a Nest Box Strategy has been prepared by SHG to provide guidance on future nest boxes to be installed within the conservation area in accordance with FMP, prepared by SHG (2015). This strategy was prepared to provide a functional alternative to natural hollows, once located within the Spring Mountain Estate, and to enhance wildlife habitat in the adjoining Spring Mountain Conservation Area.

1. Nest Box Locations



Notes:
This plan was prepared as a desktop assessment tool. The information on this plan is not suitable for any other purpose. Property dimensions, areas, numbers of lots and contours and other physical features shown have been compiled from existing information and may not have been verified by field survey. These may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill Group therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of the Saunders Havill Group. Unless a development approval states otherwise, this is not an approved plan.

Layer Sources
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Updated data available at
http://qldspatialinformation.qld.gov.au/catalogue/
*This note is an integral part of this plan/data. Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

Legend

- Project area
- Offset Area
- Nest box location

Issue	Date	Description	Drawn	Checked
A	20/12/2024	Preliminary	TC	KR

0 100 200 300 400 500 m

Transverse Mercator | GDA 1994 | Zone 56 | 1:18,000 @ A3

saunders havill group

Lend Lease Communities (Springfield) Pty Ltd

Springfield Rise - EPBC 2013/7057

Address / RPD: Springfield, Qld

20/12/2024 | 7243 E 01 ACR8 Nestbox Locations A

2.3. Monitoring and Reporting

Following nest box installation, a single page memo or email outlining installed nest box types and location coordinates is to be provided to the Proponent and Environmental Coordinator (information contained within this report). This information will be forwarded to ICC and included within the annual EPBC Approval compliance reporting.

Monitoring is to be undertaken six (6) months post installation, and then annually for ten (10) years from the date of installation. Inspections will identify the following:

- fauna use including target and/or non-target species
- rectification procedures for introduced species. N B. Native predators should not be removed from boxes unless they are endangering a threatened fauna species
- any damage or dieback, or risk to the nest box
- maintenance required.

A monitoring and maintenance pro forma provided in **Appendix A**, or a similar checklist, should be completed during each inspection.

Following each inspection, a report is to be issued within 21 days by the consulting ecologist and issued to the Proponent and Environmental Coordinator. This report will detail the results of the inspection and outline any further measures to improve beneficial outcomes of the strategy for fauna (e.g. eradication of pest species, minor repairs or replacement).

2.4. Monitoring Methodology

The previous occupancy audit inspections were completed utilising the pole-mounted camera monitoring approach to inspect the contents of each box. A visual examination of the exterior of each box was also completed to detect signs of fauna occupancy such as scratch or chew marks. Each inspection was kept to a brief time window to minimise disturbance.

This audit inspection was completed using a wireless nest box inspection camera unit developed by StarWeb. The unit includes an LED illuminator that is wildlife eye safe and is ideal for minimising disturbance. The unit was secured to an extendable aluminium pole with reach of up to 4.5 metres (refer **Photo 1**).

Nest boxes 28, 35, 45, 51 and 55 are designed for Microbat species and were not able to be inspected with the camera unit due to the entry hole being located at the base of the box. Using binoculars, a visual inspection of the box opening located at the base of the box was completed to determine occupancy.

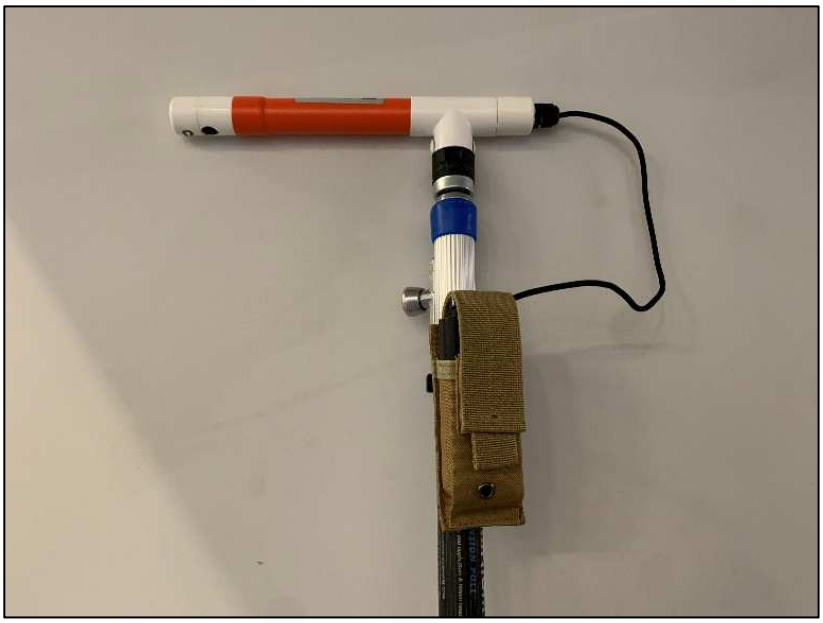


Photo 1: StarWeb Inspection Camera.

2.5. Maintenance Requirements

Maintenance requirements are to be identified during regular inspections and reported to the relevant stakeholders (refer to **Section 2.4**). Damaged boxes are to be repaired or replaced within four weeks of monitoring activities and details of all maintenance work should be submitted to the Proponent and Environmental Coordinator following works. Installed nest boxes will be maintained for a minimum 12 months and/or the remaining life of the committed maintenance period (i.e. 10 years), whichever is greater. The assessment of nest box condition will be described using the condition descriptors below provided within **Table 3**.

Table 3: Nest Box Condition Categories

Condition	Description
Good	Exterior shows no signs of damage or weathering. No maintenance, repair or replacement is required.
Fair	Exterior shows no signs of damage. Nest box may require maintenance for the removal of blockages or cleaning. Nest box does not need repair or replacement.
Poor	Obvious signs of damage and dilapidation. Nest box requires repair or replacement.

2.6. Roles and Responsibilities

This section details the key roles and responsibilities for the works.

2.6.1 Proponent

Lend Lease Communities (Springfield) Ltd is the Proponent for the works.

2.6.2 Environmental Coordinator

SHG is the Environmental Coordinator for the project and is responsible for the development of this report and documentation for overarching environmental management. SHG will be responsible for managing non-compliance by appointed contractors and sub-contractors, including establishing additional management procedures and determining if notification to ICC or the Proponent should be made.

2.6.3 Nest Box Contractor

The Nest Box Contractor is appointed by the Proponent and Environmental Coordinator for the commissioning of, installation, maintenance and monitoring of the nest boxes over the life of the maintenance period. The Nest Box Contractor is required to notify the Proponent and Environmental Coordinator of nest box locations once installed and provide a copy of the reporting schedule and pro forma after each monitoring and maintenance inspection as required under the maintenance, monitoring and reporting schedule (refer **Section 3.3**).

2.7. Maintenance, Monitoring and Reporting Schedule

The nest box strategy phases and roles and responsibilities discussed above have been summarised within the schedule (refer **Table 4**).

Table 4: Maintenance, Monitoring and Reporting Schedule

Management Item	Responsibility	Deliverable	Timing	Notify	Reporting Schedule
Installation					
Record GPS locations of installed nest box and provide coordinates to the Environmental Coordinator and Proponent.	Nest Box Contractor	Memo or email	Within 14 days of installation	Proponent / Environmental Coordinator	Post installation detailing location and monitoring schedule to be forwarded to ICC upon request and included within annual EPBC Approval compliance reporting (Dec/Jan)
Maintenance and Monitoring					
Nest boxes are to be monitored for 10 years. Monitoring activities will capture the following details: • Tree condition (i.e. dieback or risk to nest box) • Box condition and/or maintenance required • Fauna use (target and/or non-target species) • Rectification procedures for introduced species • Other notable observations Nest boxes are to be maintained for 10 years. Maintenance activities include, but are not limited to, the following: • Repairs or replacement to damaged nest boxes • The removal of invasive species • The removal of obstructions	Nest Box Contractor	Monitoring pro forma	6 months post installation, then annually until the end of year 10	Proponent / Environmental Coordinator	Annual - EPBC Approval compliance reporting (Dec/Jan) and forwarded to ICC upon request
Reporting Schedule and Pro forma					
A reporting schedule and pro forma must be completed to report all nest box maintenance and monitoring activities throughout the monitoring and maintenance period. A copy of the reporting schedule and pro forma must be provided to the Environmental Coordinator and Proponent.	Nest Box Contractor	Monitoring pro forma	Annually until the end of year 10	Proponent / Environmental Coordinator	Annual - EPBC Approval compliance reporting (Dec/Jan) and forwarded to ICC upon request

3. Monitoring Results Summary

An inspection of each nest box was conducted by two (2) ecologists from SHG on 10 and 11 December 2024. The inspection recorded the following details of each nest box:

- GPS location,
- Size,
- Condition,
- Occupancy, and
- Maintenance or corrective actions required.

The nest box monitoring pro forma was utilised for the monitoring and the data sheets are provided within **Appendix A**.

The monitoring event in December 2024 revealed that 57 of 58 nest boxes appear in good structural condition. Nest box fifteen (15) was in poor condition with no lid on the nest box. Fifteen (15) nest boxes were occupied by ants, five (5) with spiders, four (4) with insect mud nests and one (1) with an external caterpillar nest. Four (4) nest boxes were recorded on angles, one (1) nest box was identified to have Australian native stingless bees nest present, one (1) looked to have an internal screw exposed and one (1) nest box the tree has died.

One (1) of the boxes were unable to be assessed for occupation, as they have been positioned too high to safely access by the SHG ecologists alone. However, any external signs of use or notable observations were recorded.

Ten (10) *Trichosurus vulpecula* (Brushtail Possum), two (2) *Phascogale tapoatafa* (Brush-tailed Phascogale), one (1) *Petaurus norfolcensis* (Squirrel Glider) and one (1) *Aegotheles cristatus* (Owlet-nightjar) were observed utilising the nest boxes. Nesting materials in the form of leaf litter, saw shavings and feathers were present in twenty-seven (27) nest boxes.

A summary of the monitoring results is provided in **Table 5**.

Table 5: Monitoring Results Summary October 2023

Box ID	Box Size	Date Installed	Species observed/ signs of use	Pests	Box Condition	Maintenance / Corrective Actions Required
1	Large	2020.03.30	Leaf litter present	-	Good	-
2	Small	2020.03.30	Leaf litter present	Ants and a caterpillar nest present on underside of nest box.	Good	-

Box ID	Box Size	Date Installed	Species observed/ signs of use	Pests	Box Condition	Maintenance / Corrective Actions Required
3	Small	2020.03.30	Leaf litter	Ants	Good	-
4	Small	2020.03.30	*Trichosurus vulpecula* Brushtail Possum	-	Good	-
5	Small	2020.03.30	Saw shavings present	-	Good	-
6	Small	2020.03.30	No nesting material	Ants	Good	-
7	Small	2020.03.30	No nesting material	-	Good	-
8	Large	2020.03.30	No nesting material	-	Good	-
9	Small	2020.03.30	Leaf litter present	-	Good	-
10	Large	2020.03.30	No nesting material	-	Good	-
11	Small	2020.03.30	Leaf litter present	-	Good	-
12	Large	2020.03.30	*Trichosurus vulpecula* Brushtail Possum	-	Good	-
13	Small	2020.03.30	*Trichosurus vulpecula* Brushtail Possum	-	Poor	Replace Lid
14	Large	2020.03.30	No nesting material Nest box on angle	Mud wasp nest	Good	Reposition
15	Large	2020.03.30	*Trichosurus vulpecula* Brushtail Possum	-	Good	-
16	Large	2020.03.30	*Trichosurus vulpecula* Brushtail Possum Nest box on angle	-	Good	Reposition
17	Large	2020.03.30	*Trichosurus vulpecula* Brushtail Possum	-	Good	-
18	Small	2020.03.30	Leaf litter present	-	Good	-
19	Large	2020.03.30	*Trichosurus vulpecula* Brushtail Possum	-	Good	-
20	Small	2020.03.30	Leaf litter present	-	Good	-
21	Large	2020.03.30	*Trichosurus vulpecula* Brushtail Possum	-	Good	-

Box ID	Box Size	Date Installed	Species observed/ signs of use	Pests	Box Condition	Maintenance / Corrective Actions Required
22	Small	2020.03.30	Exposed screw internally Leaf litter present	-	Good	-
23	Small	2020.03.30	Leaf litter present	-	Good	-
24	Large	2020.03.30	Leaf litter present	-	Good	-
25	Large	2020.03.30	*Trichosurus vulpecula* Brushtail Possum	-	Good	-
26	Small	2020.03.30	Leaf litter present Nest box on angle	Ants	Good	Reposition
27	Small	2020.03.30	Leaf litter present Nest box on angle	-	Good	Reposition
28	Bat	2022.11.15	No nesting material	-	Good	-
29	Antechinus	2022.11.15	Leaf litter	-	Good	-
30	Possum	2022.11.15	Leaf litter present	Spider	Good	-
31	Sugar glider	2022.11.15	*Aegotheles cristatus* Owlet Nightjar	-	Good	-
32	Sugar glider	2022.11.15	Leaf litter present	Ants	Good	-
33	Antechinus	2022.11.15	*Petaurus norfolcensis* Squirrel Gliders	-	Good	-
34	Possum	2022.11.15	*Phascogale tapoatafa* Brushtail Phascogale	-	Good	-
35	Bat	2022.11.15	Spider webs and insect nests present internally	Spider & insects	Good	-
36	Sugar glider	2022.11.15	Ant infestation	Ants	Good	-
37	Antechinus	2022.11.15	Leaf litter present	-	Good	-
38	Antechinus	2022.11.15	Ant infestation Leaf litter present	Ants	Good	-
39	Antechinus	2022.11.15	Leaf litter present	Ants	Good	-
40	Sugar glider	2022.11.15	Leaf litter present	Ants	Good	-

Box ID	Box Size	Date Installed	Species observed/ signs of use	Pests	Box Condition	Maintenance / Corrective Actions Required
41	Antechinus	2022.11.15	Ant infestation	Ants	Good	-
42	Possum	2022.11.15	Leaf litter present Insect mud nest internally	-	Good	-
43	Sugar glider	2022.11.15	Leaf litter present	Spider	Good	-
44	Antechinus	2022.11.15	Ant infestation	Ants	Good	-
45	Bat	2022.11.15	Mud nest internally	Insects	Good	-
46	Antechinus	2022.11.15	Ants nesting in box	Ants	Good	-
47	Sugar glider	2022.11.15	Leaf litter present Ants present	Ants	Good	-
48	Possum	2022.11.15	*Trichosurus vulpecula* Brushtail Possum	-	Good	-
49	Antechinus	2022.11.15	No nesting material	-	Good	Tree has died
50	Antechinus	2022.11.15	Leaf litter present Mud nest internally	Insects	Good	Mud nest is development of a native stingless bee hive
51	Bat	2022.11.15	Spiders	Spider	Good	-
52	Antechinus	2022.11.15	*Phascogale tapoatafa* Brushtail Phascogale	-	Good	-
53	Antechinus	2022.11.15	Leaf litter present	Ants	Good	-
54	Antechinus	2022.11.15	Leaf litter present	Ants	Good	-
55	Bat	2022.11.15	No nesting material	-	Good	-
56	Antechinus	2022.11.15	Leaf litter present	-	Good	-
57	Sugar glider	2022.11.15	Leaf Litter present	-	Good	-
58	Antechinus	2022.11.15	Unreachable	-	Good	-

3.1. Corrective Actions and Recommendations

As discussed above, five (5) nest boxes require corrective actions, where four (4) require potential repositioning (#14, #16, #26 and #27). One (1) nest box required replacement with the lid/roof missing on the nest box (#13). From this inspection the nest boxes are to be adjusted or secured, to restore functionality.

It is recommended that nest boxes requiring attention are seen to prior to September 2024 (i.e Spring).

As a result of inspection findings the nest box monitoring pro forma has been updated to increase recording of observations.

4. Site Contacts

Role	Contact Details
Proponent	Lend Lease Communities (Springfield) Pty Ltd (07) 3027 3000
Environmental Coordinator	Amy Westman Saunders Havill Group Ph. (07) 3251 9480
Council	Ipswich City Council 45 Roderick Street, Ipswich, QLD 4305 Ph. (07) 3810 6666
Nest Box Contractor	Evolve Environmental Solutions John White (07) 3124 7200
Veterinarian (in closest proximity to application site)	Springfield Lakes Pet and Vet 1 Springfield Lakes Boulevard, Springfield Lakes, 4300 Mon, Wed & Fri: 7:00am – 6:00pm, Tues & Thurs: 7.00am – 7.00pm, Sat: 7:00am – 3:00pm Ph. (07) 3818 4119 *After Hours Contact: Animals Emergency Service, Cnr Lexington & Logan Rd, Underwood* *Ph. (07) 3423 1888*
Queensland Parks and Wildlife Services	South East 60 Mount Nebo Road, The Gap QLD 4061 Ph. (07) 35122300
Department of Environment and Science	For wildlife incidents and licensing and permits: Ph. 1300 130 372
RSPCA Queensland	For reporting injured, sick or orphaned wildlife: Ph. 1300 ANIMAL (1300 264 625)

5. Summary

This report details the continued monitoring of the nest boxes installed in March 2020 with further nest boxes installed November 2021 in the Spring Mountain Conservation Area. A total of 58 nest boxes were installed and the monitoring event in October 2023 revealed that:

- Four (4) nest boxes (#14, #16, #26 and #27) requiring further attention to reorientate/secure the units; and
- One (1) nest box (#13) requires replacement as there is damage to the lid/roof of the nest box.

It is recommended that nest boxes requiring attention are seen to prior to September 2025.

The next monitoring inspection is scheduled for October 2025.

6. Appendices

Appendix A

Monitoring Data Sheets (December 2024)

Appendix A

Monitoring Data Sheets (December 2024)

Nest Box Monitoring Sheet 1	
Observer: XGJ, LF & TM	
Date: 10-11/12/24	Location: Springfield Conservation Area
Time: 8am – 3pm	Weather Conditions: Overcast and Rain

Box ID	Box Size	Date Installed	Species observed/ signs of use	Pests	Box Condition	Maintenance/Corrective Actions Required
1	Large	2020.03.30	Leaf litter	-	Good	
2	Small	2020.03.30	Leaf litter	Ants and a caterpillar nest present on underside of nest box.	Good	
3	Small	2020.03.30	Leaf litter	Ants	Good	
4	Small	2020.03.30	*Trichosurus vulpecula* Brushtail Possum	-	Good	
5	Small	2020.03.30	Saw shavings	-	Good	
6	Small	2020.03.30	No nesting material	Ants	Good	
7	Small	2020.03.30	No nesting material	-	Good	
8	Large	2020.03.30	No nesting material	-	Good	
9	Small	2020.03.30	Leaf litter	-	Good	
10	Large	2020.03.30	No nesting material	-	Good	
11	Small	2020.03.30	Leaf litter	-	Good	
12	Large	2020.03.30	*Trichosurus vulpecula* Brushtail Possum	-	Good	
13	Small	2020.03.30	*Trichosurus vulpecula* Brushtail Possum	-	Poor	Replace Lid
14	Large	2020.03.30	No nesting material	Mud Wasp Nests	Good	Reposition
15	Small	2020.03.30	*Trichosurus vulpecula* Brushtail Possum	-	Good	
16	Large	2020.03.30	*Trichosurus vulpecula* Brushtail Possum Nest box on angle	-	Good	Reposition
17	Large	2020.03.30	*Trichosurus vulpecula* Brushtail Possum	-	Good	
18	Small	2020.03.30	Leaf litter	-	Good	
19	Large	2020.03.30	*Trichosurus vulpecula* Brushtail Possum	-	Good	

Box ID	Box Size	Date Installed	Species observed/ signs of use	Pests	Box Condition	Maintenance/Corrective Actions Required
20	Small	2020.03.30	Leaf litter	-	Good	
21	Large	2020.03.30	*Trichosurus vulpecula* Brushtail Possum	-	Good	
22	Small	2020.03.30	Leaf litter Exposed screw internally	-	Good	
23	Small	2020.03.30	Leaf litter	-	Good	
24	Large	2020.03.30	Leaf litter	-	Good	
25	Large	2020.03.30	*Trichosurus vulpecula* Brushtail Possum	-	Good	
26	Small	2020.03.30	Leaf litter	Ants	Good	Reposition
27	Small	2020.03.30	Leaf litter	-	Good	Reposition
28	Bat	2022.11.15	No nesting material	-	Good	
29	Antechinus	2022.11.15	Leaf litter	-	Good	
30	Possum	2022.11.15	Leaf litter	-	Good	
31	Sugar glider	2022.11.15	*Aegotheles cristatus* Owlet Nightjar	-	Good	
32	Sugar glider	2022.11.15	Leaf litter	Ants	Good	
33	Antechinus	2022.11.15	*Petaurus norfolcensis* Squirrel Gliders	-	Good	
34	Possum	2022.11.15	*Phascogale tapoatafa* Brushtail Phascogale	-	Good	
35	Bat	2022.11.15	Spider webs and insect nests	Spider & insects	Good	
36	Sugar glider	2022.11.15	Ant infestation	Ants	Good	
37	Antechinus	2022.11.15	Leaf litter	-	Good	
38	Antechinus	2022.11.15	Leaf litter Ant infestation	Ants	Good	
39	Antechinus	2022.11.15	Leaf litter	Ants	Good	
40	Sugar glider	2022.11.15	Leaf litter	Ants	Good	
41	Antechinus	2022.11.15	Ant infestation	Ants	Good	

Box ID	Box Size	Date Installed	Species observed/ signs of use	Pests	Box Condition	Maintenance/Corrective Actions Required
42	Possum	2022.11.15	Leaf litter Insect mud nest internally	-	Good	
43	Sugar glider	2022.11.15	Leaf litter	Spider	Good	
44	Antechinus	2022.11.15	Ant infestation	Ants	Good	
45	Bat	2022.11.15	Mud nest internally	Insects	Good	
46	Antechinus	2022.11.15	Ant nest	Ants	Good	
47	Sugar glider	2022.11.15	Leaf litter	Ants	Good	
48	Possum	2022.11.15	*Trichosurus vulpecula* Brushtail Possum	-	Good	
49	Antechinus	2022.11.15	No nesting material	-	Good	Tree has now died and is a stag
50	Antechinus	2022.11.15	Leaf litter Insect mud nest internally	Insects	Good	Development of a native bee hive
51	Bat	2022.11.15	Spiders	Spiders	Good	
52	Antechinus	2022.11.15	*Phascogale tapoatafa* Brushtail Phascogale	-	Good	
53	Antechinus	2022.11.15	Leaf litter	Ants	Good	
54	Antechinus	2022.11.15	Leaf litter	Ants	Good	
55	Bat	2022.11.15	No nesting material	-	Good	
56	Antechinus	2022.11.15	Leaf Litter	-	Good	
57	Sugar glider	2022.11.15	Leaf Litter	-	Good	
58	Antechinus	2022.11.15	Unreachable	-	Good	

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 1**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Leaf litter present.

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 2**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Leaf litter present. Caterpillar nest present on underside of box. Ant nest present inside box

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 3**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Saw shavings present. Ants also present

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 4**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Brushtail Possum (*Trichosurus vulpecula**)*** Present

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 5**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Saw shavings present.

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 6**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box		✓	
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

No nesting material. Rattle Ant nest inside box.

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 7**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box		✓	
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

No nesting material present covering the floor of the box.

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 8**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box		✓	
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Minor leaf litter present in corners

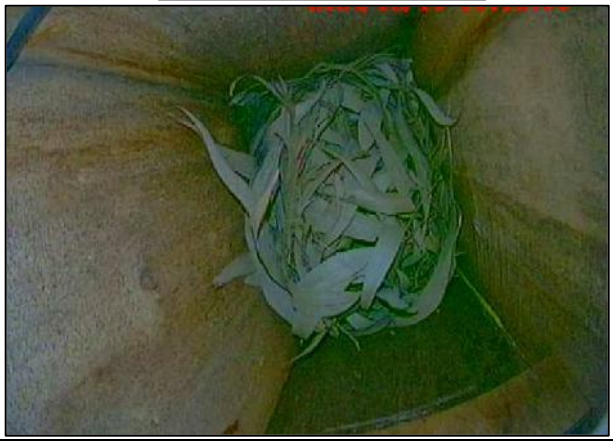
Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 9**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Nesting material present.

Photos

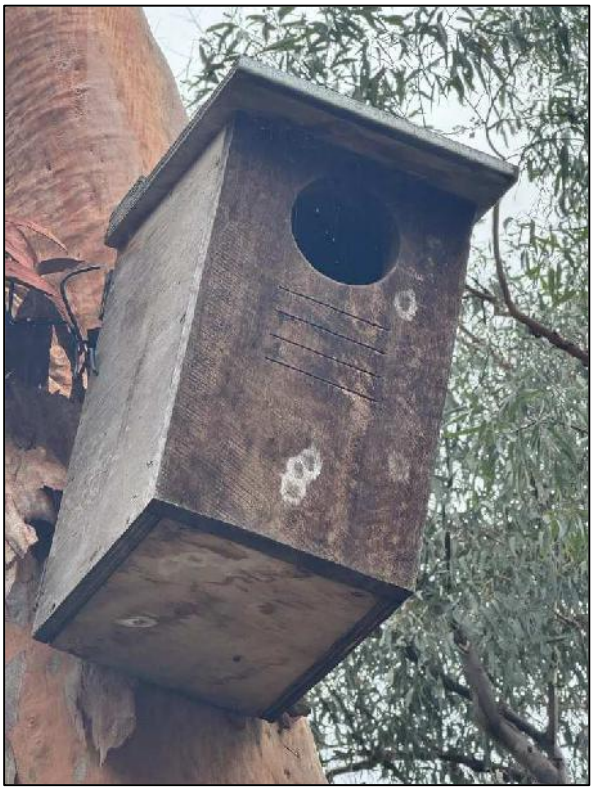


Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 10**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box		✓	
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

No nesting material present.

Photos



Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 11**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Leaf litter present.

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 12**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Brushtail Possums

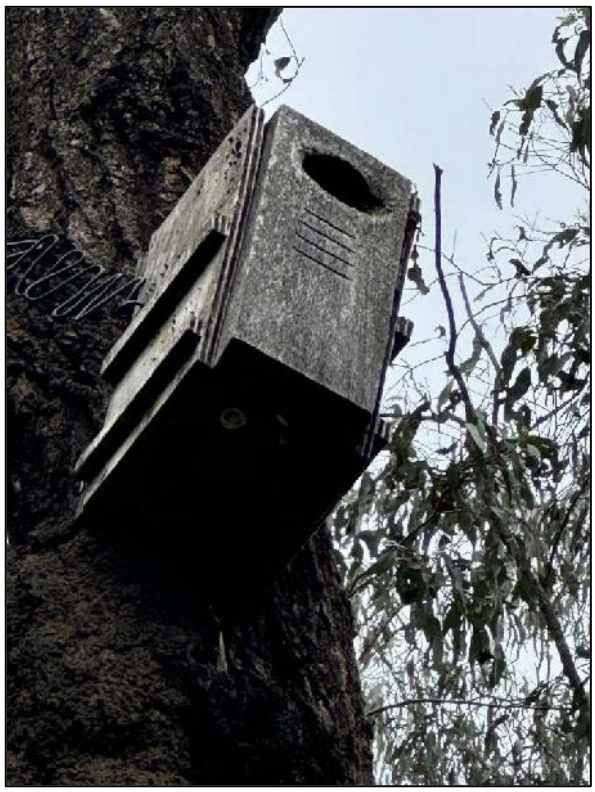
Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 13**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Brushtail Possums.

Photos

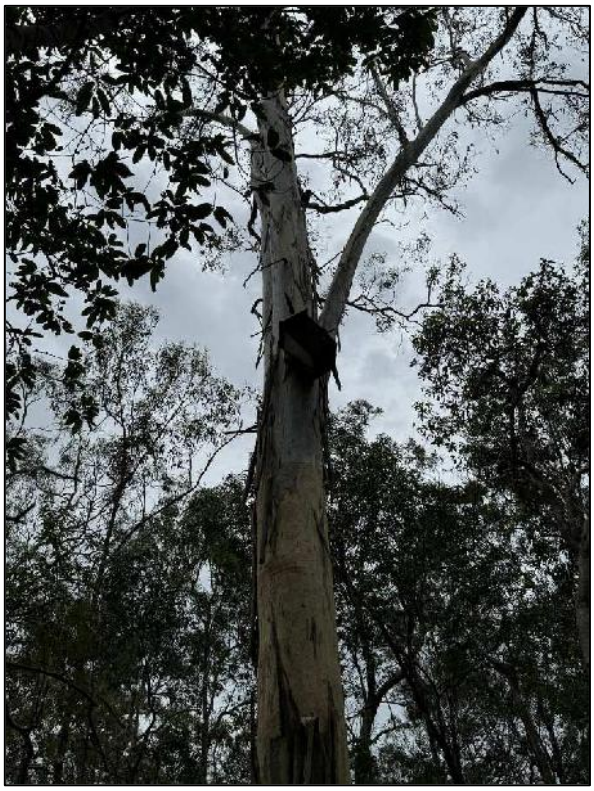


Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 14**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward		✓	Reposition
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

No indication of nesting. Mud wasp Nests

Photos



Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 15**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten		✓	
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Brushtail Possum. Box missing its lid.

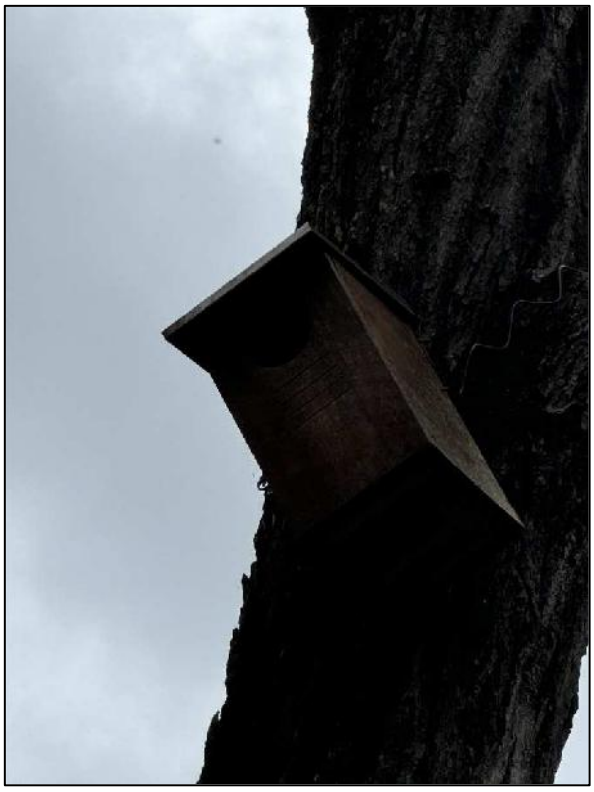
Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 16**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward		✓	Reposition
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Brushtail Possum.

Photos



Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 17**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Brushtail Possum

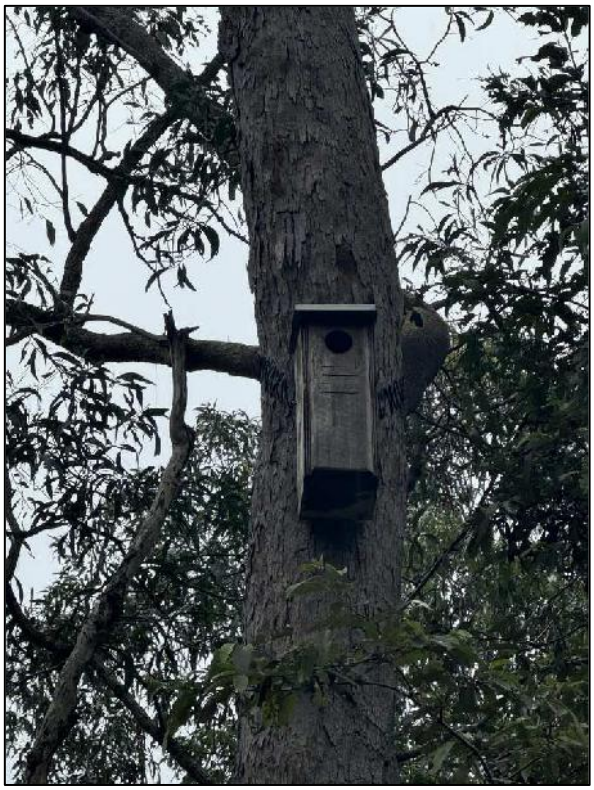
Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 18**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Leaf litter present.

Photos



Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 19**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Brushtail Possum.

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 20**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Leaf litter present

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 21**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Brushtail Possum.

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 22**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Leaf litter present. Internally exposed screw.

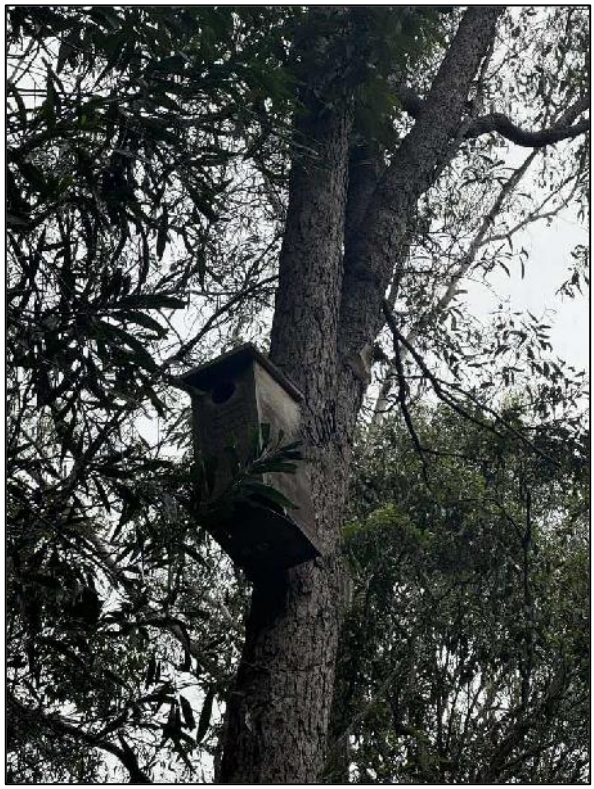
Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 23**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Leaf litter present.

Photos



Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 24**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Leaf litter and geckos.

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 25**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Brushtail Possums.

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 26**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward		✓	Reposition
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Leaf litter present. Ants present

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 27**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward		✓	Reposition
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Leaf litter present.

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 28 – Bat box**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	n/a		
10. All soiled materials like old shavings, membrane, egg shells have been removed	n/a		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 29**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Leaf litter present.

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 30**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Leaf litter present. Spider-webs on entrance.

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 31**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Owlet Nightjar and termite nest.

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 32**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Ant infestation and leaf litter.

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 33**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Squirrel gliders.

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 34**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Brushtail phascogale

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 35 – Bat box**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	n/a		
10. All soiled materials like old shavings, membrane, egg shells have been removed	n/a		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

No nesting material present. Spider-webs and insect nests present.

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 36**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box		✓	
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Ant infestation.

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 37**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Leaf litter present.

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 38**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box		✓	
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Ant infestation.

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 39**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Leaf litter present.

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 40**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Leaf litter and Ants present

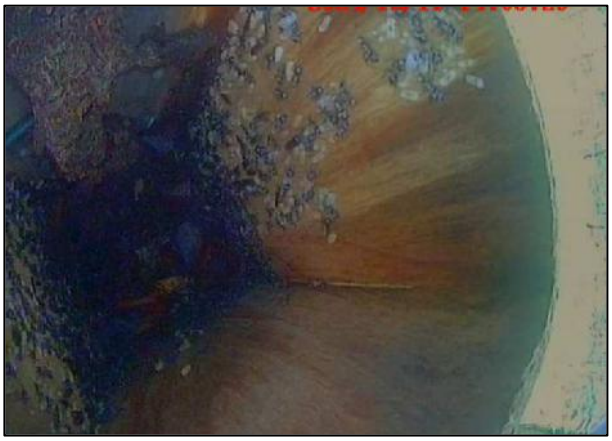
Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 41**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Ant infestation.

Photos



Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 42**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Leaf litter present. Insect mud nest present.

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 43**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Leaf litter present.

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 44**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box		✓	
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Ant infestation.

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 45 – Bat box**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	n/a		
10. All soiled materials like old shavings, membrane, egg shells have been removed	n/a		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Insects present.

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 46**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box		✓	
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Ant infestation.

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 47**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Leaf litter present. Ant infestation.

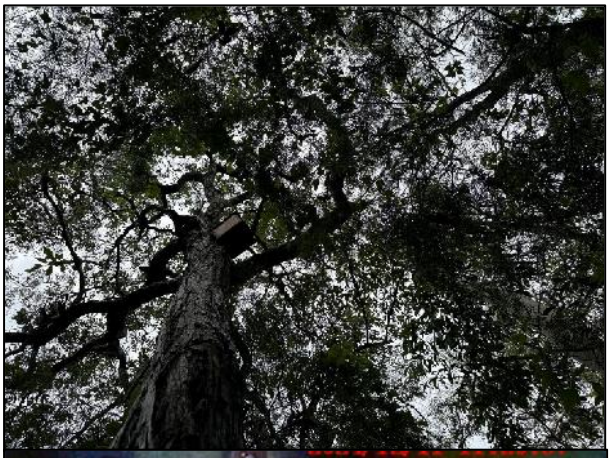
Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 48**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Leaf litter present.

Photos



Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 49**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box		✓	
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Tree has now died and now considered a stag.

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 50**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Insect mud nest present. Leaf litter present. Native Bee Hive Present

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 51 – Bat box**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	n/a		
10. All soiled materials like old shavings, membrane, egg shells have been removed	n/a		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Spiders.

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 52**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Brushtail phascogale.

Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 53**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Leaf litter and Ants presence.

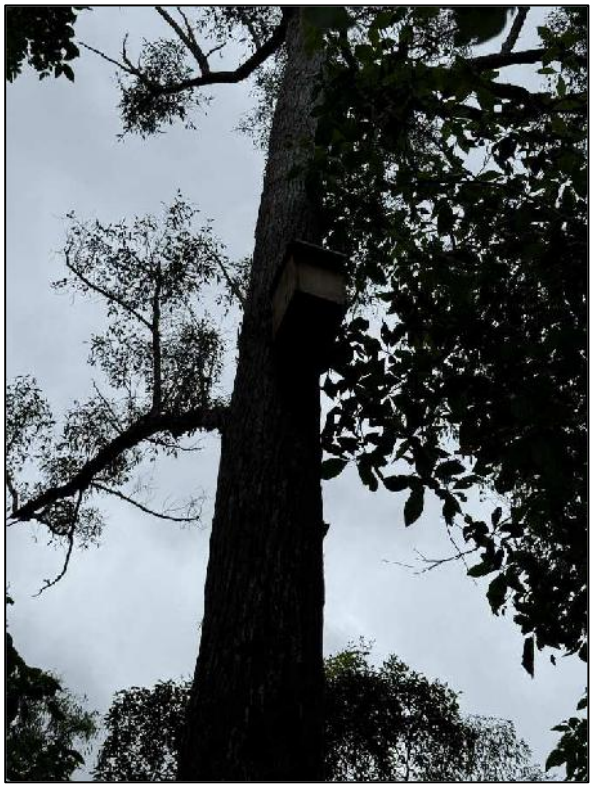
Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 54**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box		✓	
10. All soiled materials like old shavings, membrane, egg shells have been removed		✓	
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Leaf litter and ants present.

Photos



Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 55 – Bat box**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	n/a		
10. All soiled materials like old shavings, membrane, egg shells have been removed	n/a		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

No nesting material present.

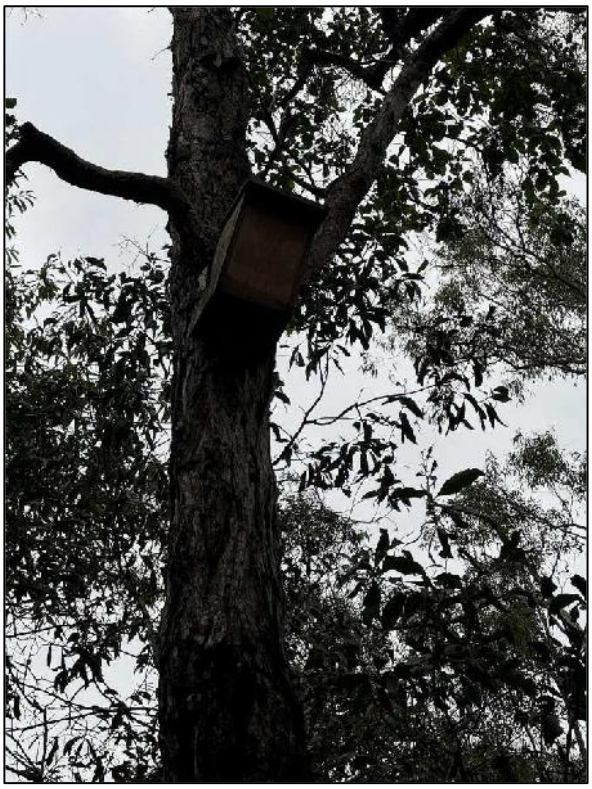
Photos

Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 56**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Leaf Litter.

Photos

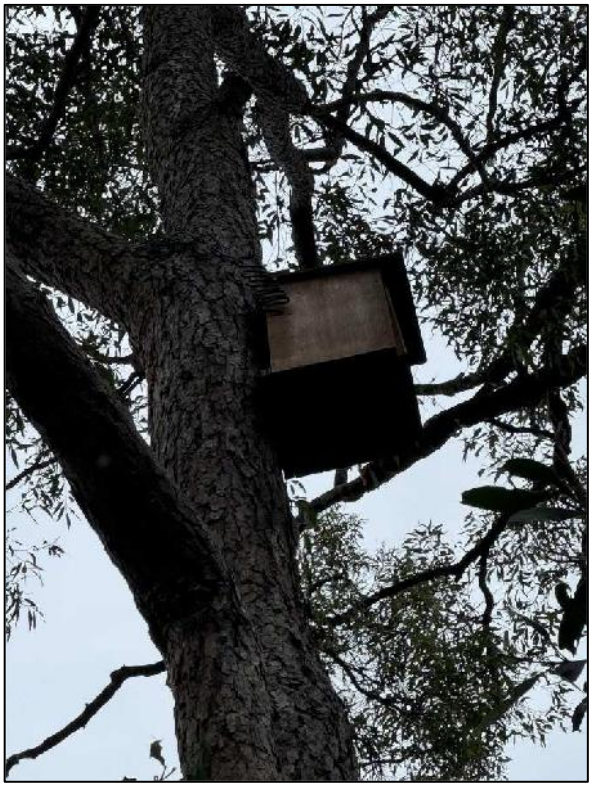


Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 57**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	✓		
10. All soiled materials like old shavings, membrane, egg shells have been removed	✓		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Leaf litter present.

Photos



Nest Box Monitoring Sheet 2			
Maintenance Checklist of Nest Box ID: **Box 58 – Bat box**	Correct	Incorrect	Other
1. Box is not occupied by pest species	✓		
2. Box is not vandalised or missing	✓		
3. Box is securely attached with slight lean forward	✓		
4. Box is located at optimal height	✓		
5. Box is not damaged or rotten	✓		
6. The foot holds/ladder in interior of box for young is intact	✓		
7. There are no blockages in drainage holes	✓		
8. Entrance hole is free from obstruction and not damaged or worn	✓		
9. Nesting materials have been replaced to cover floor of box	n/a		
10. All soiled materials like old shavings, membrane, egg shells have been removed	n/a		
11. Box is aligned away from prevailing winds, rain and excessive heat	✓		

Other Comments

Unreachable due to nest box position on the tree. Box appears in good condition from outside.

Photos

Appendix G

SAT Results – Year 1 to Year 8

Survey Year	SAT site no.	Evidence of koala use (%)	Koala use (high/medium/low)
1	**1**	10.00	Low
1	**2**	13.33	Low
1	**3**	10.00	Low
1	**4**	6.67	Low
1	**5**	6.67	Low
1	**6**	6.67	Low
1	**7**	3.33	Low
2	**1**	0.00	Low
2	**2**	0.00	Low
2	**3**	0.00	Low
2	**4**	0.00	Low
2	**5**	0.00	Low
2	**6**	6.67	Low
2	**7**	0.00	Low
2	**8**	3.33	Low
2	**9**	0.00	Low
2	**10**	0.00	Low
2	**11**	0.00	Low
2	**12**	0.00	Low
2	**13**	3.33	Low
2	**14**	13.33	Low
2	**15**	3.33	Low
2	**16**	0.00	Low
2	**17**	0.00	Low
2	**18**	13.33	Low
2	**19**	3.33	Low
2	**20**	3.33	Low
2	**21**	0.00	Low
2	**22**	0.00	Low
2	**23**	0.00	Low
2	**24**	43.33	High
2	**25**	10.00	Low
2	**26**	3.33	Low
2	**27**	0.00	Low
2	**28**	3.33	Low
2	**29**	0.00	Low

Survey Year	SAT site no.	Evidence of koala use (%)	Koala use (high/medium/low)
2	**30**	3.33	Low
3	**1**	3.33	Low
3	**2**	6.67	Low
3	**3**	13.33	Low
3	**4**	3.33	Low
3	**5**	0	Low
3	**6**	0	Low
3	**7**	13.33	Low
3	**8**	13.33	Low
3	**9**	20	Low
3	**10**	6.67	Low
3	**11**	0	Low
3	**12**	10	Low
3	**13**	33.33	High
3	**14**	0	Low
3	**15**	6.67	Low
3	**16**	10	Low
3	**17**	6.67	Low
3	**18**	0	Low
3	**19**	0	Low
3	**20**	13.33	Low
3	**21**	0	Low
3	**22**	0	Low
3	**23**	0	Low
3	**24**	0	Low
3	**25**	0	Low
3	**26**	3.33	Low
3	**27**	23.33	Medium
3	**28**	3.33	Low
3	**29**	20	Low
4	**1**	0	Low
4	**2**	3.33	Low

Survey Year	SAT site no.	Evidence of koala use (%)	Koala use (high/medium/low)
4	**3**	13.33	Low
4	**4**	0	Low
5	**1**	3.33	Low
5	**2**	10.00	Low
5	**3**	10.00	Low
5	**4**	0	Low
5	**5**	0	Low
5	**6**	6.67	Low
5	**7**	3.33	Low
5	**8**	0	Low
5	**9**	3.33	Low
7	**1**	16.67	Low
7	**2**	0	Low
7	**3**	3.33	Low
7	**4**	0	Low
7	**5**	0	Low
7	**6**	0	Low
7	**7**	10.00	Low
7	**8**	6.67	Low
7	**9**	6.67	Low
7	**10**	20	Medium
8	**1**	0	Low
8	**2**	0	Low
8	**3**	3.33	Low
8	**4**	3.33	Low
8	**5**	0	Low
8	**6**	0	Low
8	**7**	10.00	Low
8	**8**	0	Low
8	**9**	0	Low

Appendix H

Weed Management Plans

Spring Mountain Precinct

AREA 2 WEED MANAGEMENT

ISSUE A 13.11.2017
PRELIMINARY ISSUE

DRAWING SCHEDULE

Dwg No.	Drawing Title	Issue	Date
7243 L 201	Weed Management Plan - Cover Sheet	A	13/11/2017
7243 L 202	Weed Management Plan - Introduction	A	13/11/2017
7243 L 203	Weed Management Plan - Sheet 1	A	13/11/2017
7243 L 204	Weed Management Plan - Sheet 2	A	13/11/2017
7243 L 205	Weed Management Plan - Sheet 3	A	13/11/2017
7243 L 206	Weed Management Plan - Sheet 4	A	13/11/2017
7243 L 207	Weed Management Plan - Sheet 5	A	13/11/2017
7243 L 208	Weed Management Plan - Sheet 6	A	13/11/2017
7243 L 209	Weed Management Plan - Sheet 7	A	13/11/2017
7243 L 210	Weed Management Plan - Sheet 8	A	13/11/2017
7243 L 211	Weed Management Plan - Sheet 9	A	13/11/2017
7243 L 212	Weed Management Plan - Sheet 10	A	13/11/2017
7243 L 213	Weed Management Plan - Technical Notes	A	13/11/2017
7243 L 214	Weed Management Plan - Treatment Techniques	A	13/11/2017
7243 L 215	Weed Management Plan - Treatment Techniques	A	13/11/2017
7243 L 216	Weed Management Plan - Treatment Techniques	A	13/11/2017
7243 L 217	Weed Management Plan - Monitoring & Reporting	A	13/11/2017

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40 YEARS 1975-2015

AMENDMENTS:

Issue	Date	Description	Checked
A	13/11/2017	Preliminary Issue	MS

CLIENT: Lendlease

PROJECT: Spring Mountain Precinct

SCALE: AS NOTED

landscape architecture

DRAWING: Area 2 Weed Management Plan Cover Sheet

DATE:	November 17	CHECKED:	MS
CLIENT REF.:	7243	DRAWN:	TL
DRAWING No.:	7243 L 201 WMP A		

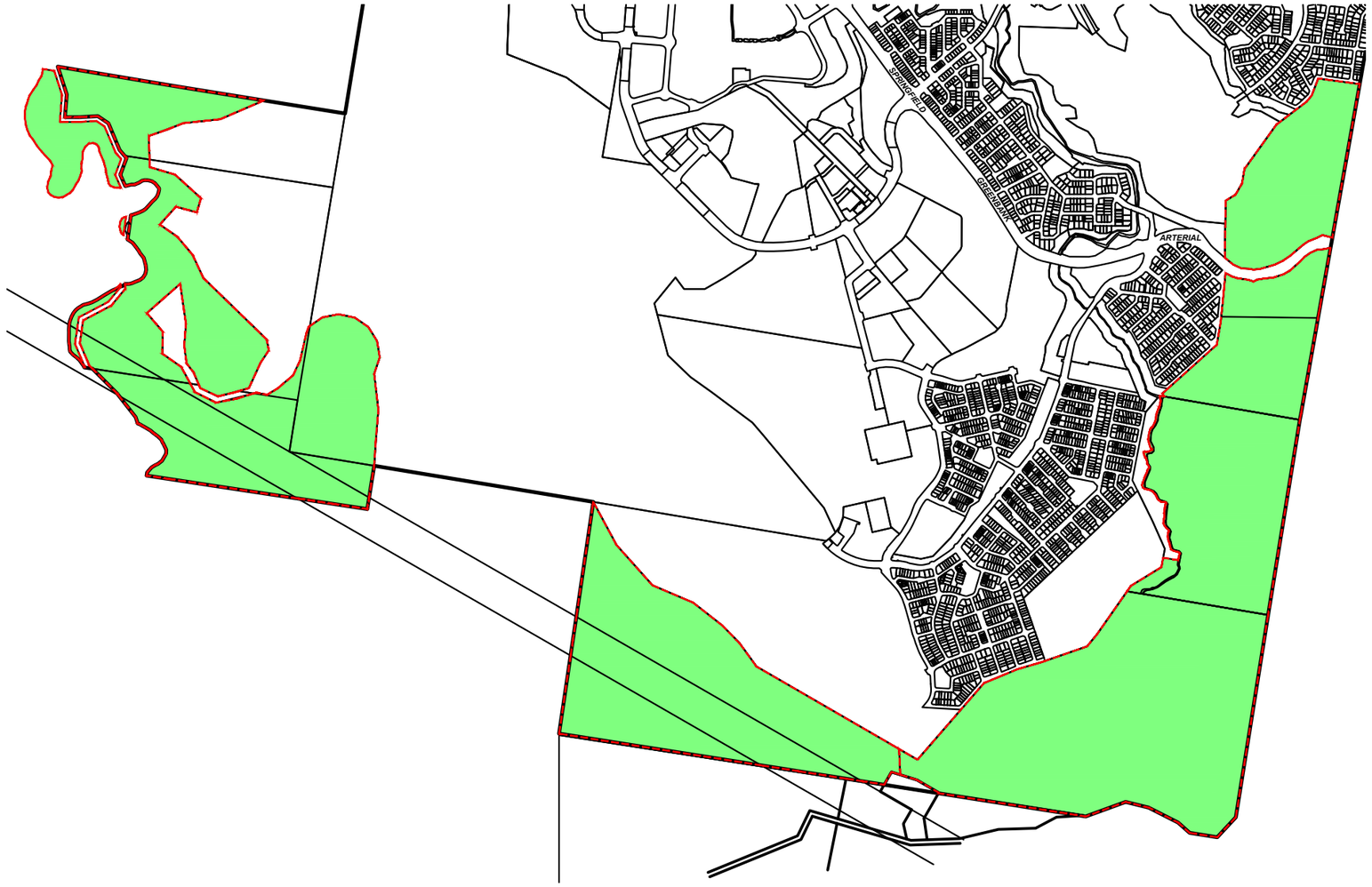
Spring Mountain Precinct

AREA 2 MANAGEMENT PLAN - WEED TREATMENT & REHABILITATION

INTRODUCTION

NOTES

This Weed Management Plan



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AMENDMENTS:

Issue	Date	Description	Checked
A	13/11/2017	Preliminary Issue	MS

CLIENT: Lendlease

PROJECT: Spring Mountain Precinct

SCALE: AS NOTED

landscape architecture

DRAWING: Area 2 Weed Management Plan Weed Management Notes

DATE:	November 17	CHECKED:	MS
CLIENT REF.:	7243	DRAWN:	TL
DRAWING No.:	7243 L 202 WMP A		

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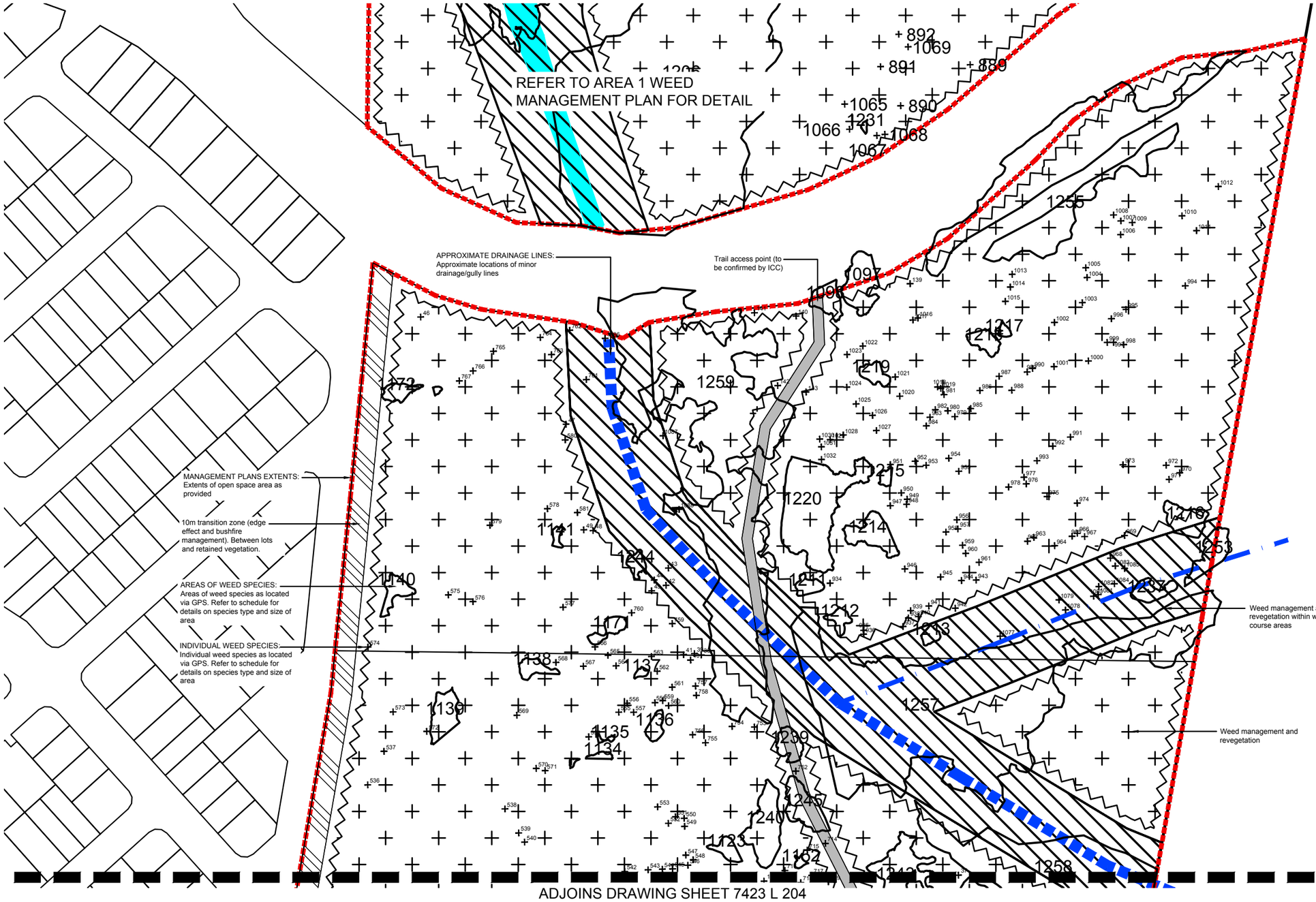
AREA 2 WEED MANAGEMENT PLAN



LEGEND

- Extent of management plan area
- Existing fire trail / maintenance access. As provided by ICC in GIS & Refer to Council's Management Plan
- Approximate minor drainage lines. Minor drainage / gully lines
- Approximate mapped major drainage lines
- Extent of existing lake area
- Weed management and revegetation
- Weed management and revegetation within water course areas
- Individual weed species located via GPS
- Area of weed species located via GPS
- 10m transition zone (Edge effect & bushfire management). Between lots and retained vegetation
- Trail access point (To be confirmed by ICC)

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AMENDMENTS:

Issue	Date	Description	Checked
A	13/11/2017	Preliminary Issue	MS

CLIENT: Lendlease

PROJECT: Spring Mountain Precinct

SCALE: 1:1000@A1 1:2000@A3 (0 10 20 50m)

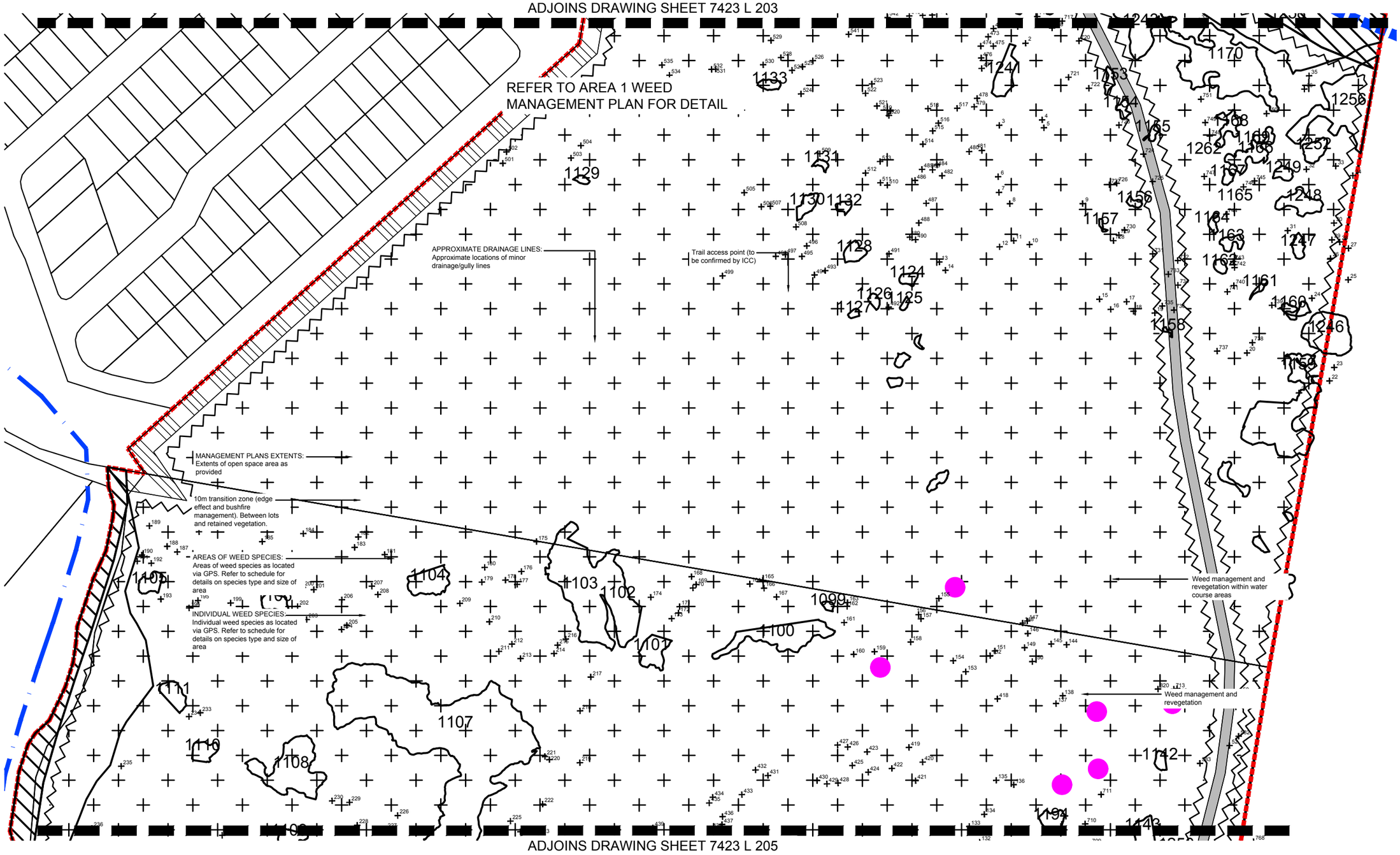
landscape architecture

DRAWING: Area 2 Management Plan Weed Management - Sheet 1

DATE: November 17	CHECKED: MS
CLIENT REF.: 7243	DRAWN: TL
DRAWING No.: 7243 L 203 WMP A	

Spring Mountain Precinct

AREA 2 WEED MANAGEMENT PLAN



LEGEND

- Extent of management plan area
- Existing fire trail / maintenance access. As provided by ICC in GIS & Refer to Council's Management Plan
- Approximate minor drainage lines. Minor drainage / gully lines
- Approximate mapped major drainage lines
- Extent of existing lake area
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- Individual weed species located via GPS
- Area of weed species located via GPS
- 10m transition zone (Edge effect & bushfire management). Between lots and retained vegetation
- Trail access point (To be confirmed by ICC)

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Issue	Date	Description	Checked
A	13/11/2017	Preliminary Issue	MS

CLIENT: Lendlease

PROJECT: Spring Mountain Precinct

SCALE: 1:1000@A1 1:2000@A3 0 10 20 50m

landscape architecture

DRAWING: Area 2 Management Plan Weed Management - Sheet 2

DATE: November 17 CHECKED: MS

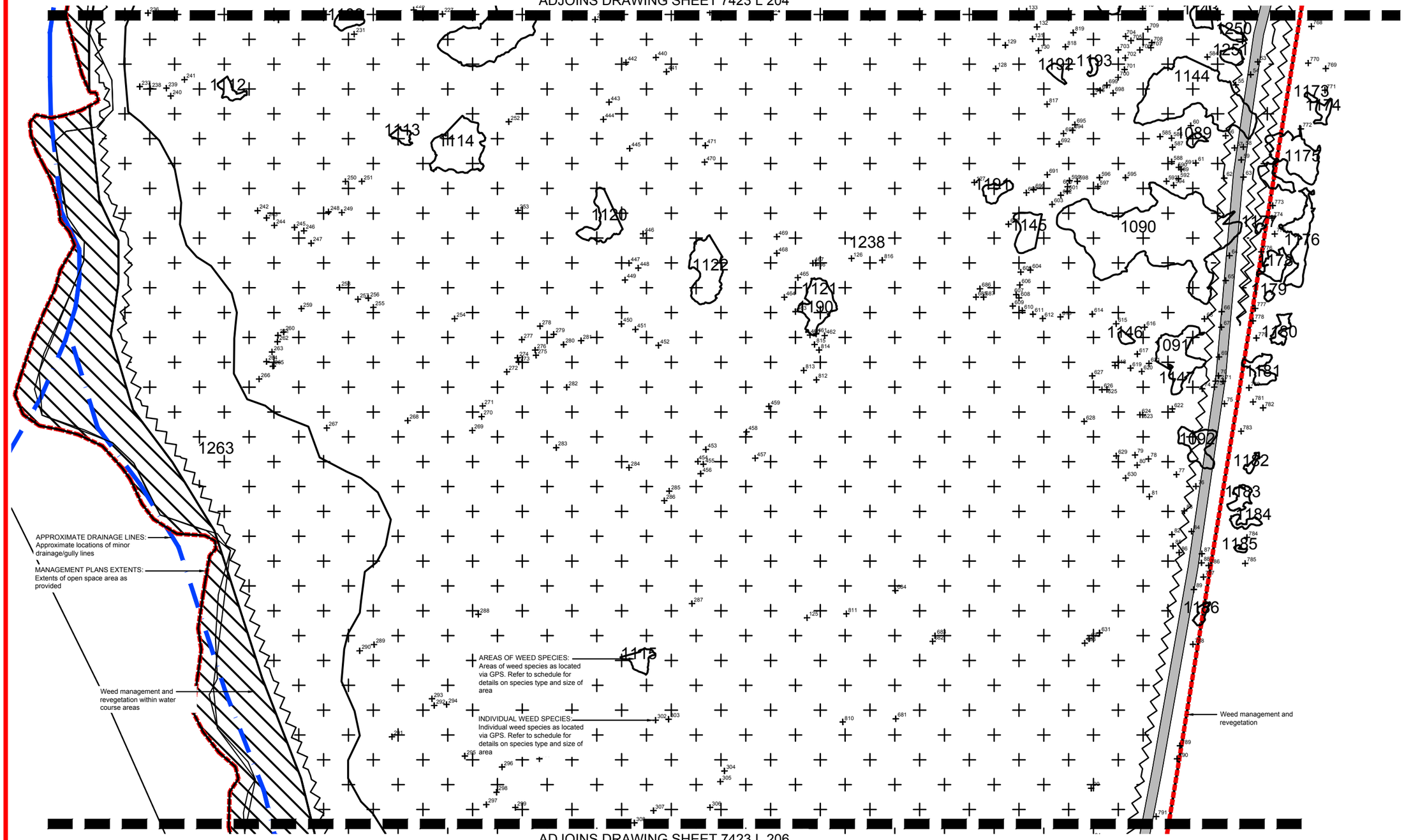
CLIENT REF.: 7243 DRAWN: TL

DRAWING No.: 7243 L 204 WMP A

Spring Mountain Precinct

AREA 2 WEED MANAGEMENT PLAN

ADJOINS DRAWING SHEET 7423 L 204



LEGEND

- Extent of management plan area
- Existing fire trail / maintenance access. As provided by ICC in GIS & Refer to Council's Management Plan
- Approximate minor drainage lines. Minor drainage / gully lines
- Approximate mapped major drainage lines
- Extent of existing lake area
- Weed management and revegetation
- Weed management and revegetation within water course areas
- Individual weed species located via GPS
- Area of weed species located via GPS
- 10m transition zone (Edge effect & bushfire management). Between lots and retained vegetation
- Trail access point (To be confirmed by ICC)

ADJOINS DRAWING SHEET 7423 L 206

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Issue	Date	Description	Checked
A	13/11/2017	Preliminary Issue	MS

CLIENT: Lendlease

PROJECT: Spring Mountain Precinct

SCALE: 1:1000@A1 1:2000@A3 0 10 20 50m

landscape architecture

DRAWING: Area 2 Management Plan Weed Management - Sheet 3

DATE: November 17	CHECKED: MS
CLIENT REF.: 7243	DRAWN: TL
DRAWING No.: 7243 L 205 WMP A	

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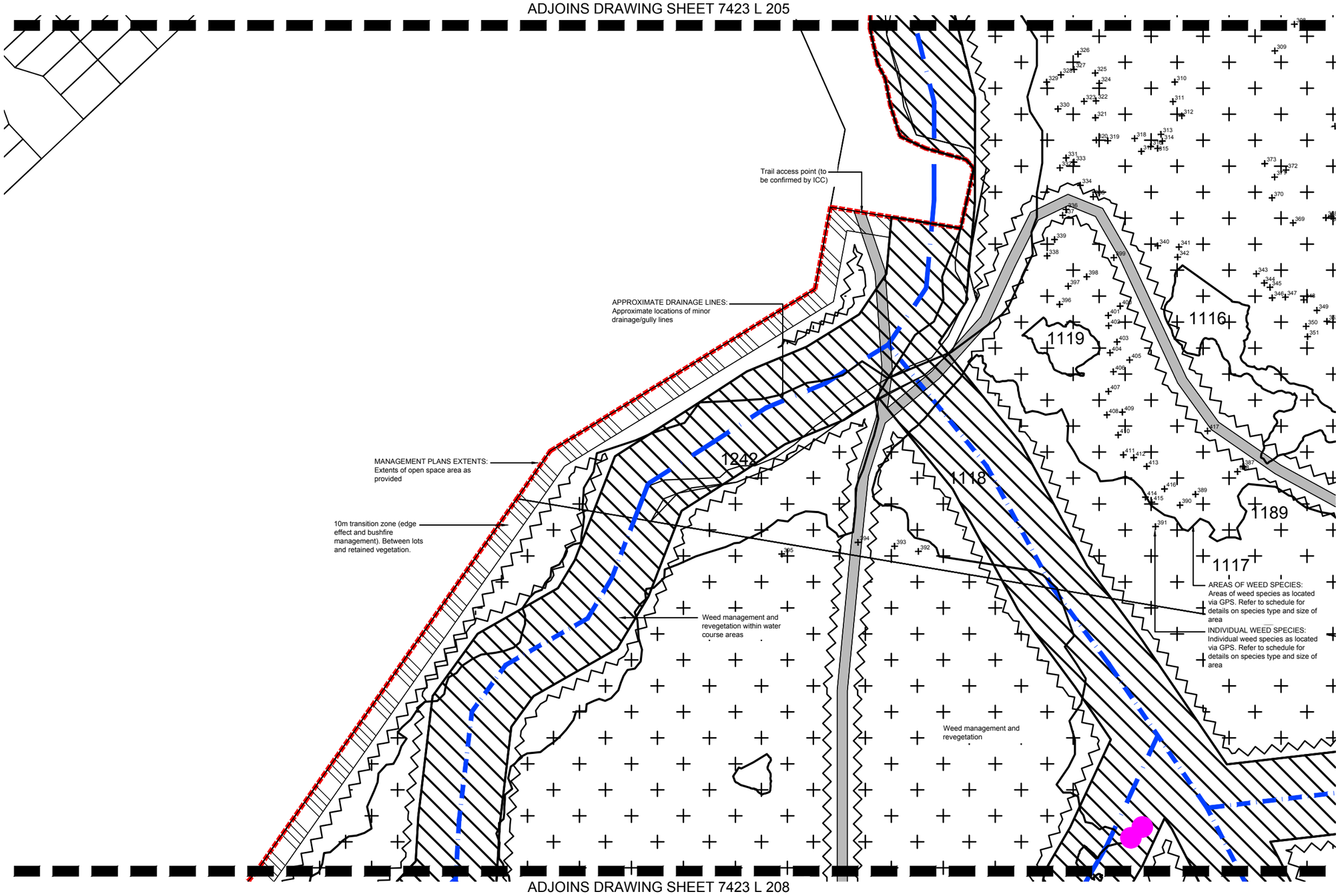
AREA 2 WEED MANAGEMENT PLAN

ADJOINS DRAWING SHEET 7423 L 205



ADJOINS DRAWING SHEET 7423 L 208

LEGEND

- Extent of management plan area
- Existing fire trail / maintenance access. As provided by ICC in GIS & Refer to Council's Management Plan
- Approximate minor drainage lines. Minor drainage / gully lines
- Approximate mapped major drainage lines
- Extent of existing lake area
- Weed management and revegetation
- Weed management and revegetation within water course areas
- Individual weed species located via GPS
- Area of weed species located via GPS
- 10m transition zone (Edge effect & bushfire management). Between lots and retained vegetation
- Trail access point (To be confirmed by ICC)

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40 YEARS 1975-2015

AMENDMENTS:

Issue	Date	Description	Checked
A	13/11/2017	Preliminary Issue	MS

CLIENT: Lendlease

PROJECT: Spring Mountain Precinct

SCALE: 1:1000@A1 1:2000@A3 (0 10 20 50m)

landscape architecture

DRAWING: Area 2 Management Plan Weed Management - Sheet 4

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DRAWING No.: 7243 L 206 WMP A	

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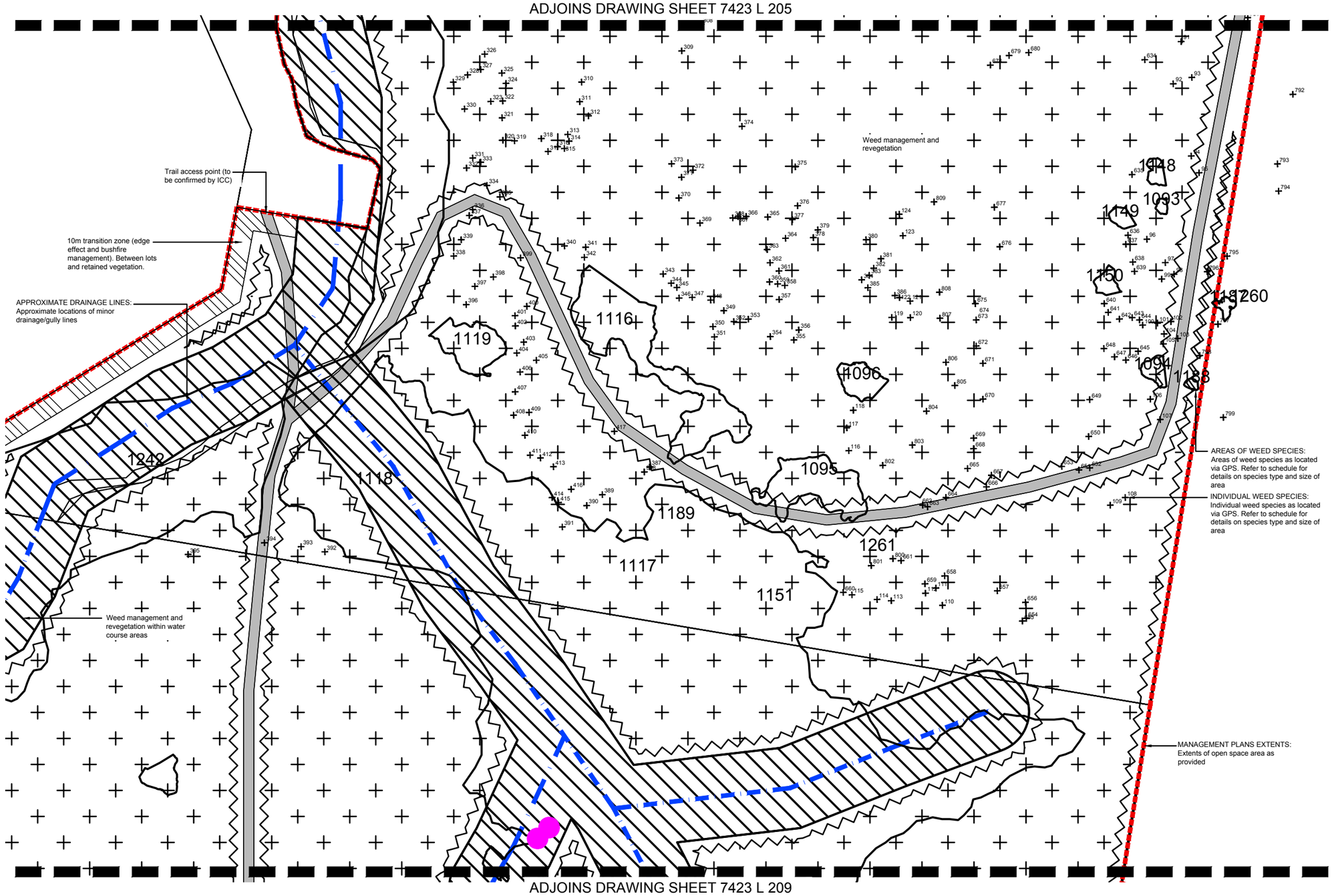
AREA 2 WEED MANAGEMENT PLAN

ADJOINS DRAWING SHEET 7423 L 205



ADJOINS DRAWING SHEET 7423 L 209

LEGEND

- Extent of management plan area
- Existing fire trail / maintenance access. As provided by ICC in GIS & Refer to Council's Management Plan
- Approximate minor drainage lines. Minor drainage / gully lines
- Approximate mapped major drainage lines
- Extent of existing lake area
- Weed management and revegetation
- Weed management and revegetation within water course areas
- Individual weed species located via GPS
- Area of weed species located via GPS
- 10m transition zone (Edge effect & bushfire management). Between lots and retained vegetation
- Trail access point (To be confirmed by ICC)

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AMENDMENTS:

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CLIENT: Lendlease

PROJECT: Spring Mountain Precinct

SCALE: 1:1000@A1 1:2000@A3 (0 10 20 50m)

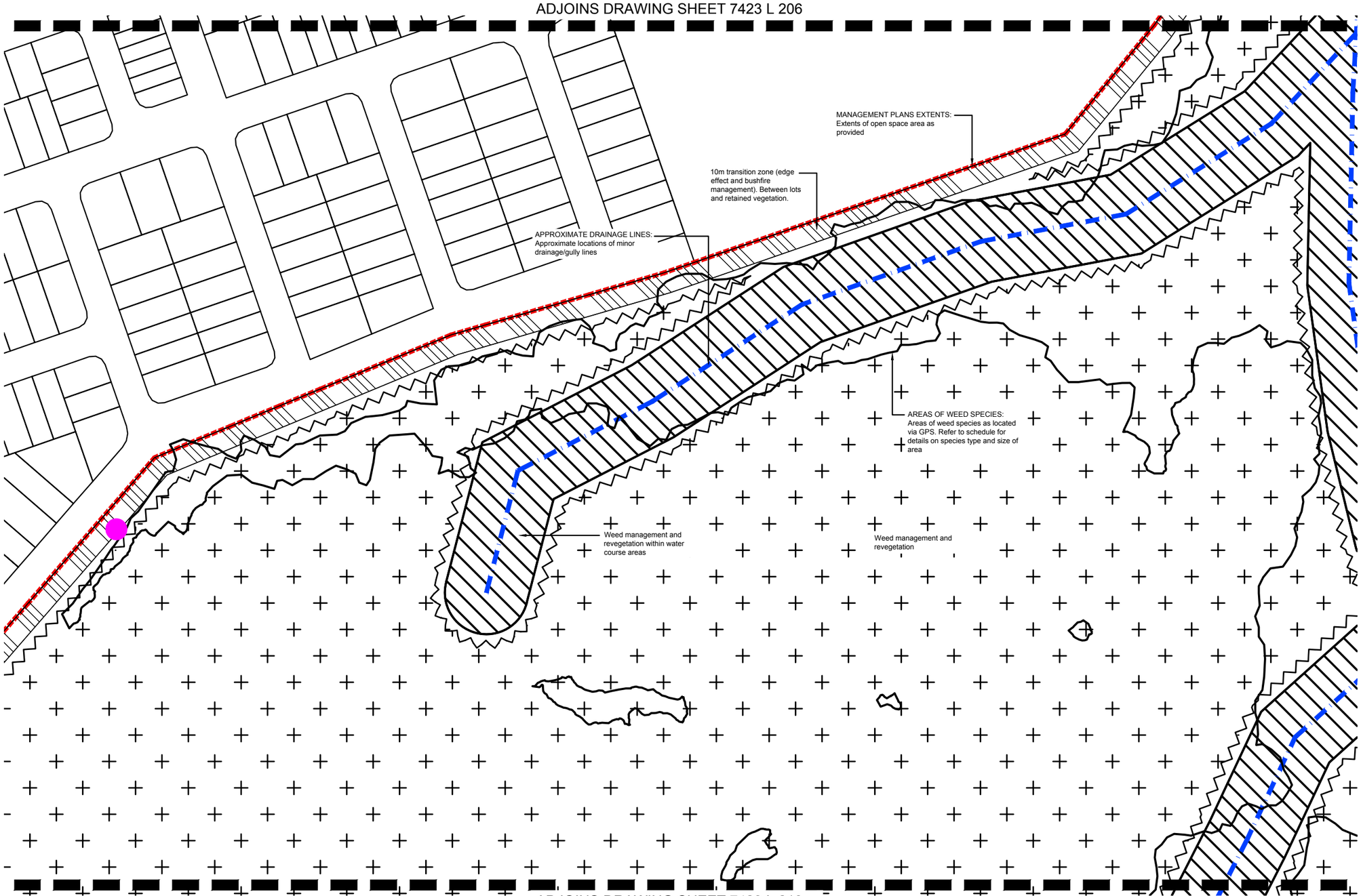
landscape architecture

DRAWING: Area 2 Management Plan Weed Management - Sheet 5

DATE: November 17	CHECKED: MS
CLIENT REF.: 7243	DRAWN: TL
DRAWING No.: 7243 L 207 WMP A	

Spring Mountain Precinct

AREA 2 WEED MANAGEMENT PLAN



LEGEND

- Extent of management plan area
- Existing fire trail / maintenance access. As provided by ICC in GIS & Refer to Council's Management Plan
- Approximate minor drainage lines. Minor drainage / gully lines
- Approximate mapped major drainage lines
- Extent of existing lake area
- Weed management and revegetation
- Weed management and revegetation within water course areas
- Individual weed species located via GPS (1036+)
- Area of weed species located via GPS (1226+, 847, 1200)
- 10m transition zone (Edge effect & bushfire management). Between lots and retained vegetation
- Trail access point (To be confirmed by ICC) (824+)

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AMENDMENTS:

Issue	Date	Description	Checked
A	13/11/2017	Preliminary Issue	MS

CLIENT: Lendlease

PROJECT: Spring Mountain Precinct

SCALE: 1:1000@A1 1:2000@A3 (0 10 20 50m)

landscape architecture

DRAWING: Area 2 Management Plan Weed Management - Sheet 6

DATE: November 17	CHECKED: MS
CLIENT REF.: 7243	DRAWN: TL
DRAWING No.: 7243 L 208 WMP A	

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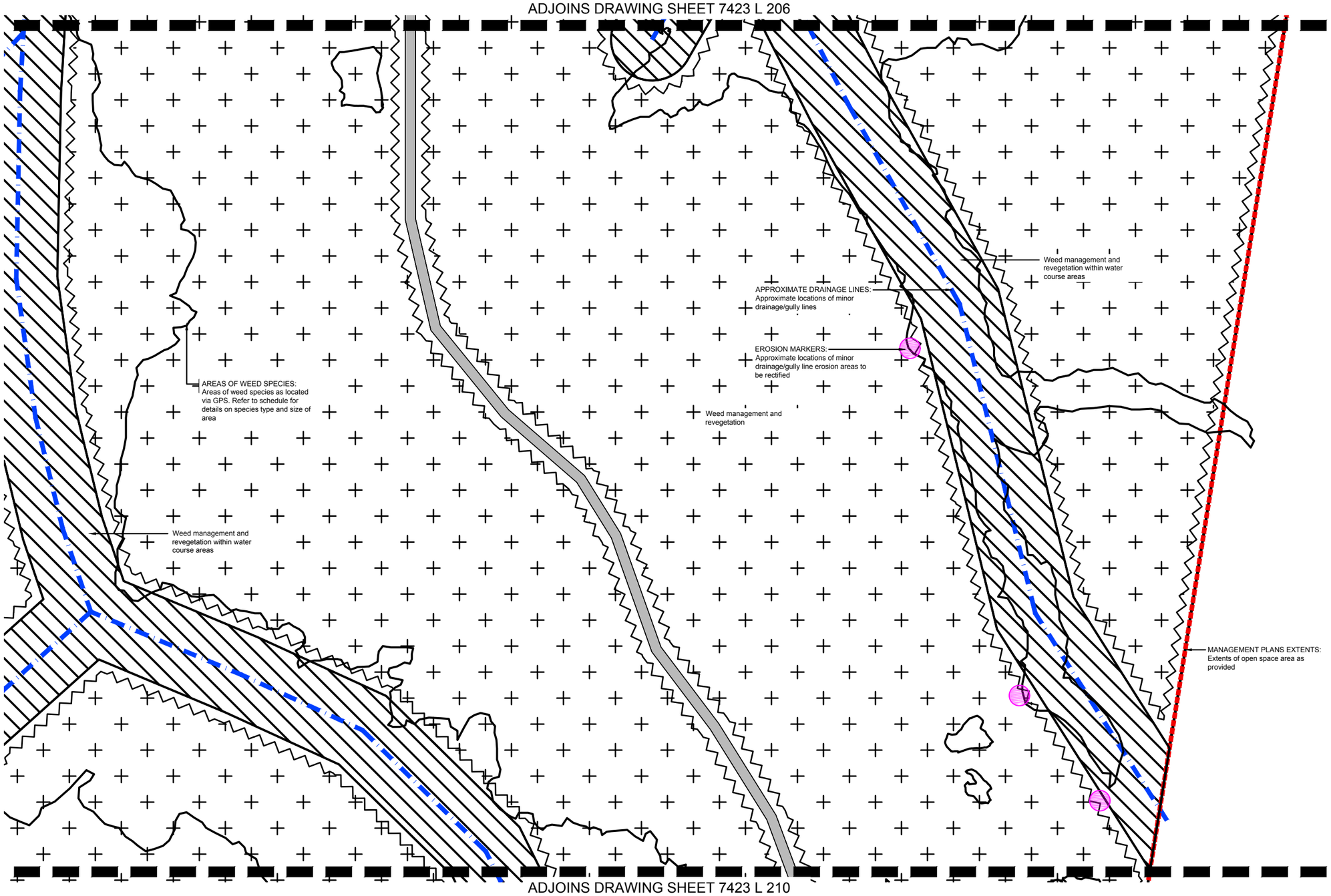
AREA 2 WEED MANAGEMENT PLAN

ADJOINS DRAWING SHEET 7423 L 206



ADJOINS DRAWING SHEET 7423 L 210

LEGEND

- Extent of management plan area
- Existing fire trail / maintenance access. As provided by ICC in GIS & Refer to Council's Management Plan
- Approximate minor drainage lines. Minor drainage / gully lines
- Approximate mapped major drainage lines
- Extent of existing lake area
- Weed management and revegetation
- Weed management and revegetation within water course areas
- Individual weed species located via GPS
- Area of weed species located via GPS
- 10m transition zone (Edge effect & bushfire management). Between lots and retained vegetation
- Trail access point (To be confirmed by ICC)

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40 YEARS 1975-2015

APPROVED COMPANY ISO9001 Quality Management Systems QMS Certification Services
APPROVED COMPANY ISO14001 Environmental Management Systems QMS Certification Services

AMENDMENTS:

Issue	Date	Description	Checked
A	13/11/2017	Preliminary Issue	MS

CLIENT: Lendlease

PROJECT: Spring Mountain Precinct

SCALE: 1:1000@A1 1:2000@A3 0 10 20 50m

landscape architecture

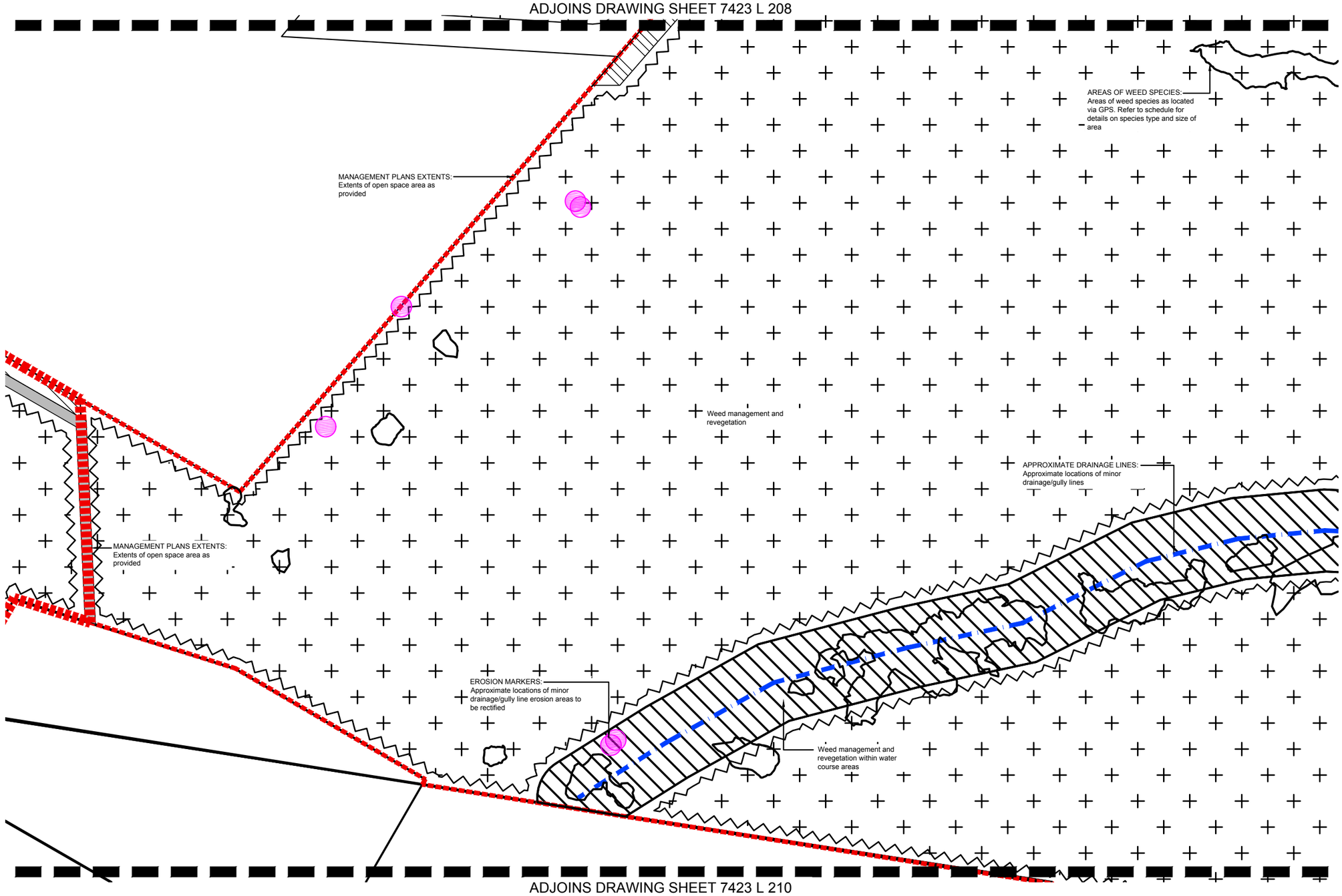
DRAWING: Area 2 Management Plan Weed Management - Sheet 7

DATE: November 17	CHECKED: MS
CLIENT REF.: 7243	DRAWN: TL
DRAWING No.: 7243 L 209 WMP A	

Spring Mountain Precinct

AREA 2 WEED MANAGEMENT PLAN

ADJOINS DRAWING SHEET 7423 L 208



ADJOINS DRAWING SHEET 7423 L 210

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- Weed management and revegetation within water course areas
- Individual weed species located via GPS (1036)
- Area of weed species located via GPS (1226, 1200)
- 10m transition zone (Edge effect & bushfire management). Between lots and retained vegetation
- Trail access point (To be confirmed by ICC) (824)

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landscape architecture

DRAWING: Area 2 Management Plan Weed Management - Sheet 8

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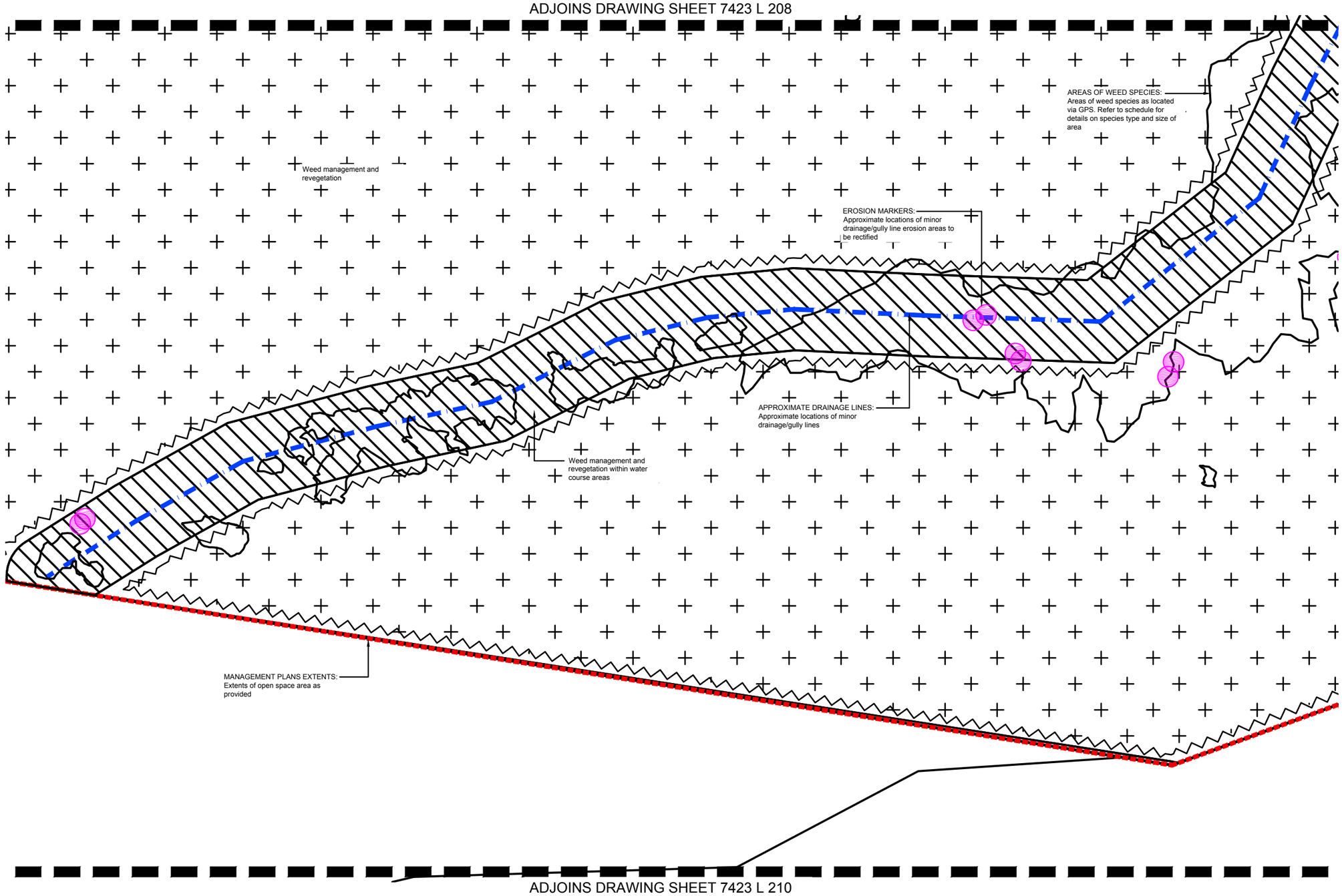
Spring Mountain Precinct

AREA 2 WEED MANAGEMENT PLAN

ADJOINS DRAWING SHEET 7423 L 208



ADJOINS DRAWING SHEET 7423 L 210

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SCALE: 1:1000@A1 1:2000@A3 (0 10 20 50m)

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DRAWING: Area 2 Management Plan Weed Management - Sheet 9

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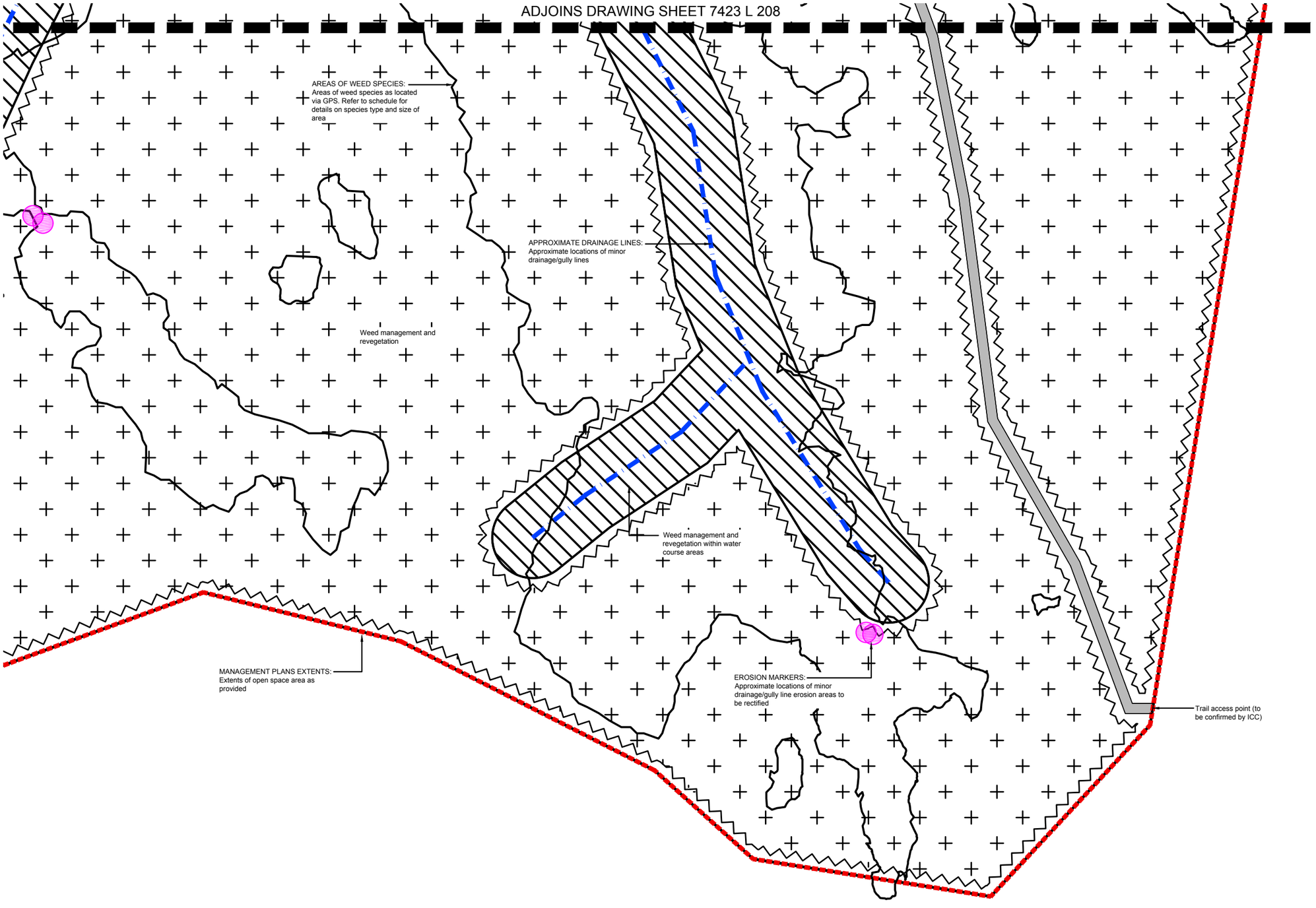
Spring Mountain Precinct

AREA 2 WEED MANAGEMENT PLAN



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landscape architecture

DRAWING: Area 2 Management Plan Weed Management - Sheet 9

DATE:	November 17	CHECKED:	MS
CLIENT REF.:	7243	DRAWN:	TL
DRAWING No.:	7243 L 211 WMP A		

Spring Mountain Precinct

AREA 2 MANAGEMENT PLAN - TECHNICAL NOTES - GENERAL

NOTES

This Weed Management Plan links specific weed removal and management measures with spatial areas within the declared area included with this application. This Weed Management Plan covers the 173.66ha Area 2 portion of land previous dedicated by Springfield Land Corporation (SLC) to Ipswich City Council (ICC). The main objectives and action items for pest plants are detailed in Table 1 shown on this plan, with the objectives and actions for ecological restoration are detailed in Table 2.

WEED CONTROL PROGRAM TIMING

The primary stage of manual weed removal, treatment and disposal for the parkland dedication is programmed when all existing weeds are removed with secondary and maintenance weeding occurring for another 18 months (18 month program post on-maintenance).

Primary Weed Removal Stage - Consists of the initial weed removal / treatment of site weeds via the methods detailed within the South East Queensland Ecological Restoration Guidelines. Essentially involves the manual removal, stock piling and disposal and initial usage of prescribed herbicides. Additional notes below include:

- Implemented weed control method according to this plan.
- Weed trees located within 20M zone of the existing trail network are to be removed where trunk is cut down to ground level and vegetative matter removed.
- Program timing; primary weed removal phase is considered to be completed when all existing weeds within the stage for the declared area have been removed or treated. Both the secondary phase and the primary phase of weed removal can occur concurrently in different stage areas over time.
- A key map is to be provided logging the progress of areas from primary to secondary phases of weed removal and areas of rehabilitation as part of the reporting progress.

Secondary or Follow-up Weeding - for all areas will involve the quarterly inspection of areas having undergone Primary Weed Removal and treatment of infestations or outbreak as required. Additional notes below include:

- Implemented weed control method according to this plan.
- Weed trees located within 20M zone of the existing trail network are to be removed where trunk is cut down to ground level and vegetative matter removed.
- Program timing; primary weed removal phase is considered to be completed when all existing weeds within the declared area have been removed initially. Both the secondary phase and the primary phase of weed removal can occur concurrently in different work areas over time.
- A key map is to be provided logging the progress of areas from primary to secondary phases of weed removal and areas of rehabilitation as part of the reporting progress.

Maintenance Weeding Phase - final stage of weeding which occurs in areas where the majority of weeds have been removed and treated. Maintenance weeding continues to remove additional outbreaks but also allows for the fostering of natural regeneration and regrowth seedlings. Additional notes below include:

- Implemented weed control method according to this plan.
- Weed trees located within 20M zone of the existing trail network are to be removed where trunk is cut down to ground level and vegetative matter removed.
- Program timing; primary weed removal phase is considered to be completed when all existing weeds within the designated Park have been removed initially. Both the secondary phase and the primary phase of weed removal can occur concurrently in different work areas over time.
- A key map is to be provided logging the progress of areas from primary to secondary phases of weed removal and areas of rehabilitation as part of the reporting progress.

Revegetation occurs in two (2) distinct zones throughout the management area. Refer to Drawing sheets for a full description of proposed plant species, sizes, densities and numbers.

NATURAL REGENERATION

Applies:

- To relatively large, intact and weed-free areas of native vegetation.
- Where the 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-lived disturbance, such as a fire or cyclonic winds.
- When preventative action is all that is required to avert on-going disturbance, e.g. erection of fencing to prevent intrusion from cattle.

Planting in such sites can work against the aims of restoration by interfering with natural regeneration.

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 removal, minor amelioration of soil conditions, erection of fencing, cessation of slashing, etc. will be enough to trigger the recovery processes through natural regeneration.
- When major component is weed control.

Planting in such sites can work against the aims of restoration by interfering with natural regeneration.

The re-establishing plant community will be similar in structure, composition and diversity to the original vegetation.

TABLE 1: OBJECTIVES AND ACTION ITEMS FOR PEST PLANTS

Threats	Opportunities	Management action	Timeframe	Responsibility
Objective: Protect, manage and enhance the diversity of native flora species and vegetation communities within the estate by controlling pest plants.				
Insufficient monitoring of pest plants	Increased knowledge of pest plant abundance and distribution within the estate	Continue to develop and update the management plan for the estate to identify pest plants present and to recommend and prioritise control and monitoring actions	Annually	Saunders Havill Group (SHG)
Establish-ment of large infestations of pest plants Insufficient resourcing of pest plant control measures	Pest plants are controlled effectively and in a way that ensures native vegetation regeneration	Include treating pest plants within the open space area to improve visitors experience to the estate	Ongoing	Contractor
Increased abundance of pest plants due to fire	Increased knowledge of pest plant responses to fire	Conduct follow up pest plant treatment after any fires within the estate	As required	Contractor
Lack of education of visitors and local residents as to the adverse impacts pest plants have on the natural environ-ment	Improved public understanding and support for pest plant control	Provide material for public awareness (ie interpretative signage)	As required	Contractor

TABLE 2: OBJECTIVES AND ACTION ITEMS FOR ECOLOGICAL RESTORATION

Threats	Opportunities	Management action	Timeframe	Responsibility
Objective: Protect, manage and enhance the significant habitat values and ecological processes found within the estate, so as to contribute positively to the conservation values of the local and regional area				
Degraded vegetation communities have adverse impacts on other values within the estate, including native flora and fauna species, fire issues and aesthectics	Restore degraded native vegetation communities and minimise impacts associated with pest plants and animals and their control on native flora and fauna, cultural heritage sites, and landscapes within the estate	Prepare and issue a management plan to: - clearly prioritise actions and zones (eg. focus on declared and environmental pest plants and mapped biodiversity zones) - Divide the site into sub-zones which can be managed in a systematic and structured way - Align with the fire management plan as burns could provide ecological and economical efficiencies; reducing fuel loads at the same time as acting as a pest plant control - Lantana (especially) should be managed to reduce the fuel load, as this is a major fire hazard Incorporate training (eg. for relevant community groups) - Write the plan for the target audience working on the estate (eg. bushcare groups working in particular zones)	Prior to commence-ment	Contractor
Pest plant infestations from high use areas may impact on adjacent ecological values	Improve the flora values within the open space area	As part of the site rehabilitation planning for the open space, a planting list of locally occurring plant species for use in rehabilitation is to be provided to enhance population viability where appropriate and possible. Include threatened and locally significant species in plantings.	Ongoing	Contractor
Trail creation, soil compaction and increased erosion	Restore natural habitats to increase the resilience of the estate	Refer to management plans for further detail	As required	Contractor
Pest plant introduction and spread	Deceased abundance of pest plants	Refer to management plans for further detail	As required	Contractor
Disturbance from pest animals	Deceased abundance of pest animals	Refer to management plans for further detail	As required	Contractor
Insufficient resourcing of restoration measures	Improved public understanding of and support	Refer to management plans for further detail	As required	Contractor
Insufficient data on the effectiveness of ecological restoration programs	The populations and diversity of near threatened, threatened or locally significant plant species are protected and enhanced	Refer to management plans for further detail	As required	Contractor

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CLIENT: lendlease

PROJECT: Spring Mountain Precinct

SCALE: AS NOTED

landscape architecture

DRAWING: Area 2 Weed Management Plan Technical Notes - General

DATE: April 17	CHECKED: MS
CLIENT REF.: 7243	DRAWN: TL
DRAWING No.: 7243 L 213 WMP A	

Spring Mountain Precinct

AREA 2 MANAGEMENT PLAN - WEED TREATMENT & REMOVAL STRATEGY

NOTE:
Species highlighted have been identified within the 'Springfield Wildlife Corridor Management Requirements' list which have specified removal and/or treatment techniques for Class 1 or 2 weeds. Environmental weeds and weeds of National Significance (WONS) Class 3 are to be:

- Remove dumped garden weeds from urban interface. Liaise with ICC Supervisor regarding ongoing Compliance issues.
- Lantana controlled within 20m of track edges (ie walking, shared and service).
- Strategic treatment of gully infestations staged from head of gullies downstream utilising cut stump method and chopping lantana into small (150mm) pieces. Areas to be determined by consultation with ICC.
- Assisted natural regeneration following removal including direct seeding utilising endemic seed from site. Follow up weed control by spot spraying emerging weeds in cleared areas or hand removal.

QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND

Rank	Family	Scientific and common names	Subregion	Rec No	Score	Life form & Source	Non Chemical Control	Chemical Control
1	Verbenaceae	Lantana camara var camara (lantana)	10	455	5	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	168	4.8	S/O	Cut stump prior to flowering	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	38	4.9	H/O	Hand removed and bagged or larger infestations sprayed	Plantlets: spray G200 + MM or MM (ref 1).
4	Bignoniaceae	Macfadyena unguis cati (cat's claw creeper)	5	36	4.9	V/O	Tubers: crown or dig up, bag and remove.	Regrowth and tuberlings: spray G100 + MM or F100 (ref 1).
	Basellaceae	Anredera cordifolia (madeira vine)	8	16	4.9	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	26	4.9	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	19	4.9	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	25	4.8	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
9	Anacardiaceae	Schinus terebinthifolius (broad-leaf pepper tree)	6	49	4.8	T/O	Seedlings: Hand pull	Saplings: CS&P (G1.5); Trees: F/I (G1.5), Seedlings: spray G200 (ref 1).
	Salviniaceae	Salvinia molesta (salvinia)	8	57	4.9	Ha/F	Mechanical removal of small infestations; Salvinia weevil (Biological control)	Aquatic areas: calcium dodecylbenzene sulphanate (AI -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	12	4.9	Ha/F	Mechanical removal of small infestations	2, 4-D N-Butyl Ester (Rubber Vine Spray) @ 12.5L/VL water (see ref 2. for application guide).
12	Asteraceae	Chrysanthemoides monilifera subsp. rotundata (bitou bush)	3	23	4.9	S/OA	N/A	Stems: C&P or F/I (G1.5), Bushes: spray or cut down and spray regrowth G100 or MV (ref 1)
13	Pontederiaceae	Eichhornia crassipes (water hyacinth)	4	8	4.9	Ha/OI	Mechanical removal of small infestations	Waterways: 2, 4-D acid (AI 300) @ 1:200 with water, Aquatic Areas: glyphosate @ 1.3L/100L water (see ref 2. for application guide).
14	Acanthaceae	Hygrophila costata (Glush weed)	3	7	5	Ha/I	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)
	Oleaceae	Ligustrum lucidum (tree privet)	5	9	4.8	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 MV or G200 + MM if other weeds such as Lantana or Camphor Laurel are present
16	Asteraceae	Sphagneticola trilobata (Singapore daisy)	6	34	4.6	H/O	Hand pull	Hand pull and/or spray G200 + MM (ref 1).
17	Asteraceae	Ageratina adenophora (crofton weed)	6	38	4.6	H/O	Hand pull and hang to dry.	Spray MM or G200 or G200 + MV if other weeds such as Lantana or Camphor Laurel are present (ref 1).
18	Verbenaceae	Lantana montevidensis (creeping lantana)	8	62	4.8	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; Splatt
19	Fabaceae	Neonotonia wightii (glycine)	5	16	4.7	H/A	N/A	Vines: CS&P (1:1.5) or spray G100 + MM or MM (ref 1)
	Poaceae	Panicum maximum (green panic and guinea grass)	8	78	4.6	H/A	Hand or mechanical removal of small infestations	Spray: glyphosate @ 13mL/1L water (ref 2.)
21	Oleaceae	Ligustrum sinense (Chinese privet)	4	11	4.6	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	33	4.5	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 T100 or G200 + MM (ref 1).
23	Asparagaceae	Asparagus aethiopicus cv Sprengeri (asparagus ground fern)	5	35	4.5	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
24	Poaceae	Sporobolus pyramidalis and S. natalensis (giant rat's tail grasses)	8	72	4.8	H/U?	Seed heads cut and bagged, remaining leaves sprayed	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).
	Asteraceae	Ageratina riparia (mistflower)	5	38	4.6	H/O	Hand pull and hang to dry.	Spray G100 or MM (ref 1).
26	Asclepiadaceae	Araujia sericifera (mothvine)	9	38	4.4	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	15	4.5	H/O	Hand pull and dispose	Plantlets: spray G200 + MM or MM (ref 1)
28	Convolvulaceae	Ipomoea cairica (mile-a-minute)	7	56	4.4	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	31	4.4	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	19	4.4	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	61	4.3	H/O	Hand pull and hang to dry.	Spray G100 (ref 1).
32	Poaceae	Sporobolus africanus (Parramatta grass)	8	48	4.5	H/U	Hand or mechanical removal of small infestations	Small infestations: spray glyphosate @ 15mL/L water, flupropanate @ 2mL/L water + ionic wetter @ 1mL/L water, Dense Infestations: blanket spraying glyphosate 3L/ha, flupropanate 2L/ha (ref 2).
33	Poaceae	Sporobolus fertilis (giant Parramatta grass)	9	27	4.5	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	29	4.3	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	4	4.7	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
36	Amaranthaceae	Alternanthera philoxeroides (alligator weed)	12	3	5	Ha/U	physical removal of plant should not be attempted	Terrestrial 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	166	4.2	V/O	N/A	Stems: CS&P; Seedlings & Regrowth: spray G200 or G200 + MM (ref 1).
38	Poaceae	Melinis minutiflora (molasses grass)	5	17	4.5	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	30	4.3	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	24	4.3	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 T150 (ref 1).
41	Mimosaceae	Leucaena leucocephala (leucaena)	6	14	4.3	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	18	4.4	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	7	4.4	Ha/I	hand pulling, cutting and digging with machines effective	N/A
44	Pinaceae	Pinus elliottii (slash pine)	4	22	4.3	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	33	4.2	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	55	4.3	H/A	Hand pulling and removal and digging of larger clumps	Spray: glyphosate @ 1l/100L water
47	Crassulaceae	Bryophyllum pinnatum (resurrection plant)	6	17	4.2	H/O	Hand pull and dispose	Plantlets: spray G200 + MM or MM (ref 1).
48	Asteraceae	Parthenium hysterophorus (parthenium weed)	6	14	4.2	H/U	hand pulling of small areas is not recommended	Spot spray 2,4-D amine 500 g/L @ 0.4 L/100 L
49	Caprifoliaceae	Lonicera japonica (Japanese honeysuckle)	3	6	4.3	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	22	4.2	H/O	N/A	CS&P (G1.5); spray G200 or G200 + MM (ref 1).
51	Fabaceae	Macroptilium atropurpureum (siratro)	8	30	4.2	V/A	N/A	Vines: CS&P (1:1.5) or spray G100 + MM or MM (ref 1).
52	Rosaceae	Rubus ellipticus (yellowberry)	4	26	4.1	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	26	4.1	V/O	N/A	Young Shoots: spray G200 or G200 + MM. Best results in Oct-Nov and by using 'Pulse' as surficant (ref 1).
54	Verbenaceae	Phyla canescens (lippia, Condamine couch)	3	4	4.2	Ha/O	a combined approach of different control methods including chemical and mechanical with land management practices is most effective	Foliar spray 600 g/L Dichlorprop @ 5 ml / 1 L water or 2,4-D amine (500 g/L) + 1% crop oil @ 2 4 L/ha + 1% crop oil
55	Solanaceae	Solanum seaforthianum (Brazilian nightshade)	8	78	4	V/O	Hand pull	Spray G100 (ref 1).
56	Araceae	Pistia stratiotes (water lettuce)	3	8	4.1	Ha/OI	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	8	4.1	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)

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40 YEARS 1975-2015

AMENDMENTS:

Issue	Date	Description	Checked
A	13/11/2017	Preliminary Issue	MS

CLIENT: lendlease

PROJECT: Spring Mountain Precinct

SCALE: AS NOTED

landscape architecture

DRAWING: Area 2 Weed Management Plan Weed Management Techniques

DATE: November 17 | CHECKED: MS
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AREA 2 MANAGEMENT PLAN - WEED TREATMENT & REMOVAL STRATEGY

58	Commelinaceae	Tradescantia fluminensis (Qld use T. albiflora) (wandering jew)	5	9	4.1	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	36	3.9	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	25	4	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	30	4	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	22	4	S/O	Hand pull	Spray G100 (ref 1).
63	Passifloraceae	Passiflora subpeltata (white passion flower)	10	60	3.9	V/O	Stems: Hand pull	Stems: CS&P; Seedlings & Regrowth: spray G200 or G200 + MM (ref 1).
64	Fabaceae	Desmodium uncinatum (silverleaf desmodium)	5	14	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 (ref 1).
65	Poaceae	Melinis repens (red Natal grass)	10	134	4.1	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	17	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).
67	Onagraceae	Oenothera drummondii subsp. drummondii (beach evening primrose)	3	17	4	H/O	Hand pull	Spray G100 (ref 1).
68	Tiliaceae	Triumfetta rhomboidea (Chinese burr)	7	44	4	H/O	Hand pull	Spray G100 (ref 1).
69	Haloragaceae	Myriophyllum aquaticum (parrot's feather)	3	15	4	Ha/F	N/A	Spray: glyphosate 360g/L @ 100mL/10L water (ref 1).
70	Passifloraceae	Passiflora foetida (stinking passion flower)	7	50	3.9	V/O	Hand Pull	CS&P (G1.5); spray G200 or G200 + MM (ref 1).
71	Asteraceae	Verbesina encelioides (crownbeard)	7	34	4	H/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).
72	Poaceae	Paspalum mandiocanum (broad leaf paspalum)	3	6	4	H/A	N/A	Spray G200 - resistant to weaker strength (ref 1).
73	Poaceae	Paspalum dilatatum (paspalum grass)	10	30	3.9	H/A	Hand pull or dig up	Spray G100 (ref 1)
74	Ruppiaceae	Ruppia maritima (sea tassel)	2	8	4	Ha/F	Hand pull or dig up	Spray G100 (ref 1)
75	Arecaceae	Syagrus romanzoffiana (queen palm)	4?	10	3.9	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?	1	4	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	8	4	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	15	4.1	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	3	5?	V/O	N/A	CS&P (G1.5); spray G200 (ref 1).
80	Cactaceae	Opuntia tomentosa (velvet tree pear)	8	46	3.9	S/O	Hand removed, stem injected, or over sprayed with garlon	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	20	3.9	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	28	3.8	H/O	Hand pulled and bagged	Stems: S&P (GU); Regrowth and seedlings: spray G200 or G200 + MM (ref 1).
83	Cyperaceae	Cyperus involucratus (African sedge)	6	15	3.8	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	11	3.9	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	41	3.8	H/A	Hand pull or dig up	Spray G100 (ref 1).
86	Asclepiadaceae	Gomphocarpus physocarpus (balloon cotton bush)	10	132	3.7	S/OU	Slash in winter and burn cuttings. Wanderer Butterfly can also be used	Spray: glyphosate @ 1:100 with water, in spring before seeding (ref 3).
87	Poaceae	Digitaria didactyla (Queensland blue couch)	9	70	3.7	H/A	Hand pull or cultivation	Spot Spray: glyphosate or 2,2-DPA (ref 3)
88	Caesalpiniaceae	Gleditsia triacanthos (honey locust)	7	12	3.8	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 fluroxypyr (Starane 200®) @ 1.5 L 75ml/100 L diesel
89	Poaceae	Paspalum notatum (bahia grass)	4	10	3.8	H/A	Hand pull or dig up	Spray G100 (ref 1)
90	Cactaceae	Opuntia monacantha (drooping tree pear, syn. O. vulgaris)	2	3	4	S/O	Hand removed stem injected, or over sprayed with garlon	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	38	3.8	H/A	Cut below crown.	Spot Spray: glyphosate or 2,2 DPA (ref 3).
92	Malpighiaceae	Hiptage benghalensis (hiptage)	3	5	4	S V/O	Hand pull small infestations.	Seedlings: Foliar spray of dicamba, fluroxypyr, and triclopyr/picloram. Larger plants cut stump application of fluroxypyr and triclopyr/picloram with diesel, glyphosate with water and picloram undiluted (ref 7).
93	Solanaceae	Solanum torvum (devil's fig)	6	39	3.9	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	20	3.9	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	20	3.8	H/O	Hand Pull	Spot Spray: glyphosate or 2,2 DPA (ref 3)
96	Verbenaceae	Duranta erecta (duranta)	6	14	3.6	ST/O	Shrubs: CS&P (1:1.5)	Spray G100 (ref 1)
97	Brassicaceae	Nasturtium officinale (Qld use Rorippa nasturtium-aquaticum) (watercress)	7	19	3.7	Ha/FU	Manually grub and destroy.	Spray G100 and replace with local species (ref 1).
98	Polygonaceae	Acetosa sagittata (rambling dock)	4	18	3.7	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	45	3.6	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	16	3.6	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	10	3.5	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	12	3.7	S/A	N/A	Pastures - Fluroxypyr/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	9	3.9	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	5	4	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	12	3.7	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	16	3.8	H/O	N/A	Spray G200 + MM (ref 1).
107	Poaceae	Pennisetum clandestinum (kikuyu grass)	4	12	3.8	H/A	Hand Pull	Spot Spray: glyphosate or 2,2 DPA (ref 3)
108	Liliaceae	Lilium formosanum (Taiwan lily)	5	10	3.8	H/O	Hand pull or crown and dispose	Spray G100 + MM or MM (ref 1).
109	Asteraceae	Sigesbeckia orientalis (Indian weed)	10	148	3.6	H/U	Hand pull or cultivation.	Spray with 2,4 D amine or sodium, pr MCPA + dicamba (ref 3).
110	Asteraceae	Bidens pilosa (cobbler's pegs)	10	110	3.5	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	67	3.6	S/O	Hand removed stem injected, or over sprayed with garlon	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	55	3.5	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	23	3.6	H/AO	Cut stems from roos.	Spot spray with Glyphosate (ref 3).
114	Lamiaceae	Salvia coccinea (red salvia)	9	46	4	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	81	3.8	H/UO	N/A	Spray G100 or hand pull and spray regrowth G100 (ref 1).
116	Myrtaceae	Psidium guajava and P. guineense (yellow guava and West Indies guava)	4	7	3.7	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	22	3.5	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	19	3.5	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	6	4?	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	Brachiaria decumbens (signal grass)	4	14	3.5	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	4	4.3?	H/A	N/A	Vines: CS&P (1:1.5) or spray G100 + MM or MM (ref 1).
122	Commelinaceae	Commelina benghalensis (hairy wandering jew)	4	7	3.5	H/O	Collect and Bag	Spray G200 or G200 + MM (ref 1)
123	Poaceae	Pennisetum purpureum (elephant grass)	2	9	3.5	H/O	Grazing or mechanical removal	N/A (ref 2).
124	Zingiberaceae	Hedychium coronarium (wild ginger)	2	2	3.5	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	50	3.4	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	43	3.4	S/O	Hand pull, Slash	Slash and/or spray G100 (ref 1).
127	Solanaceae	Lycium ferocissimum (African boxthorn)	1?	5	4.4?	S/O	N/A	Stems: C&P (G1.5); Regrowth: spray G200 + MM (ref 1).
128	Mimosaceae	Prosopis pallida (algaroba)	2	2	4	ST/O	When using mechanical control methods, it is important to remove the bud zone of the root system (about 30 cm below the ground surface). If this is not removed, re shooting can occur.	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	2	4	Ha/FO	Hand pull.	Spot spray with Glyphosate, 2,2-DPA or MCPA + dicamba (ref 3).
130	Cactaceae	Opuntia aurantiaca (tiger pear)	1	2	4	S/O	Hand removed, stem injected, or over sprayed with garlon	Spray; Basal Bark application; Injection: Triclopyr: .8L/60L diesel. Picloram + Triclopyr: 1L/60L diesel. Amitrole: 1mL/3cm (ref 3).
131	Poaceae	Arundo donax (giant reed)	1	4	3.8	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	1	4	T/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	1	4	V/O	N/A	CS&P (G1.5); spray G200 (ref 1).
134	Poaceae	Cortaderia selloana (pampas grass)	2	1	3.7	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	23	3.6	S/O	Hand pull	Spray G100 (ref 1).
136	Agavaceae	Furcraea foetida (Cuban hemp)	3	4	4.3?	S/OA	Dig out by hand or machine	CS& P near ground or spray MM (ref 1).
137	Agavaceae	Furcraea selloa (hemp)	1	2	4?	S/OA	Dig out by hand or machine	CS& P near ground or spray MM (ref 1).
138	Agavaceae	Agave americana (century plant)	4	9	3.7	S/OA	Dig out by hand or machine	CS& P near ground or spray MM (ref 1).

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CLIENT: lendlease

PROJECT: Spring Mountain Precinct

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landscape architecture

DRAWING: Area 2 Management Plan Weed Management Techniques

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AREA 2 MANAGEMENT PLAN - WEED TREATMENT & REMOVAL STRATEGY

139	Rutaceae	Murraya paniculata cv. Exotica (murraya)	6	26	3.6	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	10	3.7	S/C/A	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	24	3.7	H/O	Manually grub and destroy.	Spray G100 and replace with local species (ref 1).
142	Balsaminaceae	Impatiens walleriana (busiam)	2	6	3.7	H/O	N/A	Spray G100 (ref 1).
143	Agavaceae	Agave sisalana (sisal)	2	4	3.7	S/C/A	Dig out by hand or machine	CS& P near ground or spray MM (ref 1).
144	Agavaceae	Agave vivipara var. vivipara (sisal)	2	3	3.7	S/C/A	Dig out by hand or machine	CS& P near ground or spray MM (ref 1).
145	Rosaceae	Prunus munsoniana (wild goose plum)	7	31	3.7	S/T/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	34	3.7	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	15	4?	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)	5	4	3.8	V,S/C	Slash. Diminish by shading site.	CS&P (G1.5); spray G200 or MM (ref 1).
149	Alismataceae	Sagittaria graminea var. platyphylla (sagittaria arrowhead)	5	7	3.8	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	4	3.7	Ha/CF	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	2	3.7	S/C	N/A	Stems: cut and fill segment (G1.5); Regrowth: spray G100 (ref 1)
152	Euphorbiaceae	Jatropha gossypiifolia (cotton leaf physic nut, bellyache bush)	1	1	3.7	S/C	Hand pull	Spray G100 (ref 1).
153	Malvaceae	Sida rhombifolia (Paddy's lucerne)	9	69	3.6	S/U	Hand pull or dig out.	Spray with 2,4-D amine or fluroxypyr (ref 3).
154	Poaceae	Themeda quadrivalvis (grader grass)	8	25	3.6	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)	8	14	3.6	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	12	3.4	T/O	Seedlings: Hand pull	Saplings: CS&P (G1.5); Trees: F/I (G1.5); Seedlings: spray G200 (ref 1).
157	Acanthaceae	Justicia betonica (squirrmtail)	2	4	4	S/C	Hand pull small infestations. Can be controled 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 baileyana (Bolivian wattle)	1	1	4	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	3	3.6	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	44	3.3	H/A	Hand or mechanical removal of small infestations	Spray: glyphosate @ 13ml/1L water (ref 2.)
161	Cyperaceae	Cyperus brevifolius (Mullumbimby couch)	6	53	3.4	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-pa, glyphosate-mas, imazapyr
162	Moraceae	Morus alba (white mulberry)	3	10	3.4	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	Araceae	Colocasia esculenta (taro)	3	4	3.4	H/A/O	Hand pull.	Cut at base and apply glyphosate or metsulfuron methyl. Plant often occurs in waterways so consult DERM prior to application (ref 5).
164	Cannaceae	Canna indica (canna lily)	3	9	3.8	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	6	3.4	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	8	4	S/T/O	N/A	Stems: CS&P (G1.5) or spray G200. Seeds: collect, bag and remove (ref 1)
167	Cactaceae	Hamsia martinii (hamsia cactus)	27	4	4	S/O	The use of the biological mealy bug agent is recommended	Triclopyr + picloram at 1.0l 60l diesel. Dichlorprop 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	1	4	V/O	N/A	CS&P (G1.5); spray G200 (ref 1).
169	Fabaceae	Erythrina crista-galli (cockspur coral tree)	27	4	3.5	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)	17	1	3.67	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)	17	3	3.6	T/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 gauge rhizome - fill hole with G1.5 with injector kit or similar (ref 1).
172	Acanthaceae	Hypoestes phyllostachya (polka dot plant)	3	5	3.5	T/O	Hand pull or crown and dispose	Spray G200 or G200 + MM (ref 1).
173	Caprifoliaceae	Sambucus canadensis (American elder)	3	7	3.4	S/T/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	45	3.3	F/T/	Hand or mechanical removal of small infestations	Seedlings: Atrazine 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	5	3.4	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	32	3.3	F/T/	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)	8	14	3.3	S/T/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	40	3.0	H/A	Hand or mechanical removal of young plants	Herbicide Control - Glyphosate 7ml/1L water, Dichlobenil 600g/100m2; Fluazifop 50-100mL/ 10L water (ref 2).
179	Asteraceae	Conyza canadensis (Canadian fleabane)	10	55	3.3	F/T/	Hand or mechanical removal of small infestations	Seedlings: Atrazine 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	20	3.3	H/O	Hand pull	Spray G100 (ref 1)
181	Poaceae	Setaria palmifolia (palm leaf setaria)	5	13	3.3	H/O	Hand pull or dig up	Spray G100 (ref 1)
182	Euphorbiaceae	Euphorbia heterophylla (milk weed)	5	12	3.4	H/O?	Hand pull	Spray G100 (ref 1).
183	Fabaceae	Desmodium intortum (green leaf desmodium)	4	11	3.3	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	11	3.3	H/O	Hand Pull	Spot Spray. glyphosate or 2,2 DPA (ref 3).
185	Asteraceae	Conyza bonariensis (flax leaf fleabane)	7	38	3.3	F/T/	Hand or mechanical removal of small infestations	Seedlings: Atrazine 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 enanthum (a tobacco bush)	7	19	3.2	S/O	Hand pull	Spray G100 (ref 1).
187	Poaceae	Stenotaphrum secundatum (buffalo grass)	8	23	3.2	H/A/O	Hand or mechanical removal of small infestations	Spray: glyphosate @ 13ml/1L water (ref 2.)
188	Apocynaceae	Cascabela thevetia (syn. Thevetia peruviana) (yellow oleander)	5	9	3.1	S/T/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:5L Diesel; Foliar Spray of fluroxypyr 1:120 for larger plants, 1:200 for seedlings (ref 2).
189	Rubiaceae	Coffea arabica (coffee)	3	7	3.2	S/T/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)	12	1	3.4	T/O	N/A	Saplings: CS&P (G1.5); Trees: F/I (G1.5); Seedlings: spray G200 (ref 1).
191	Fabaceae	Macroptilomia axillare (perennial horse gram)	4	12	3.1	V,H/A	N/A	Vines: CS&P (1.1.5) or spray G100 + MM or MM (ref 1).
192	Bignoniaceae	Watsonia meriana var bulbillifera (bulbil watsonia)	2	3	3.1	H/O	Dig up, bag and remove	Spray C200 + MM (ref 1)
193	Passifloraceae	Passiflora edulis (passion fruit)	8	12	3.2	V/A/O	Hand Pull	CS&P (G1.5), spray G200 or G200 + MM (ref 1).
194	Asteraceae	Zinnia peruviana (wild zinnia)	6	33	3.1	H/O	Seedlings: Hand pull	Shrubs: CS&P or F/I (G1); Seedlings: CS&P (G1.5) or spray G200 (ref 1).
195	Dracaenaceae	Sansevieria trifasciata (sansevieria)	27	7	3.1	H/O	Hand pull or dig up	Spray G100 + MM (ref 1).
196	Poaceae	Digitaria eriantha (pangola grass)	5	20	3.1	H/A	Hand pull or cultivation	Spot Spray. glyphosate or 2,2-DPA (ref 3)
197	Rosaceae	Eriobotrya japonica (loquat)	3	5	3.1	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	1	3.3	S/O	Biological controls available. cactoblastis cactorum successful. Mechanical control difficult. Fire can be used	Spray; Basal Bark application; Injection. Triclopyr, 1L/62L diesel, Picloram + Triclopyr 1L/62L diesel. Arm hole. 1ml/3cm (ref 3).
199	Mimosaceae	Acacia nilotica subsp. indica (prickly acacia)	3	3	4.4?	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)	5	15	3.1	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)

Explanatory notes:
Sub-region: Number of the ten sub-regions of the Southeast Queensland bioregion (Young and Dillewaard 1999) within which species recorded
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), S1-small tree (2-5m), S-shrub (woody <2m), H-herb (grasses & forbes), Ha-aquatic herbs.
Source, A-agriculture, O-ornamental and landscaping, F-fish aquarium, U-unintentional introduction and/or contaminant.

Abbreviations: Control Methods
CS&P = cut scrape and paint
S&P = scrape and paint
C&P = cut and paint
F/I = fill or inject stem

Abbreviations: Herbicide
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
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.

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40 YEARS 1975-2015

AMENDMENTS:

Issue	Date	Description	Checked
A	13/11/2017	Preliminary Issue	MS

CLIENT: lendlease

PROJECT: Spring Mountain Precinct

SCALE: AS NOTED

landscape architecture

DRAWING: Area 2 Management Plan Weed Management Techniques

DATE:	November 17	CHECKED:	MS
CLIENT REF.:	7243	DRAWN:	TL
DRAWING No.:	7243 L 216 WMP A		

Spring Mountain Precinct

AREA 2 MANAGEMENT PLAN - MONITORING & REPORTING

MONITORING & REPORTING

MONITORING AND REPORTING PROCEDURES

Monitoring and maintenance of the weed management and vegetation, both adjacent to proposed works and within the management area, is a vital component to the success of this management plan set.
An ongoing maintenance schedule, detailing the monitoring program, management intervals, methodologies, and corrective actions for contractors undertaking rehabilitation works within the ecological area is provided below. It is the responsibility of the rehabilitation landscape contractor to ensure the ongoing maintenance and monitoring schedule is actioned. Monitoring of the parkland weed management and revegetation works allows for:

- A review of the pre-established performance indicators for measuring the success of the weed removal and control;
- Ensure the 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; and
- Identification of new weed threats or other factors which may be effecting areas designated for ecological rehabilitation.

Monitoring is required for weed eradication, revegetation and assisted regeneration.

MAINTENANCE ACTIONS AND METHODOLOGIES

Tree Retention - Construction Phase
- Ecologist / Arborist to assess tree exclusion zones are adhered to;
- Trees assessed for signs of stress or die back; and
- Implementation of VMP if retained tree roots Critical Root Zone (CRZ) is impacted upon.

Initial Establishment - Rehabilitation Planting
Initial 12 week establishment period applies to all rehabilitation planting works. During this period weekly maintenance is to occur that involves the following:
- Watering;
- Ongoing weed control;
- Fertilising; and
- Replacement of dead or damaged stock.

Ongoing Maintenance - Rehabilitation Planting
After this period, it is recommended that the ecological planting site be maintained on a monthly basis over a 5 year period to ensure that the planting has been successful. The following is to occur:
- Conduct weed spraying, plant watering, plant replacement of losses as necessary to maintain >95% survival rate;
- All other areas of non-use / limited access or steep terrain areas are to be hydro seeded to maintain a minimum 90% ground cover;
- All planting species will be disease free and supplied from an accredited nursery supplier;
- Assess condition of sediment control devices and replace if necessary; and
- Removal of excess sediment from erosion control devices as required.

MONITORING TIME FRAMES

For weed removal and revegetation three (3) Council determined timeframes form the anchor of the monitoring process. These include:

Council Pre-Start - *On-site meeting prior to the initial commencement of work within each stage of weed management. Will involve Consultant, Contractor and Council to work through weed treatment areas and clarify works approved and appointed.*

On-Maintenance - *At the completion of the Primary Weed Removal Stage and Secondary weeding an On-Maintenance meeting will be held with Council to inspect the works on-site in relation to the approved plans and previously agreed on-maintenance criteria.*

Off-Maintenance - *At the completion of all site weeding works and the agreed maintenance timeframe a final inspection will be held by Council to determine if works have been completed to the required level for Council hand over.*

REPORTING

Reporting to **Ipswich City Council** will occur on a yearly interval during the total period. Council will physically attend the Pre-Start, On-maintenance and Off-maintenance meetings. For this project it is recommended reporting include a short memo styled report responding to agreed criteria. As part of the monitoring a number of pre-determined transect and quadrant sampling sites have been allocated. At these locations a number of baseline studies have been completed and will be repeated post weed removal and maintenance to measure the success of the programmed works. It is also recommended this include a visual diary of imagery from selected locations at each inspection (Including the pre-start and monthly inspections). The imagery for the each period will be included with the report to Council.

In addition to the photo monitoring the biannual report to Council should include sufficient information on:
- Date, time and whether conditions at time of inspection
- Changes in weed extent populations (spreading / contracting)
- Changes in weed densities
- Health of existing vegetation protected by NRM provisions
- Rate of success for revegetation plantings
- Growth and PFC rate of assisted regeneration areas
- Occurrences of new weed infestations or species outbreaks
- Comments on any indirect changes to the area as a result of weed management (ie erosion / change in weed footprints / death to natives)
- Annual reporting is required to be sent to the Department of the Environment (DOE).

NOTES

MONITORING PARAMETERS

The monitoring should address the following issues:
- Maintained health and vigour of retained Remnant Trees adjacent to the corridor;
- Plant growth, percentage cover and survival rates;
- Plant losses through herbivores, disease, vandalism, storm damage or other factors;
- Weed re-growth and control measures;
- Plant replacement;
- Maintenance watering regime; and
- Erosion prevention.

It is also essential to keep an accurate photo record of the retained trees and progress of the rehabilitation planting by setting fixed photo monitoring points across the site. Photos should be taken by a digital camera and recorded in the project file by date and discrete photo monitoring point number. Photo monitoring point locations should be clearly marked on site and mapped by a surveyor or by GPS.

Corrective Actions
If trees adjacent to the sewer alignment disturbance are dying or impacted upon:
- Monitor construction activity;
- Educated construction team on tree retention measures;
- Review and / or respond to tree retention mitigation measures ie. exclusion zones;
- Review VMP for particular trees;
- Remove if necessary unsafe tree;
- Compensation by planting;
- If soil erosion is still occurring in planting zones the following is to occur:
- Review rehabilitation techniques conducted by contractor;
- Assess the potential for disturbance to occur;
- Assess other potential sources or causes of disturbances to occur; and
- Maintain planting regimes to a minimum of 95% survival rate.

If weed infestations occur in planting zones or in disturbed construction area, the following is to occur:
- Review weed removal and weed management techniques conducted by contractor;
- Assess the appropriate use and amounts of herbicides are being used;
- Assess the potential for weeds to occur;and
- Assess other potential sources or causes of weeds to occur.

If there is poor regeneration of plants occurring in ecological areas, the following is to occur:
- Review planting and direct seeding management techniques conducted by contractor;
- Assess the appropriate use and amounts of herbicides are being used in planting areas;
- Assess the potential for weeds to occur in ecological areas; and
- Assess other potential sources or causes of weeds or limited re-growth of native plants to occur, ie. plant pests and disease monitoring.

RESOURCES / ROLES & RESPONSIBILITIES

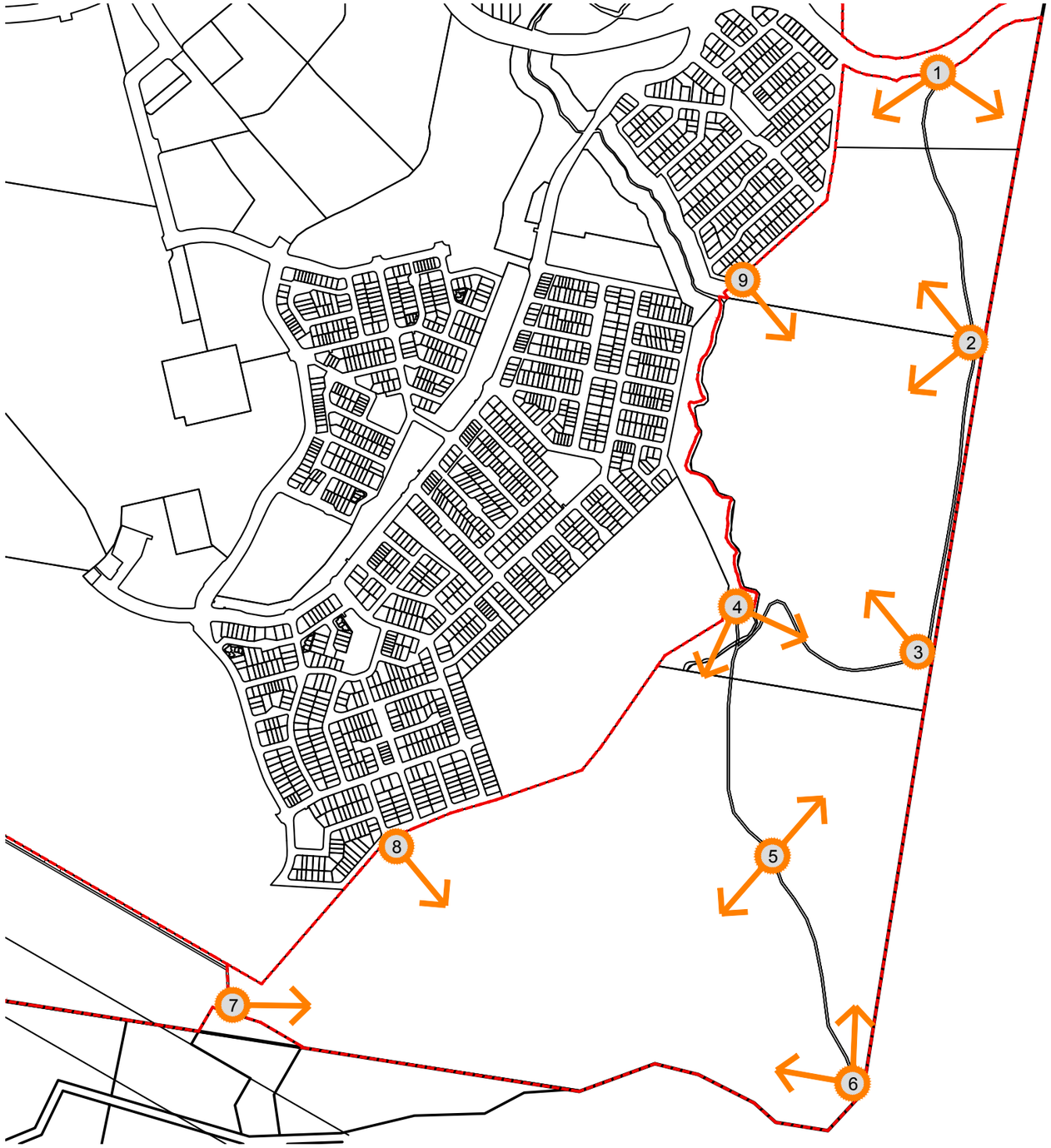
All resources required to implement this plan will be provided by the proponent (Lendlease). The following roles are applicable:

PROPONENT
- Ensure all consultants, contractors, sub contractors or others utilizing the area are aware of the Weed Management Plan.
- Appoint appropriate consultants and contractors to undertake works as prescribed on the drawings and conditioned by **Ipswich City Council**.
- Cover the costs of all necessary resources to ensure works are completed as per the approved documents.

CONSULTANTS
- Brief the proponent on their requirements in implementing and maintaining works as per the Weed Management Plan.
- Attend pre start, on maintenance and off maintenance meetings.
- Undertake monitoring and reporting to **Ipswich City Council** as set up by this document.
- Be available to respond to technical queries or departures to the approved documentation when on-site conditions require changes.
- Liaise with Council throughout all stages of approval, initial works and maintenance of works.

COUNCIL
- Provide technical expertise via commentary on the approval of documentation.
- Attend pre-start, on and off maintenance inspections.
- Undertake random inspections through the Secondary weed management and Maintenance weed management phases.
- Accept and review biannual reports as dictated in this document.

CONTRACTOR
- Complete works in strict accordance with the documentation.
- Recommend changes to the documentation when specific experience or on-site conditions require so.
- Attend pre-start, on and off maintenance inspections.



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40 YEARS 1975-2015

AMENDMENTS:

Issue	Date	Description	Checked
A	13/11/2017	Preliminary Issue	MS

CLIENT: Lendlease

PROJECT: Spring Mountain Precinct

SCALE: 1:2000@A1 1:4000@A3 0 20 100m

landscape architecture

DRAWING: Area 2 Weed Management Plan Monitoring & Reporting

DATE: November 17 | CHECKED: MS
CLIENT REF.: 7243 | DRAWN: TL
DRAWING No.: 7243 L 217 WMP A

Spring Mountain Precinct

AREA 3 WEED MANAGEMENT

ISSUE A 13.11.2017
PRELIMINARY ISSUE

DRAWING SCHEDULE

Dwg No.	Drawing Title	Issue	Date
7243 L 301	Weed Management Plan - Cover Sheet	A	13/11/2017
7243 L 302	Weed Management Plan - Introduction	A	13/11/2017
7243 L 303	Weed Management Plan - Sheet 1	A	13/11/2017
7243 L 304	Weed Management Plan - Sheet 2	A	13/11/2017
7243 L 305	Weed Management Plan - Sheet 3	A	13/11/2017
7243 L 306	Weed Management Plan - Sheet 4	A	13/11/2017
7243 L 307	Weed Management Plan - Sheet 5	A	13/11/2017
7243 L 308	Weed Management Plan - Sheet 6	A	13/11/2017
7243 L 309	Weed Management Plan - Technical Notes	A	13/11/2017
7243 L 310	Weed Management Plan - Treatment Techniques	A	13/11/2017
7243 L 311	Weed Management Plan - Treatment Techniques	A	13/11/2017
7243 L 312	Weed Management Plan - Treatment Techniques	A	13/11/2017
7243 L 313	Weed Management Plan - Monitoring & Reporting	A	13/11/2017

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CLIENT: lendlease

PROJECT: Spring Mountain Precinct

SCALE: AS NOTED

landscape architecture

DRAWING: Area 3 Weed Management Plan Cover Sheet

DATE: November 17 | CHECKED: MS

CLIENT REF.: 7243 | DRAWN: TL

DRAWING No.: 7243 L 301 WMP A

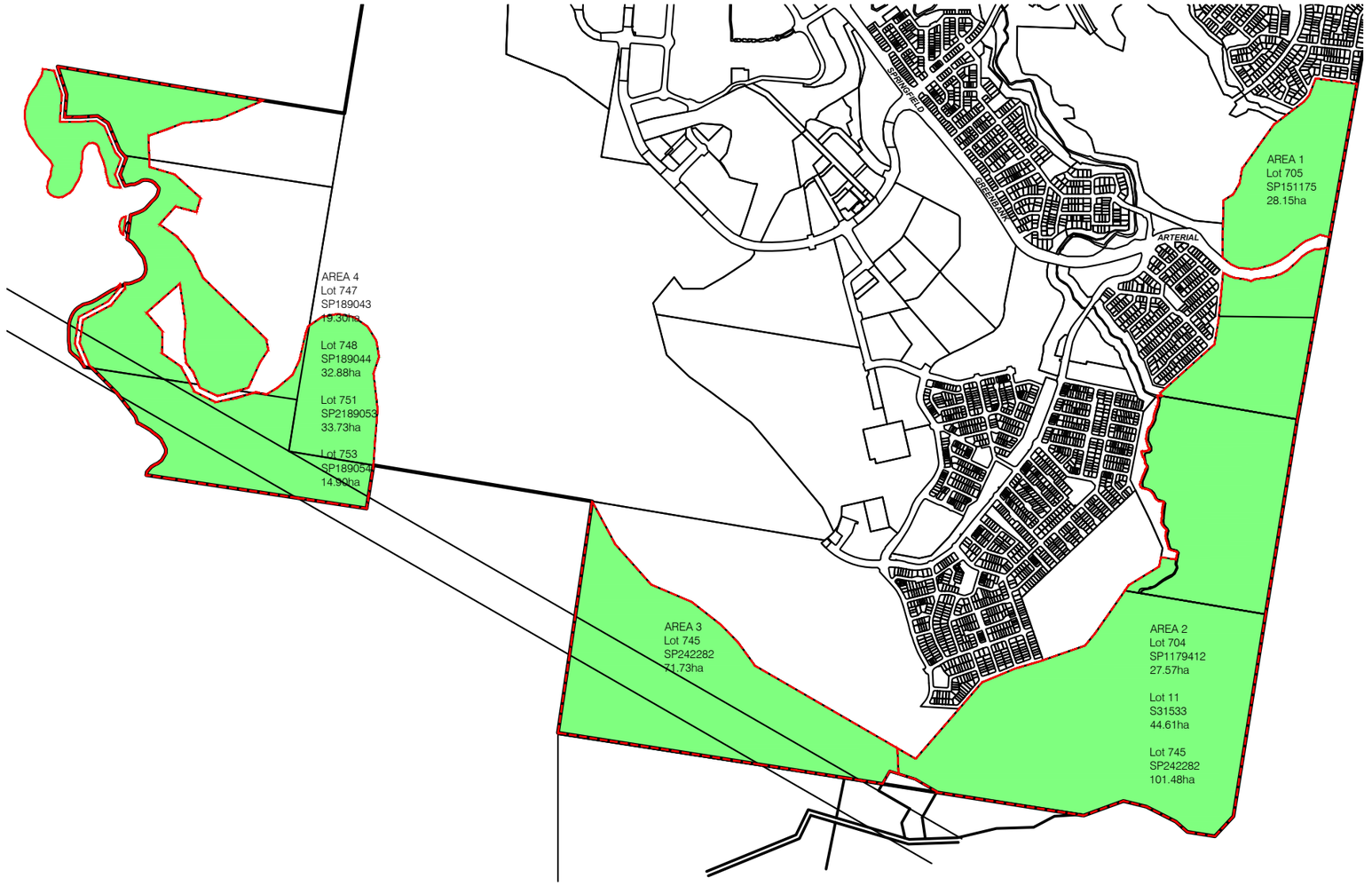
Spring Mountain Precinct

AREA 3 MANAGEMENT PLAN - WEED TREATMENT & REHABILITATION

INTRODUCTION

NOTES

This Weed Management Plan



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40 YEARS 1975-2015

AMENDMENTS:

Issue	Date	Description	Checked
A	13/11/2017	Preliminary Issue	MS

CLIENT: tendlease

PROJECT: Spring Mountain Precinct

SCALE: AS NOTED

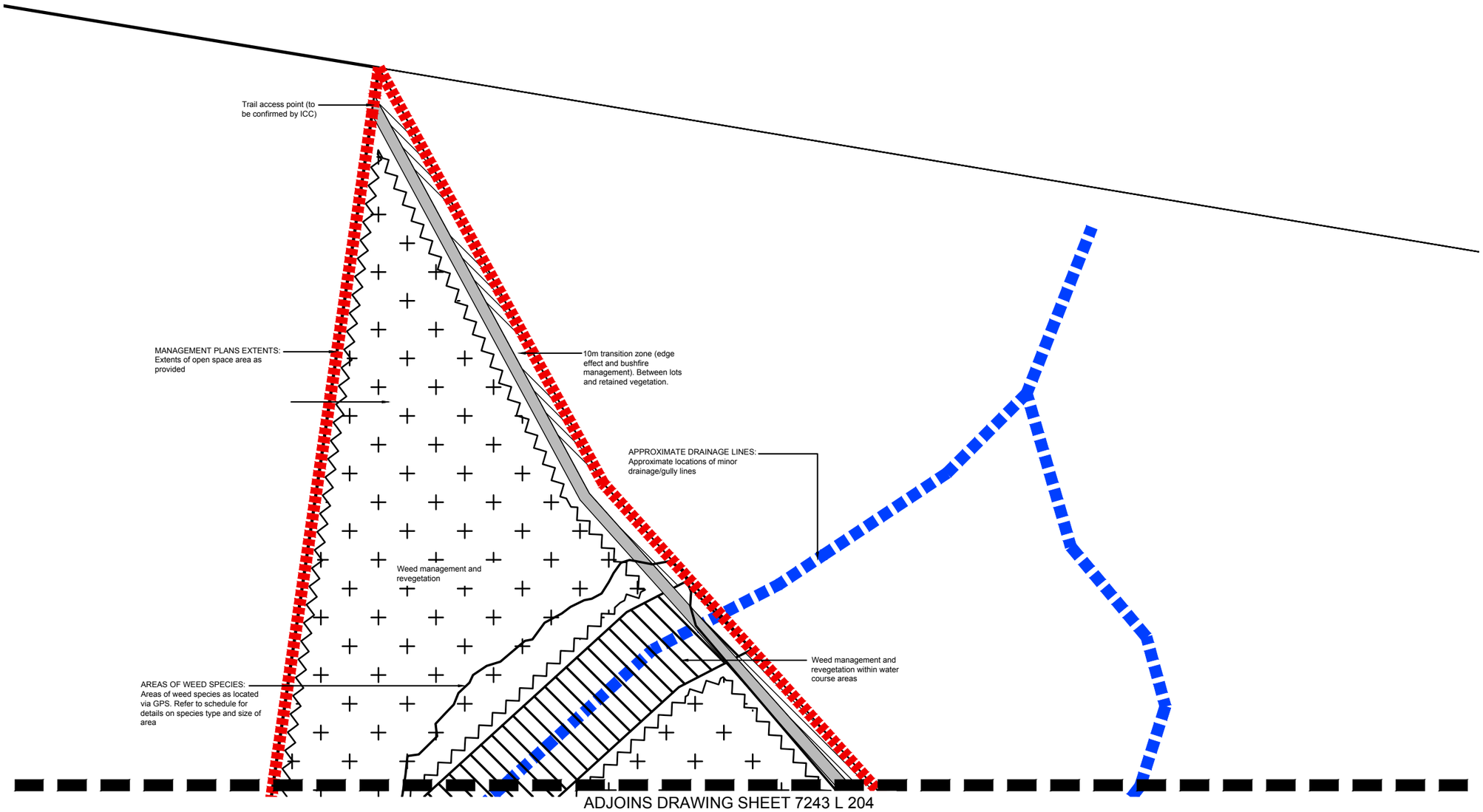
landscape architecture

DRAWING: Area 3 Weed Management Plan
Weed Management Notes

DATE:	November 17	CHECKED:	MS
CLIENT REF.:	7243	DRAWN:	TL
DRAWING No.:	7243 L 302 WMP A		

Spring Mountain Precinct

AREA 3 WEED MANAGEMENT PLAN



LEGEND

- Extent of management plan area
- Existing fire trail / maintenance access. As provided by ICC in GIS & Refer to Council's Management Plan
- Approximate minor drainage lines. Minor drainage / gully lines
- Approximate mapped major drainage lines
- Extent of existing lake area
- Weed management and revegetation
- Weed management and revegetation within water course areas
- Individual weed species located via GPS
- Area of weed species located via GPS
- 10m transition zone (Edge effect & bushfire management). Between lots and retained vegetation
- Trail access point (To be confirmed by ICC)

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CLIENT: tendlease

PROJECT: Spring Mountain Precinct

SCALE: 1:1000@A1 1:2000@A3 0 10 20 50m

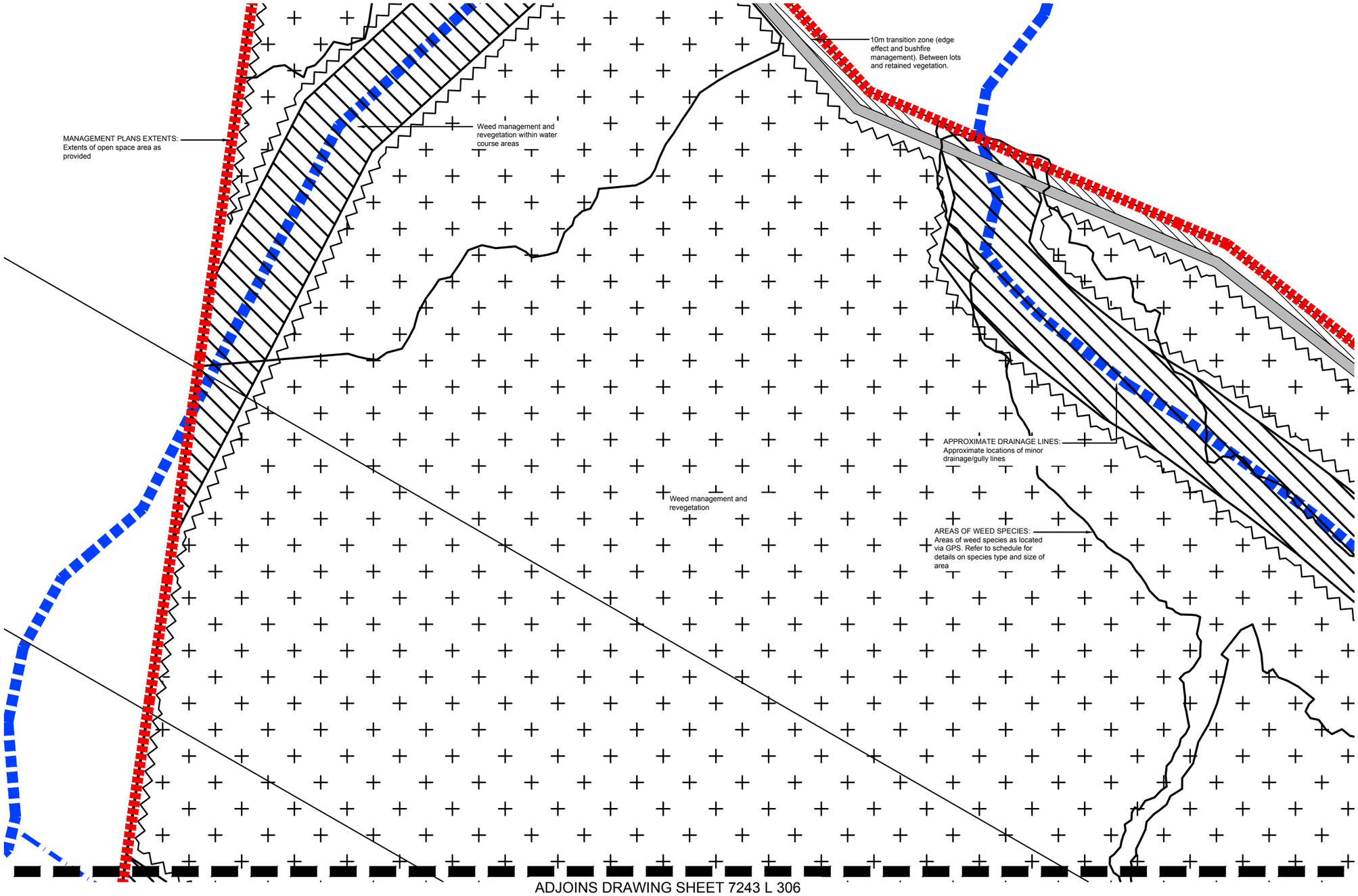
landscape architecture

DRAWING: Area 3 Management Plan Weed Management - Sheet 1

DATE: November 17	CHECKED: MS
CLIENT REF.: 7243	DRAWN: TL
DRAWING No.: 7243 L 303 WMP A	

Spring Mountain Precinct

AREA 3 WEED MANAGEMENT PLAN



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CLIENT: lendlease

PROJECT: Spring Mountain Precinct

SCALE: 1:1000@A1 1:2000@A3 (0 10 20 50m)

landscape architecture

DRAWING: Area 3 Management Plan Weed Management - Sheet 2

DATE: November 17	CHECKED: MS
CLIENT REF.: 7243	DRAWN: TL
DRAWING No.: 7243 L 304 WMP A	

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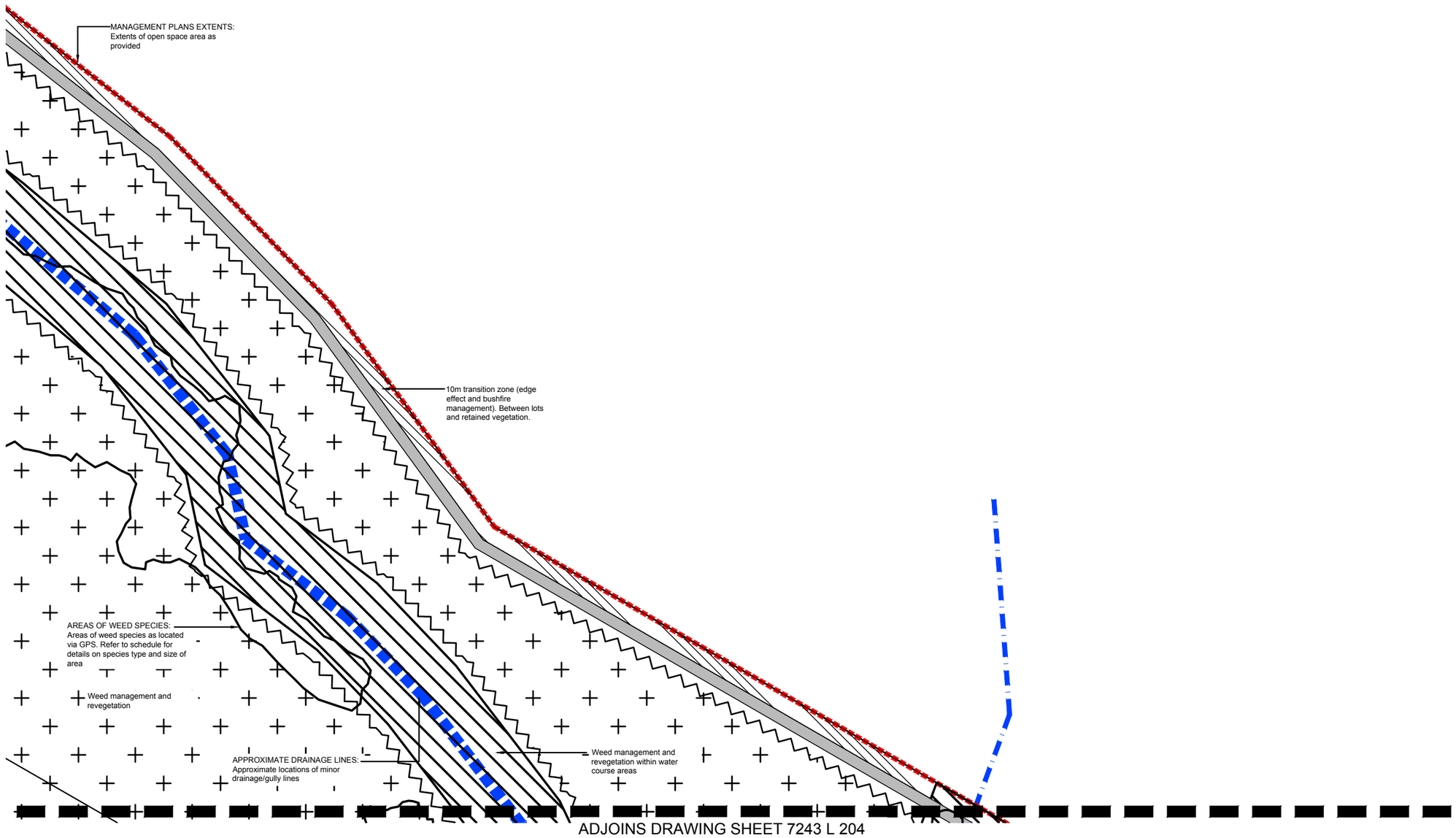
AREA 3 WEED MANAGEMENT PLAN



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PROJECT: Spring Mountain Precinct

SCALE: 1:1000@A1 1:2000@A3 0 10 20 50m

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DRAWING: Area 3 Management Plan Weed Management - Sheet 3

DATE: November 17	CHECKED: MS
CLIENT REF.: 7243	DRAWN: TL
DRAWING No.: 7243 L 305 WMP A	

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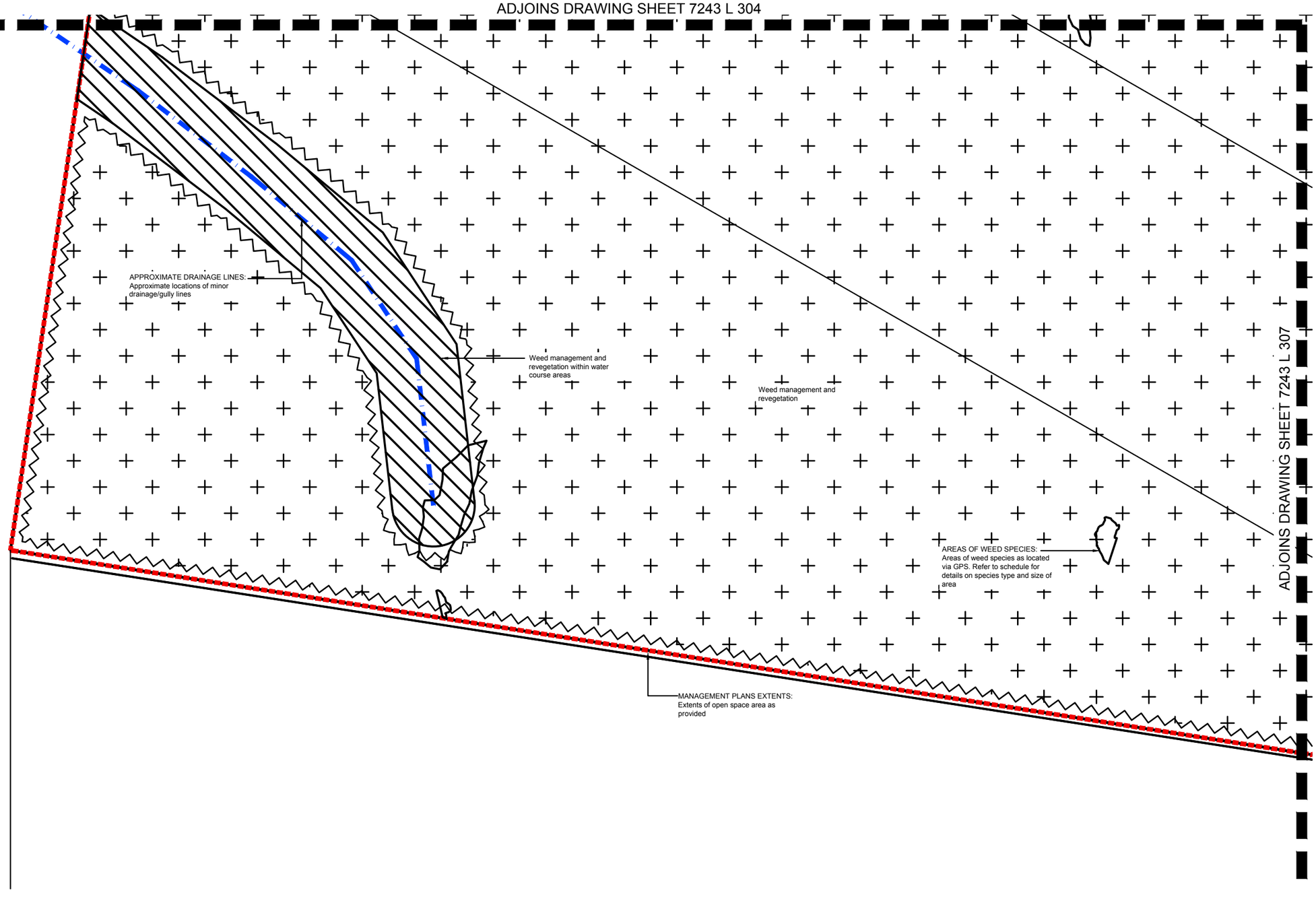
AREA 3 WEED MANAGEMENT PLAN



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- Trail access point (To be confirmed by ICC) (824)

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PROJECT: Spring Mountain Precinct

SCALE: 1:1000@A1 1:2000@A3 (0 10 20 50m)

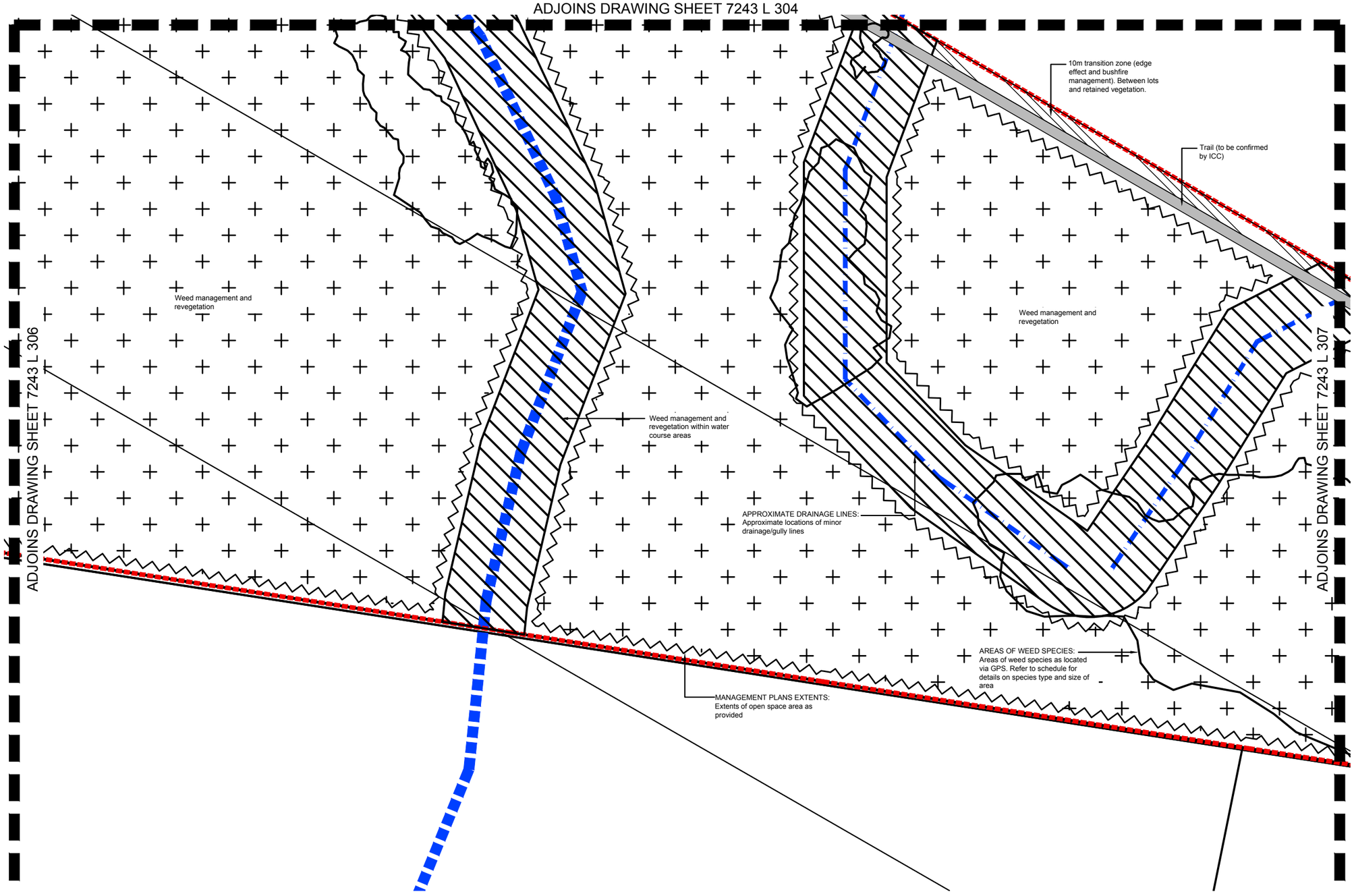
landscape architecture

DRAWING: Area 3 Management Plan Weed Management - Sheet 4

DATE: November 17	CHECKED: MS
CLIENT REF.: 7243	DRAWN: TL
DRAWING No.: 7243 L 306 WMP A	

Spring Mountain Precinct

AREA 3 WEED MANAGEMENT PLAN



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CLIENT: lendlease

PROJECT: Spring Mountain Precinct

SCALE: 1:1000@A1 1:2000@A3 (0 10 20 50m)

landscape architecture

DRAWING: Area 3 Management Plan Weed Management - Sheet 5

DATE: November 17	CHECKED: MS
CLIENT REF.: 7243	DRAWN: TL

DRAWING No.: 7243 L 307 WMP A

Spring Mountain Precinct

AREA 3 WEED MANAGEMENT PLAN

ADJOINS DRAWING SHEET 7243 L 304

ADJOINS DRAWING SHEET 7243 L 307

10m transition zone (edge effect and bushfire management). Between lots and retained vegetation.

Trail access point (to be confirmed by ICC)

Weed management and revegetation

Weed management and revegetation

APPROXIMATE DRAINAGE LINES: Approximate locations of minor drainage/gully lines

Weed management and revegetation within water course areas

AREAS OF WEED SPECIES: Areas of weed species as located via GPS. Refer to schedule for details on species type and size of area

MANAGEMENT PLANS EXTENTS: Extents of open space area as provided

REFER TO AREA 2 WEED MANAGEMENT PLAN FOR DETAIL

Trail access point (to be confirmed by ICC)

LEGEND

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PROJECT: Spring Mountain Precinct

SCALE: 1:1000@A1 1:2000@A3 0 10 20 50m

landscape architecture

DRAWING: Area 3 Management Plan Weed Management - Sheet 6

DATE: November 17	CHECKED: MS
CLIENT REF.: 7243	DRAWN: TL

DRAWING No.: 7243 L 308 WMP A

Spring Mountain Precinct

AREA 3 MANAGEMENT PLAN - TECHNICAL NOTES - GENERAL

NOTES

This Weed Management Plan links specific weed removal and management measures with spatial areas within the declared area included with this application. This Weed Management Plan covers the 71.73ha Area 3 portion of land previous dedicated by Springfield Land Corporation (SLC) to Ipswich City Council (ICC). The main objectives and action items for pest plants are detailed in Table 1 shown on this plan, with the objectives and actions for ecological restoration are detailed in Table 2.

WEED CONTROL PROGRAM TIMING

The primary stage of manual weed removal, treatment and disposal for the parkland dedication is programmed when all existing weeds are removed with secondary and maintenance weeding occurring for another 18 months (18 month program post on-maintenance).

Primary Weed Removal Stage - Consists of the initial weed removal / treatment of site weeds via the methods detailed within the South East Queensland Ecological Restoration Guidelines. Essentially involves the manual removal, stock piling and disposal and initial usage of prescribed herbicides. Additional notes below include:

- Implemented weed control method according to this plan.
- Weed trees located within 20M zone of the existing trail network are to be removed where trunk is cut down to ground level and vegetative matter removed.
- Program timing; primary weed removal phase is considered to be completed when all existing weeds within the stage for the declared area have been removed or treated. Both the secondary phase and the primary phase of weed removal can occur concurrently in different stage areas over time.
- A key map is to be provided logging the progress of areas from primary to secondary phases of weed removal and areas of rehabilitation as part of the reporting progress.

Secondary or Follow-up Weeding - for all areas will involve the quarterly inspection of areas having undergone Primary Weed Removal and treatment of infestations or outbreak as required. Additional notes below include:

- Implemented weed control method according to this plan.
- Weed trees located within 20M zone of the existing trail network are to be removed where trunk is cut down to ground level and vegetative matter removed.
- Program timing; primary weed removal phase is considered to be completed when all existing weeds within the declared area have been removed initially. Both the secondary phase and the primary phase of weed removal can occur concurrently in different work areas over time.
- A key map is to be provided logging the progress of areas from primary to secondary phases of weed removal and areas of rehabilitation as part of the reporting progress.

Maintenance Weeding Phase - final stage of weeding which occurs in areas where the majority of weeds have been removed and treated. Maintenance weeding continues to remove additional outbreaks but also allows for the fostering of natural regeneration and regrowth seedlings. Additional notes below include:

- Implemented weed control method according to this plan.
- Weed trees located within 20M zone of the existing trail network are to be removed where trunk is cut down to ground level and vegetative matter removed.
- Program timing; primary weed removal phase is considered to be completed when all existing weeds within the designated Park have been removed initially. Both the secondary phase and the primary phase of weed removal can occur concurrently in different work areas over time.
- A key map is to be provided logging the progress of areas from primary to secondary phases of weed removal and areas of rehabilitation as part of the reporting progress.

Revegetation occurs in two (2) distinct zones throughout the management area. Refer to Drawing sheets for a full description of proposed plant species, sizes, densities and numbers.

NATURAL REGENERATION

Applies:

- To relatively large, intact and weed-free areas of native vegetation.
- Where the 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-lived disturbance, such as a fire or cyclonic winds.
- When preventative action is all that is required to avert on-going disturbance, e.g. erection of fencing to prevent intrusion from cattle.

Planting in such sites can work against the aims of restoration by interfering with natural regeneration.

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 removal, minor amelioration of soil conditions, erection of fencing, cessation of slashing, etc. will be enough to trigger the recovery processes through natural regeneration.
- When major component is weed control.

Planting in such sites can work against the aims of restoration by interfering with natural regeneration.

The re-establishing plant community will be similar in structure, composition and diversity to the original vegetation.

TABLE 1: OBJECTIVES AND ACTION ITEMS FOR PEST PLANTS

Threats	Opportunities	Management action	Timeframe	Responsibility
Objective: Protect, manage and enhance the diversity of native flora species and vegetation communities within the estate by controlling pest plants.				
Insufficient monitoring of pest plants	Increased knowledge of pest plant abundance and distribution within the estate	Continue to develop and update the management plan for the estate to identify pest plants present and to recommend and prioritise control and monitoring actions	Annually	Saunders Havill Group (SHG)
Establish-ment of large infestations of pest plants Insufficient resourcing of pest plant control measures	Pest plants are controlled effectively and in a way that ensures native vegetation regeneration	Include treating pest plants within the open space area to improve visitors experience to the estate	Ongoing	Contractor
Increased abundance of pest plants due to fire	Increased knowledge of pest plant responses to fire	Conduct follow up pest plant treatment after any fires within the estate	As required	Contractor
Lack of education of visitors and local residents as to the adverse impacts pest plants have on the natural environ-ment	Improved public understanding and support for pest plant control	Provide material for public awareness (ie interpretative signage)	As required	Contractor

TABLE 2: OBJECTIVES AND ACTION ITEMS FOR ECOLOGICAL RESTORATION

Threats	Opportunities	Management action	Timeframe	Responsibility
Objective: Protect, manage and enhance the significant habitat values and ecological processes found within the estate, so as to contribute positively to the conservation values of the local and regional area				
Degraded vegetation communities have adverse impacts on other values within the estate, including native flora and fauna species, fire issues and aesthectics	Restore degraded native vegetation communities and minimise impacts associated with pest plants and animals and their control on native flora and fauna, cultural heritage sites, and landscapes within the estate	Prepare and issue a management plan to: - clearly prioritise actions and zones (eg. focus on declared and environmental pest plants and mapped biodiversity zones) - Divide the site into sub-zones which can be managed in a systematic and structured way - Align with the fire management plan as burns could provide ecological and economical efficiencies; reducing fuel loads at the same time as acting as a pest plant control - Lantana (especially) should be managed to reduce the fuel load, as this is a major fire hazard Incorporate training (eg. for relevant community groups) - Write the plan for the target audience working on the estate (eg. bushcare groups working in particular zones)	Prior to commence-ment	Contractor
Pest plant infestations from high use areas may impact on adjacent ecological values	Improve the flora values within the open space area	As part of the site rehabilitation planning for the open space, a planting list of locally occurring plant species for use in rehabilitation is to be provided to enhance population viability where appropriate and possible. Include threatened and locally significant species in plantings.	Ongoing	Contractor
Trail creation, soil compaction and increased erosion	Restore natural habitats to increase the resilience of the estate	Refer to management plans for further detail	As required	Contractor
Pest plant introduction and spread	Deceased abundance of pest plants	Refer to management plans for further detail	As required	Contractor
Disturbance from pest animals	Deceased abundance of pest animals	Refer to management plans for further detail	As required	Contractor
Insufficient resourcing of restoration measures	Improved public understanding of and support	Refer to management plans for further detail	As required	Contractor
Insufficient data on the effectiveness of ecological restoration programs	The populations and diversity of near threatened, threatened or locally significant plant species are protected and enhanced	Refer to management plans for further detail	As required	Contractor

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DRAWING: Area 3 Weed Management Plan Technical Notes - General

DATE: April 17	CHECKED: MS
CLIENT REF.: 7243	DRAWN: TL
DRAWING No.: 7243 L 309 WMP A	

Spring Mountain Precinct

AREA 3 MANAGEMENT PLAN - WEED TREATMENT & REMOVAL STRATEGY

NOTE:
Species highlighted have been identified within the 'Springfield Wildlife Corridor Management Requirements' list which have specified removal and/or treatment techniques for Class 1 or 2 weeds. Environmental weeds and weeds of National Significance (WONS) Class 3 are to be:

- Remove dumped garden weeds from urban interface. Liaise with ICC Supervisor regarding ongoing Compliance issues.
- Lantana controlled within 20m of track edges (ie walking, shared and service).
- Strategic treatment of gully infestations staged from head of gullies downstream utilising cut stump method and chopping lantana into small (150mm) pieces. Areas to be determined by consultation with ICC.
- Assisted natural regeneration following removal including direct seeding utilising endemic seed from site. Follow up weed control by spot spraying emerging weeds in cleared areas or hand removal.

QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND

Rank	Family	Scientific and common names	Subregion	Rec No	Score	Life form & Source	Non-Chemical Control	Chemical Control
1	Verbenaceae	Lantana camara var. camara (lantana)	10	455	5	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	168	4.8	S/O	Cut stump prior to flowering	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	38	4.9	H/O	Hand removed and bagged or larger infestations sprayed	Plantlets: spray G200 + MM or MM (ref 1).
4	Bignoniaceae	Macfadyena unguis-cati (cat's claw creeper)	5	36	4.9	V/O	Tubers: crown or dig up, bag and remove.	Regrowth and tuberlings: spray G100 + MM or F100 (ref 1).
	Basellaceae	Anredera cordifolia (madeira vine)	8	16	4.9	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	26	4.9	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	19	4.9	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	25	4.8	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
9	Anacardiaceae	Schinus terebinthifolius (broad-leaf pepper tree)	6	49	4.8	T/O	Seedlings: Hand pull	Saplings: CS&P (G1.5); Trees: F/I (G1.5); Seedlings: spray G200 (ref 1).
	Salviniaceae	Salvinia molesta (salvinia)	8	57	4.9	Ha/F	Mechanical removal of small infestations; Salvinia weevil (Biological control)	Aquatic areas: calcium dodecylbenzene sulphanate (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	12	4.9	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	23	4.9	S/OA	N/A	Stems: CS&P or F/I (G1.5); Bushes: spray or cut down and spray regrowth G100 or MM (ref 1).
13	Pontederiaceae	Eichhornia crassipes (water hyacinth)	4	8	4.9	Ha/OF	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	7	5	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).
	Oleaceae	Ligustrum lucidum (tree privet)	5	9	4.8	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
16	Asteraceae	Sphagneticola trilobata (Singapore daisy)	6	34	4.6	H/O	Hand pull	Hand pull and/or spray G200 + MM (ref 1).
17	Asteraceae	Ageratina adenophora (crofton weed)	6	38	4.6	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	62	4.8	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; Splatt
19	Fabaceae	Neonotonia wightii (glycine)	5	16	4.7	H/A	N/A	Vines: CS&P (1:1.5) or spray G100 + MM or MM (ref 1).
	Poaceae	Panicum maximum (green panic and guinea grass)	8	78	4.6	H/A	Hand or mechanical removal of small infestations	Spray: glyphosate @ 13mL/1L water (ref 2.)
21	Oleaceae	Ligustrum sinense (Chinese privet)	4	11	4.6	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	33	4.5	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	35	4.5	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
24	Poaceae	Sporobolus pyramidalis and S. natalensis (giant rat's tail grasses)	8	72	4.8	H/U?	Seed heads cut and bagged, remaining leaves sprayed	Small infestations: spray glyphosate @ 15mL/L water, fluproponate @ 2mL/L water + ionic wetter @ 1mL/Lwater. Dense infestations: blanket spraying glyphosate 3L/ha, fluproponate 2L/ha (ref 2).
	Asteraceae	Ageratina riparia (mistflower)	5	38	4.6	H/O	Hand pull and hang to dry.	Spray G100 or MM (ref 1).
26	Asclepiadaceae	Araujia sericifera (mothvine)	9	38	4.4	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	15	4.5	H/O	Hand pull and dispose	Plantlets: spray G200 + MM or MM (ref 1).
28	Convolvulaceae	Ipomoea cairica (mile-a-minute)	7	56	4.4	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	31	4.4	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	19	4.4	V/O	Scattereded 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	61	4.3	H/O	Hand pull and hang to dry.	Spray G100 (ref 1).
32	Poaceae	Sporobolus africanus (Parramatta grass)	8	48	4.5	H/U	Hand or mechanical removal of small infestations	Small infestations: spray glyphosate @ 15mL/L water, fluproponate @ 2mL/L water + ionic wetter @ 1mL/Lwater; Dense infestations: blanket spraying glyphosate 3L/ha, fluproponate 2L/ha (ref 2).
33	Poaceae	Sporobolus fertilis (giant Parramatta grass)	9	27	4.5	H/U	Hand or mechanical removal of small infestations	Small infestations: spray glyphosate @ 15mL/L water, fluproponate @ 2mL/L water + ionic wetter @ 1mL/Lwater; Dense infestations: blanket spraying glyphosate 3L/ha, fluproponate 2L/ha (ref 2).
34	Poaceae	Eragrostis curvula (African lovegrass)	7	29	4.3	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	4	4.7	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
36	Amaranthaceae	Alternanthera philoxeroides (alligator weed)	1?	3	5	Ha/U	physical removal of plant should not be attempted	Terrestrial 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	166	4.2	V/O	N/A	Stems: CS&P; Seedlings & Regrowth: spray G200 or G200 + MM (ref 1).
38	Poaceae	Melinis minutiflora (molasses grass)	5	17	4.5	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	30	4.3	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	24	4.3	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 F100 (ref 1).
41	Mimosaceae	Leucaena leucocephala (leucaena)	6	14	4.3	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	18	4.4	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	7	4.4	Ha/F	hand pulling, cutting and digging with machines effective	N/A
44	Pinaceae	Pinus elliottii (slash pine)	4	22	4.3	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	33	4.2	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	55	4.3	H/A	Hand pulling and removal and digging of larger clumps	Spray: glyphosate @ 1l/100L water
47	Crassulaceae	Bryophyllum pinnatum (resurrection plant)	6	17	4.2	H/O	Hand pull and dispose	Plantlets: spray G200 + MM or MM (ref 1).
48	Asteraceae	Parthenium hysterophorus (parthenium weed)	6	14	4.2	H/U	hand pulling of small areas is not recommended	Spot spray 2,4-D amine 500 g/L @ 0.4 L/100 L
49	Caprifoliaceae	Lonicera japonica (Japanese honeysuckle)	3	6	4.3	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	22	4.2	H/O	N/A	CS&P (G1.5); spray G200 or G200 + MM (ref 1).
51	Fabaceae	Macroptilium atropurpureum (siratro)	8	39	4.2	V/A	N/A	Vines: CS&P (1:1.5) or spray G100 + MM or MM (ref 1).
52	Rosaceae	Rubus ellipticus (yellowberry)	4	26	4.1	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	26	4.1	V/O	N/A	Young Shoots: spray G200 or G200 + MM. Best results in Oct-Nov and by using 'Pulse' as surfactant (ref 1).
54	Verbenaceae	Phyla canescens (lippia, Condamine couch)	3	4	4.2	Ha/O	a combined approach of different control methods including chemical and mechanical with land management practices is most effective	Foliar spray 600 g/L Dichlorprop @ 5 ml /1 L water or 2,4-D amine (500 g/L) + 1% crop oil @ 2–4 L/ha + 1% crop oil
55	Solanaceae	Solanum seaforthianum (Brazilian nightshade)	8	78	4	V/O	Hand pull	Spray G100 (ref 1).
56	Araceae	Pistia stratiotes (water lettuce)	3	8	4.1	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	8	4.1	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)

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surveying town planning urban design environmental management landscape architecture

40 YEARS 1975-2015

AMENDMENTS:

Issue	Date	Description	Checked
A	13/11/2017	Preliminary Issue	MS

CLIENT: lendlease

PROJECT: Spring Mountain Precinct

SCALE: AS NOTED

landscape architecture

DRAWING: Area 3 Weed Management Plan Weed Management Techniques

DATE: November 17 | CHECKED: MS

CLIENT REF.: 7243 | DRAWN: TL

DRAWING No.: 7243 L 310 WMP A

AREA 3 MANAGEMENT PLAN - WEED TREATMENT & REMOVAL STRATEGY

58	Commelinaceae	Tradescantia fluminensis (Qld use T. albiflora) (wandering jew)	5	9	4.1	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	36	3.9	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	25	4	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	30	4	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	22	4	S/O	Hand pull	Spray G100 (ref 1).
63	Passifloraceae	Passiflora subpeltata (white passion flower)	10	60	3.9	V/O	Stems: Hand pull	Stems: CS&P; Seedlings & Regrowth: spray G200 or G200 + MM (ref 1).
64	Fabaceae	Desmodium uncinatum (silverleaf desmodium)	5	14	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 (ref 1).
65	Poaceae	Melinis repens (red Natal grass)	10	134	4.1	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	17	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).
67	Onagraceae	Oenothera drummondii subsp. drummondii (beach evening primrose)	3	17	4	H/O	Hand pull	Spray G100 (ref 1).
68	Tiliaceae	Triumfetta rhomboidea (Chinese burr)	7	44	4	H/U	Hand pull	Spray G100 (ref 1).
69	Haloragaceae	Myriophyllum aquaticum (parrot's feather)	3	15	4	Ha/F	N/A	Spray: glyphosate 360g/L @ 100mL/10L water (ref 1).
70	Passifloraceae	Passiflora foetida (stinking passion flower)	7	50	3.9	V/O	Hand Pull	CS&P (G1.5); spray G200 or G200 + MM (ref 1).
71	Asteraceae	Verbesina encelioides (crownbeard)	7	34	4	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	6	4	H/A	N/A	Spray G200 - resistant to weaker strength (ref 1).
73	Poaceae	Paspalum dilatatum (paspalum grass)	10	30	3.9	H/A	Hand pull or dig up	Spray G100 (ref 1).
74	Ruppiaceae	Ruppia maritima (sea tassel)	2	8	4	Ha/F	Hand pull or dig up	Spray G100 (ref 1).
75	Arecaceae	Syagrus romanzoffiana (queen palm)	4?	10	3.9	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?	1	4	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	8	4	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	15	4.1	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	3	5?	V/O	N/A	CS&P (G1.5); spray G200 (ref 1).
80	Cactaceae	Opuntia tomentosa (velvet tree pear)	8	46	3.9	S/O	Hand removed, stem injected, or over sprayed with garlon	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	20	3.9	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	28	3.8	H/U	Hand pulled and bagged	Stems: S&P (GU); Regrowth and seedlings: spray G200 or G200 + MM (ref 1).
83	Cyperaceae	Cyperus involucratus (African sedge)	6	15	3.8	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	11	3.9	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	41	3.8	H/A	Hand pull or dig up	Spray G100 (ref 1).
86	Asclepiadaceae	Gomphocarpus physocarpus (balloon cotton bush)	10	132	3.7	S/O/U	Slash in winter and burn cuttings. Wanderer Butterfly can also be used.	Spray: glyphosate @ 1:1000 with water, in spring before seeding (ref 3).
87	Poaceae	Digitaria didactyla (Queensland blue couch)	9	70	3.7	H/A	Hand pull or cultivation.	Spot Spray: glyphosate or 2,2-DPA (ref 3).
88	Caesalpiniaceae	Gleditsia triacanthos (honey locust)	7	12	3.8	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 fluroxypyr1 (Starane 200®) @ 1.5 L - 75ml/100 L diesel
89	Poaceae	Paspalum notatum (bahia grass)	4	10	3.8	H/A	Hand pull or dig up	Spray G100 (ref 1).
90	Cactaceae	Opuntia monacantha (drooping tree pear, syn. O. vulgaris)	2	3	4	S/O	Hand removed, stem injected, or over sprayed with garlon	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	38	3.8	H/A	Cut below crown.	Spot Spray: glyphosate or 2,2-DPA (ref 3).
92	Malpighiaceae	Hiptage benghalensis (hiptage)	3	5	4	S,V,O	Hand pull small infestations.	Seedlings: Foliar spray of dicamba, fluroxypyr, and triclopyr/picloram. Larger plants cut stump application of fluroxypyr and triclopyr/picloram with diesel, glyphosate with water and picloram undiluted (ref 7).
93	Solanaceae	Solanum torvum (devil's fig)	6	39	3.9	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	20	3.9	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	29	3.8	H/O	Hand Pull	Spot Spray: glyphosate or 2,2-DPA (ref 3).
96	Verbenaceae	Duranta erecta (duranta)	6	14	3.6	ST/O	Shrubs: CS&P (1:1.5)	Spray G100 (ref 1).
97	Brassicaceae	Nasturtium officinale (Qld use Rorippa nasturtium-aquaticum) (watercress)	7	19	3.7	Ha/F/U	Manually grub and destroy.	Spray G100 and replace with local species (ref 1).
98	Polygonaceae	Acetosa sagittata (rambling dock)	4	18	3.7	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	45	3.6	H/O/A	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	16	3.6	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	10	3.5	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	12	3.7	S/A	N/A	Pastures - Fluroxypyr/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	9	3.9	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	5	4	T/A/O	Seedlings: Hand pull	Saplings: CS&P (G1.5); Trees: F/I (G1.5); Seedlings: spray G200 (ref 1).
105	Commelinaceae	Tradescantia zebrina (zebrina)	3	12	3.7	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	16	3.8	H/O	N/A	Spray: G200 + MM (ref 1).
107	Poaceae	Pennisetum clandestinum (kikuyu grass)	4	12	3.8	H/A	Hand Pull	Spot Spray: glyphosate or 2,2-DPA (ref 3)
108	Liliaceae	Lilium formosanum (Taiwan lily)	5	10	3.8	H/O	Hand pull or crown and dispose.	Spray G100 + MM or MM (ref 1).
109	Asteraceae	Sigesbeckia orientalis (Indian weed)	10	148	3.6	H/U	Hand pull or cultivation.	Spray with 2,4-D amine or sodium, pr MCPA + dicamba (ref 3).
110	Asteraceae	Bidens pilosa (cobbler's pegs)	10	110	3.5	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	67	3.6	S/O	Hand removed, stem injected, or over sprayed with garlon	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	55	3.5	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	23	3.6	H/A/O	Cut stems from roos.	Spot spray with Glyphosate (ref 3).
114	Lamiaceae	Salvia coccinea (red salvia)	9	46	4	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	81	3.8	H/UO	N/A	Spray G100 or hand pull and spray regrowth G100 (ref 1).
116	Myrtaceae	Psidium guajava and P. guineense (yellow guava and West Indes guava)	4	7	3.7	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	22	3.5	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	19	3.5	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	6	4?	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	Brachiaria decumbens (signal grass)	4	14	3.5	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	4	4.3?	H/A	N/A	Vines: CS&P (1:1.5) or spray G100 + MM or MM (ref 1).
122	Commelinaceae	Commelina benghalensis (hairy wandering jew)	4	7	3.5	H/O	Collect and Bag	Spray G200 or G200 + MM (ref 1).
123	Poaceae	Pennisetum purpureum (elephant grass)	2	9	3.5	H/O	Grazing or mechanical removal	N/A (ref 2).
124	Zingiberaceae	Hedychium coronarium (wild ginger)	2	2	3.5	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	50	3.4	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	43	3.4	S/O	Hand pull; Slash	Slash and/or spray G100 (ref 1).
127	Solanaceae	Lycium ferocissimum (African boxthorn)	1?	5	4.4?	S/O	N/A	Stems: C&P (G1.5); Regrowth: spray G200 + MM (ref 1).
128	Mimosaceae	Prosopis pallida (algaroba)	2	2	4	ST/O	When using mechanical control methods, it is important to remove the bud zone of the root system (about 30 cm below the ground surface). If this is not removed, re-shooting can occur.	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	2	4	Ha/FO	Hand pull.	Spot spray with Glyphosate, 2,2-DPA or MCPA + dicamba (ref 3).
130	Cactaceae	Opuntia aurantiaca (tiger pear)	1	2	4	S/O	Hand removed, stem injected, or over sprayed with garlon	Spray; Basal Bark application; Injection: Triclopyr: .8L/60L diesel. Picloram + Triclopyr: 1L/60L diesel. Amitrole: 1mL/3cm (ref 3).
131	Poaceae	Arundo donax (giant reed)	1	4	3.8	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	1	4	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	1	4	V/O	N/A	CS&P (G1.5); spray G200 (ref 1).
134	Poaceae	Cortaderia selloana (pampas grass)	2	1	3.7	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	23	3.6	S/O	Hand pull	Spray G100 (ref 1).
136	Agavaceae	Furcraea foetida (Cuban hemp)	3	4	4.3?	S/OA	Dig out by hand or machine	CS& P near ground or spray MM (ref 1).
137	Agavaceae	Furcraea selloa (hemp)	1	2	4?	S/OA	Dig out by hand or machine	CS& P near ground or spray MM (ref 1).
138	Agavaceae	Agave americana (century plant)	4	9	3.7	S/OA	Dig out by hand or machine	CS& P near ground or spray MM (ref 1).

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40 YEARS 1975-2015

AMENDMENTS:

Issue	Date	Description	Checked
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CLIENT: tendlease

PROJECT: Spring Mountain Precinct

SCALE: AS NOTED

landscape architecture

DRAWING: Area 3 Management Plan Weed Management Techniques

DATE: November 17	CHECKED: MS
CLIENT REF.: 7243	DRAWN: TL
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AREA 3 MANAGEMENT PLAN - WEED TREATMENT & REMOVAL STRATEGY

139	Rutaceae	Murraya paniculata c.v. Exotica (murraya)	6	26	3.6	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 blakberry)	4	10	3.7	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	24	3.7	H/U	Manually grub and destroy.	Spray G100 and replace with local species (ref 1).
142	Balsaminaceae	Impatiens walleriana (balsam)	2	6	3.7	H/O	N/A	Spray G100 (ref 1).
143	Agavaceae	Agave sisalana (sisal)	2	4	3.7	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	3	3.7	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	31	3.7	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	34	3.7	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	15	4?	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	4	3.8	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	7	3.5	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	4	3.7	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	2	3.7	S/O	N/A	Stems: cut and fill segment (G1.5). Regrowth: spray G100 (ref 1).
152	Euphorbiaceae	Jatropha gossypiifolia (cotton-leaf physic nut, bellyache bush)	1	1	3.7	S/O	Hand pull	Spray G100 (ref 1).
153	Malvaceae	Sida rhombifolia (Paddy's lucerne)	9	69	3.6	S/U	Hand pull or dig out.	Spray with 2,4-D amine or fluoxypyr (ref 3).
154	Poaceae	Themeda quadrivalvis (grader grass)	8	25	3.6	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	14	3.6	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	12	3.4	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	4	4	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	1	4	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)	17	3	3.5	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	44	3.3	H/A	Hand or mechanical removal of small infestations	Spray: glyphosate @ 13mL/1L water (ref 2.)
161	Cyperaceae	Cyperus brevifolius (Mullumbimby couch)	8	53	3.4	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	10	3.4	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	4	3.4	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	9	3.3	H/O	Dig out entire plant	Cut/Slash and spay regrowth G200 or G200 + MM; Collect and bad seeds. Resistant to herbicide (ref 1).
165	Buddlejaceae	Buddleja madagascariensis (buddleja)	5	6	3.4	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	8	4	ST/O	N/A	Stems: CS&P (G1.5) or spray G200; Seeds: collect, bag and remove (ref 1).
167	Cactaceae	Harrisia martinii (harrisia cactus)	2?	4	4	S/O	The use of the biological mealy-bug agent is recommended	Triclopyr + picloram at 1.0L:60L diesel. Dichlorprop 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	1	4	V/O	N/A	CS&P (G1.5); spray G200 (ref 1).
169	Fabaceae	Erythrina crista-galli (cockspur coral tree)	2?	4	3.5	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)	1?	1	3.6?	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)	1?	3	3.6	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 phyllostachya (polka-dot plant)	3	5	3.5	H/O	Hand pull or crown and dispose	Spray G200 or G200 + MM (ref 1).
173	Caprifoliaceae	Sambucus canadensis (American elder)	3	7	3.4	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	45	3.3	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	5	3.4	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	32	3.3	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	14	3.3	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	43	3.3	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).
179	Asteraceae	Conyza canadensis (Canadian fleabane)	10	55	3.3	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 spuge)	8	20	3.3	H/O	Hand pull	Spray G100 (ref 1).
181	Poaceae	Setaria palmifolia (palm leaf setaria)	5	13	3.3	H/O	Hand pull or dig up	Spray G100 (ref 1).
182	Euphorbiaceae	Euphorbia heterophylla (milk weed)	5	12	3.4	H/O?	Hand pull	Spray G100 (ref 1).
183	Fabaceae	Desmodium intortum (greenleaf desmodium)	4	11	3.3	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	11	3.3	H/O	Hand Pull	Spot Spray: glyphosate or 2,2-DPA (ref 3).
185	Asteraceae	Conyza bonariensis (flax-leaf fleabane)	7	38	3.3	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	19	3.2	S/O	Hand pull	Spray G100 (ref 1).
187	Poaceae	Stenotaphrum secundatum (buffalo grass)	3	23	3.2	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	9	3.1	ST/O	Hand pull small infesttions. 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	7	3.2	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?	1	3.4	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	12	3.1	V,H/A	N/A	Vines: CS&P (1:1.5) or spray G100 + MM or MM (ref 1).
192	Iridaceae	Watsonia meriana var. bulbillifera (bulbil watsonia)	2	3	3.1	H/O	Dig up, bag and remove	Spray G200 + MM (ref 1).
193	Passifloraceae	Passiflora edulis (passion fruit)	6	12	3.2	V/AO	Hand Pull	CS&P (G1.5); spray G200 or G200 + MM (ref 1).
194	Asteraceae	Zinnia peruviana (wild zinnia)	6	33	3.1	H/O	Seedlings: Hand pull	Shrubs: CS&P or F/I (G1); Seedlings: CS&P (G1.5) or spray G200 (ref 1).
195	Dracaenaceae	Sansevieria trifasciata (sansevieria)	27	7	3.1	H/O	Hand pull or dig up	Spray G100 + MM (ref 1).
196	Poaceae	Digitaria eriantha (pangola grass)	5	20	3.1	H/A	Hand pull or cultivation	Spot Spray: glyphosate or 2,2-DPA (ref 3).
197	Rosaceae	Eriobotrya japonica (loquat)	3	5	3.1	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	1	3.3	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	3	4.47	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	15	3.1	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).

Explanatory notes.
Sub-region: Number of the ten sub-regions of the Southeast Queensland bioregion (Young and Dillewaard 1999) within which species recorded.
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.

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 glyhphosate
G1.5 = 1.5 parts water to 1 part glyphosate
G4 = 4 parts water to 1 part glyphosate

Abbreviations: Herbicide Spray Concentrations
G100 = 100mL glyphosate per 10L of water + surfuctant, eg 20mL LI 700 per 10L
G200 = 200mL glyphosate per 10L of water + surfuctant, eg 50mL LI 700 per 10L
G100 + MM = 100mL glyphosate + 1.5g metsulfuron methyl per 10L of water + wetting agent, eg. 2mL Agral per 10L water
G200 + MM = 200mL glyphosate + 1.5g metsulfuron methyl per 10L of water + wetting agent, eg. 2mL Agral per 10L water
MM = 1.5g metsulfuron methyl per 10L water + wetting agent, eg. 2mL Agral per 10L water
F100 = 100mL fluroxypyr per 10L water
F150 = 150mL fluroxypyr per 10L water

Other Abbreviations
= Locally non-indigenous native species

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

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DRAWING: Area 3 Management Plan Weed Management Techniques

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Spring Mountain Precinct

AREA 3 MANAGEMENT PLAN - MONITORING & REPORTING

MONITORING & REPORTING

MONITORING AND REPORTING PROCEDURES

Monitoring and maintenance of the weed management and vegetation, both adjacent to proposed works and within the management area, is a vital component to the success of this management plan set.
An ongoing maintenance schedule, detailing the monitoring program, management intervals, methodologies, and corrective actions for contractors undertaking rehabilitation works within the ecological area is provided below. It is the responsibility of the rehabilitation landscape contractor to ensure the ongoing maintenance and monitoring schedule is actioned. Monitoring of the parkland weed management and revegetation works allows for:

- A review of the pre-established performance indicators for measuring the success of the weed removal and control;
- Ensure the 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; and
- Identification of new weed threats or other factors which may be effecting areas designated for ecological rehabilitation.

Monitoring is required for weed eradication, revegetation and assisted regeneration.

MAINTENANCE ACTIONS AND METHODOLOGIES

Tree Retention - Construction Phase
- Ecologist / Arborist to assess tree exclusion zones are adhered to;
- Trees assessed for signs of stress or die back; and
- Implementation of VMP if retained tree roots Critical Root Zone (CRZ) is impacted upon.

Initial Establishment - Rehabilitation Planting
Initial 12 week establishment period applies to all rehabilitation planting works. During this period weekly maintenance is to occur that involves the following:
- Watering;
- Ongoing weed control;
- Fertilising; and
- Replacement of dead or damaged stock.

Ongoing Maintenance - Rehabilitation Planting
After this period, it is recommended that the ecological planting site be maintained on a monthly basis over a 5 year period to ensure that the planting has been successful. The following is to occur:
- Conduct weed spraying, plant watering, plant replacement of losses as necessary to maintain >95% survival rate;
- All other areas of non-use / limited access or steep terrain areas are to be hydro seeded to maintain a minimum 90% ground cover;
- All planting species will be disease free and supplied from an accredited nursery supplier;
- Assess condition of sediment control devices and replace if necessary; and
- Removal of excess sediment from erosion control devices as required.

MONITORING TIME FRAMES

For weed removal and revegetation three (3) Council determined timeframes form the anchor of the monitoring process. These include:

Council Pre-Start - *On-site meeting prior to the initial commencement of work within each stage of weed management. Will involve Consultant, Contractor and Council to work through weed treatment areas and clarify works approved and appointed.*

On-Maintenance - *At the completion of the Primary Weed Removal Stage and Secondary weeding an On-Maintenance meeting will be held with Council to inspect the works on-site in relation to the approved plans and previously agreed on-maintenance criteria.*

Off-Maintenance - *At the completion of all site weeding works and the agreed maintenance timeframe a final inspection will be held by Council to determine if works have been completed to the required level for Council hand over.*

REPORTING

Reporting to **Ipswich City Council** will occur on a yearly interval during the total period. Council will physically attend the Pre-Start, On-maintenance and Off-maintenance meetings. For this project it is recommended reporting include a short memo styled report responding to agreed criteria. As part of the monitoring a number of pre-determined transect and quadrant sampling sites have been allocated. At these locations a number of baseline studies have been completed and will be repeated post weed removal and maintenance to measure the success of the programmed works. It is also recommended this include a visual diary of imagery from selected locations at each inspection (Including the pre-start and monthly inspections). The imagery for the each period will be included with the report to Council.

In addition to the photo monitoring the biannual report to Council should include sufficient information on:
- Date, time and whether conditions at time of inspection
- Changes in weed extent populations (spreading / contracting)
- Changes in weed densities
- Health of existing vegetation protected by NRM provisions
- Rate of success for revegetation plantings
- Growth and PFC rate of assisted regeneration areas
- Occurrences of new weed infestations or species outbreaks
- Comments on any indirect changes to the area as a result of weed management (ie erosion / change in weed footprints / death to natives)
- Annual reporting is required to be sent to the Department of the Environment (DOE).

NOTES

MONITORING PARAMETERS

The monitoring should address the following issues:
- Maintained health and vigour of retained Remnant Trees adjacent to the corridor;
- Plant growth, percentage cover and survival rates;
- Plant losses through herbivores, disease, vandalism, storm damage or other factors;
- Weed re-growth and control measures;
- Plant replacement;
- Maintenance watering regime; and
- Erosion prevention.

It is also essential to keep an accurate photo record of the retained trees and progress of the rehabilitation planting by setting fixed photo monitoring points across the site. Photos should be taken by a digital camera and recorded in the project file by date and discrete photo monitoring point number. Photo monitoring point locations should be clearly marked on site and mapped by a surveyor or by GPS.

Corrective Actions
If trees adjacent to the sewer alignment disturbance are dying or impacted upon:
- Monitor construction activity;
- Educated construction team on tree retention measures;
- Review and / or respond to tree retention mitigation measures ie. exclusion zones;
- Review VMP for particular trees;
- Remove if necessary unsafe tree;
- Compensation by planting;
- If soil erosion is still occurring in planting zones the following is to occur:
- Review rehabilitation techniques conducted by contractor;
- Assess the potential for disturbance to occur;
- Assess other potential sources or causes of disturbances to occur; and
- Maintain planting regimes to a minimum of 95% survival rate.

If weed infestations occur in planting zones or in disturbed construction area, the following is to occur:
- Review weed removal and weed management techniques conducted by contractor;
- Assess the appropriate use and amounts of herbicides are being used;
- Assess the potential for weeds to occur;and
- Assess other potential sources or causes of weeds to occur.

If there is poor regeneration of plants occurring in ecological areas, the following is to occur:
- Review planting and direct seeding management techniques conducted by contractor;
- Assess the appropriate use and amounts of herbicides are being used in planting areas;
- Assess the potential for weeds to occur in ecological areas; and
- Assess other potential sources or causes of weeds or limited re-growth of native plants to occur, ie. plant pests and disease monitoring.

RESOURCES / ROLES & RESPONSIBILITIES

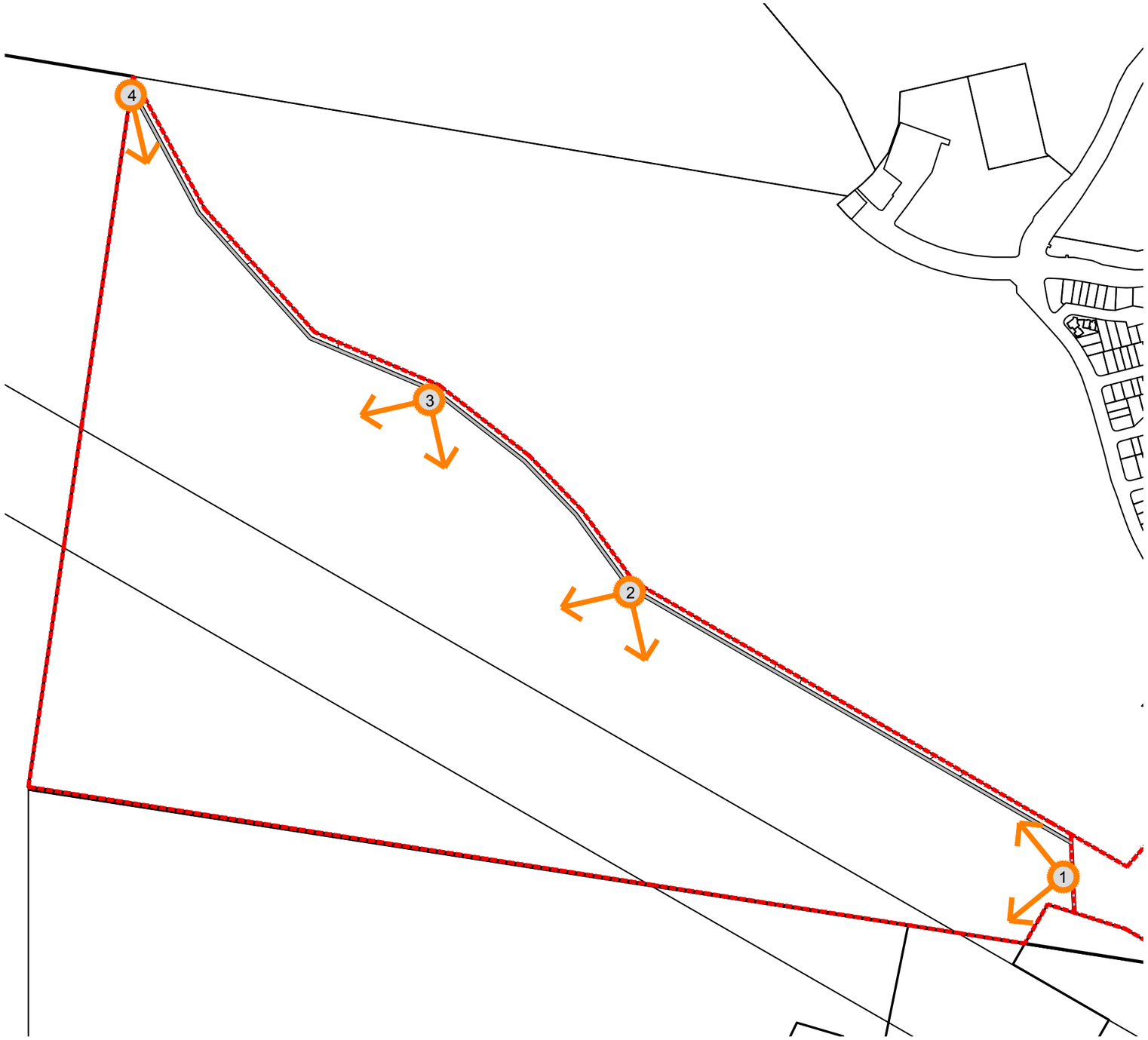
All resources required to implement this plan will be provided by the proponent (Lendlease). The following roles are applicable:

PROPONENT
- Ensure all consultants, contractors, sub contractors or others utilizing the area are aware of the Weed Management Plan.
- Appoint appropriate consultants and contractors to undertake works as prescribed on the drawings and conditioned by **Ipswich City Council**.
- Cover the costs of all necessary resources to ensure works are completed as per the approved documents.

CONSULTANTS
- Brief the proponent on their requirements in implementing and maintaining works as per the Weed Management Plan.
- Attend pre start, on maintenance and off maintenance meetings.
- Undertake monitoring and reporting to **Ipswich City Council** as set up by this document.
- Be available to respond to technical queries or departures to the approved documentation when on-site conditions require changes.
- Liaise with Council throughout all stages of approval, initial works and maintenance of works.

COUNCIL
- Provide technical expertise via commentary on the approval of documentation.
- Attend pre-start, on and off maintenance inspections.
- Undertake random inspections through the Secondary weed management and Maintenance weed management phases.
- Accept and review biannual reports as dictated in this document.

CONTRACTOR
- Complete works in strict accordance with the documentation.
- Recommend changes to the documentation when specific experience or on-site conditions require so.
- Attend pre-start, on and off maintenance inspections.



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40 YEARS 1975-2015

AMENDMENTS:

Issue	Date	Description	Checked
A	13/11/2017	Preliminary Issue	MS

CLIENT: lendlease

PROJECT: Spring Mountain Precinct

SCALE: NOT TO SCALE

landscape architecture

DRAWING: Area 3 Weed Management Plan Monitoring & Reporting

DATE:	November 17	CHECKED:	MS
CLIENT REF.:	7243	DRAWN:	TL
DRAWING No.:	7243 L 313 WMP A		

Spring Mountain Precinct

AREA 4 WEED MANAGEMENT

ISSUE A 13.11.2017
PRELIMINARY ISSUE

DRAWING SCHEDULE

Dwg No.	Drawing Title	Issue	Date
7243 L 401	Weed Management Plan - Cover Sheet	A	13/11/2017
7243 L 402	Weed Management Plan - Introduction	A	13/11/2017
7243 L 403	Weed Management Plan - Sheet 1	A	13/11/2017
7243 L 404	Weed Management Plan - Sheet 2	A	13/11/2017
7243 L 405	Weed Management Plan - Sheet 3	A	13/11/2017
7243 L 406	Weed Management Plan - Sheet 4	A	13/11/2017
7243 L 407	Weed Management Plan - Sheet 5	A	13/11/2017
7243 L 408	Weed Management Plan - Sheet 6	A	13/11/2017
7243 L 409	Weed Management Plan - Sheet 7	A	13/11/2017
7243 L 410	Weed Management Plan - Sheet 8	A	13/11/2017
7243 L 411	Weed Management Plan - Sheet 9	A	13/11/2017
7243 L 412	Weed Management Plan - Sheet 10	A	13/11/2017
7243 L 413	Weed Management Plan - Technical Notes	A	13/11/2017
7243 L 414	Weed Management Plan - Treatment Techniques	A	13/11/2017
7243 L 415	Weed Management Plan - Treatment Techniques	A	13/11/2017
7243 L 416	Weed Management Plan - Treatment Techniques	A	13/11/2017
7243 L 417	Weed Management Plan - Monitoring & Reporting	A	13/11/2017

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CLIENT: Lendlease

PROJECT: Spring Mountain Precinct

SCALE: AS NOTED

landscape architecture

DRAWING: Area 4 Weed Management Plan Cover Sheet

DATE:	November 17	CHECKED:	MS
CLIENT REF.:	7243	DRAWN:	TL
DRAWING No.:	7243 L 401 WMP A		

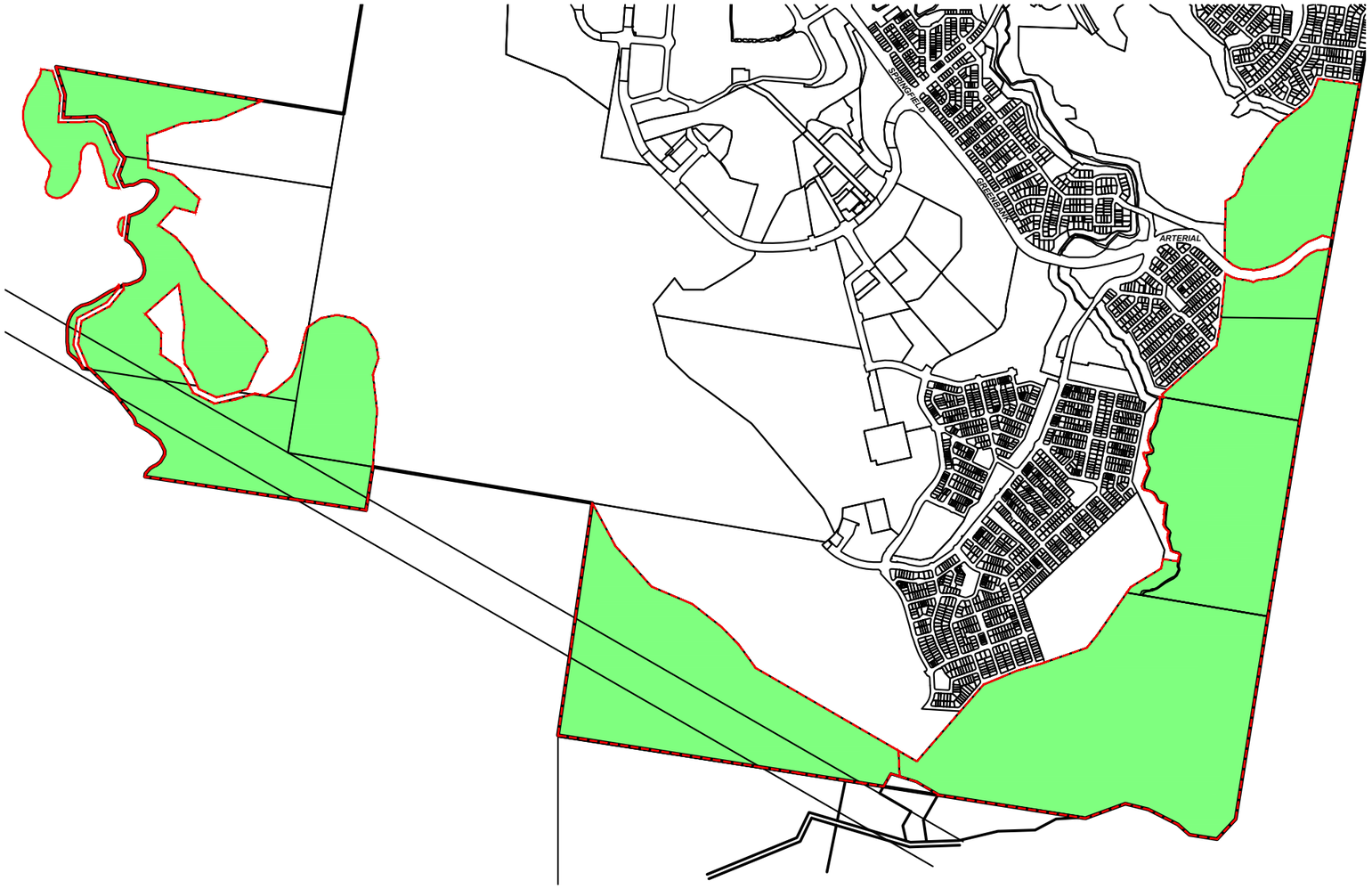
Spring Mountain Precinct

AREA 4 MANAGEMENT PLAN - WEED TREATMENT & REHABILITATION

INTRODUCTION

This Weed Management Plan

NOTES



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CLIENT: Lendlease

PROJECT: Spring Mountain Precinct

SCALE: AS NOTED

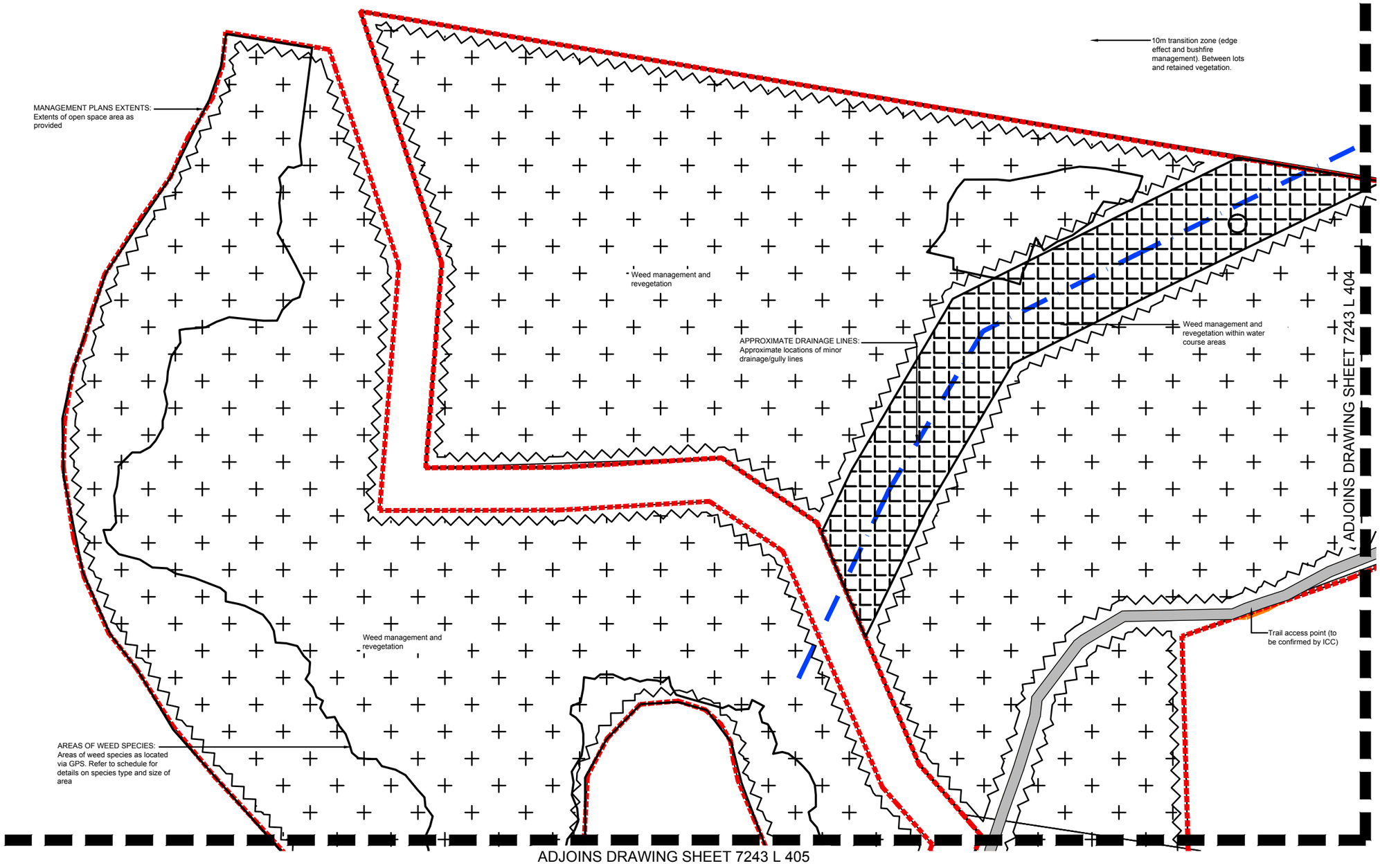
landscape architecture

DRAWING: Area 4 Weed Management Plan Weed Management Notes

DATE:	November 17	CHECKED:	MS
CLIENT REF.:	7243	DRAWN:	TL
DRAWING No.:	7243 L 402 WMP A		

Spring Mountain Precinct

AREA 4 WEED MANAGEMENT PLAN



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- Area of weed species located via GPS (1226, 1200)
- 10m transition zone (Edge effect & bushfire management). Between lots and retained vegetation
- Trail access point (To be confirmed by ICC) (824)

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A	13/11/2017	Preliminary Issue	MS

CLIENT: Lendlease

PROJECT: Spring Mountain Precinct

SCALE: 1:1000@A1 1:2000@A3 (0, 10, 20, 50m)

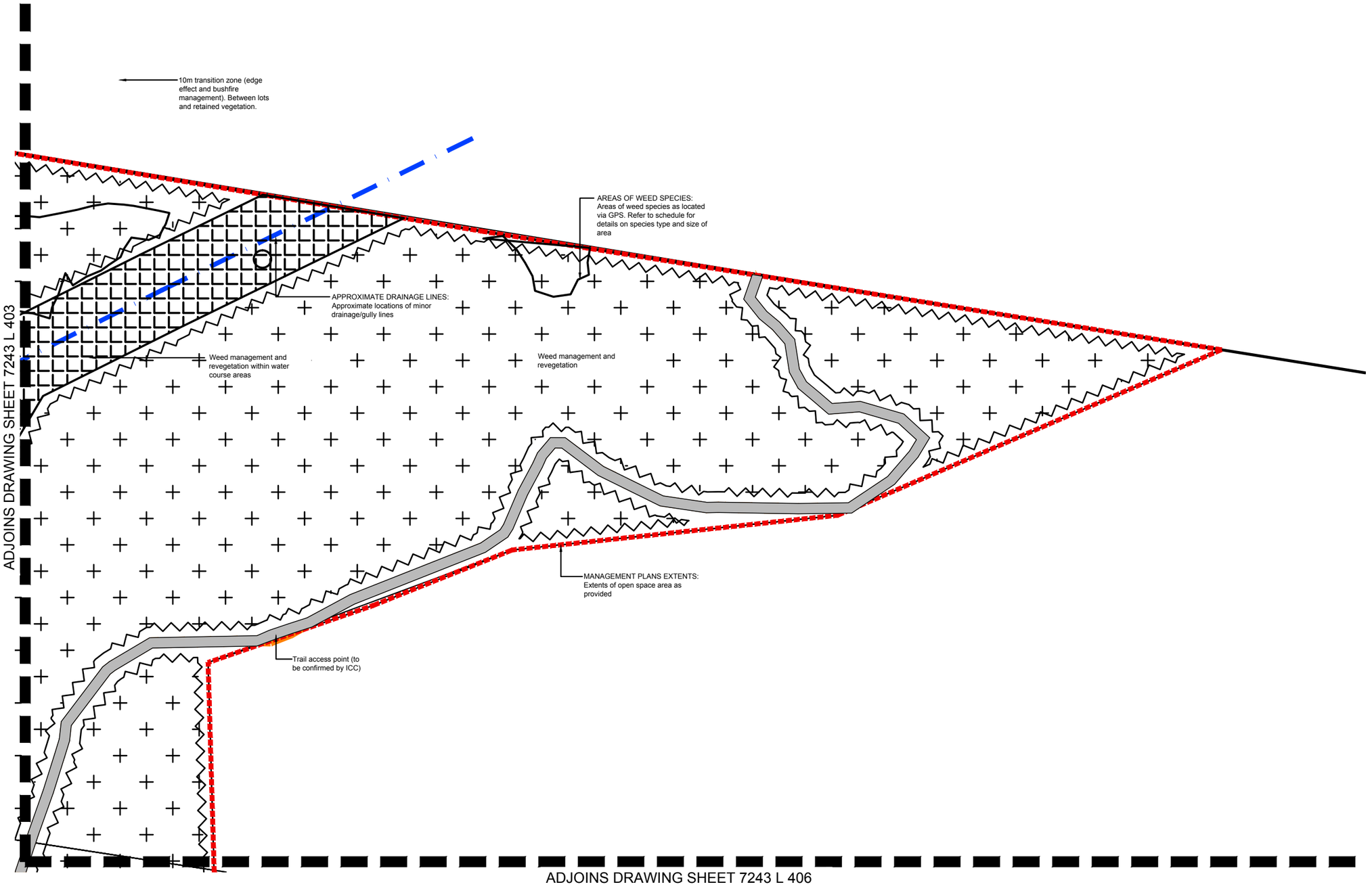
landscape architecture

DRAWING: Area 4 Management Plan Weed Management - Sheet 1

DATE: November 17	CHECKED: MS
CLIENT REF.: 7243	DRAWN: TL
DRAWING No.: 7243 L 403 WMP A	

Spring Mountain Precinct

AREA 4 WEED MANAGEMENT PLAN



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CLIENT: Lendlease

PROJECT: Spring Mountain Precinct

SCALE: 1:1000@A1 1:2000@A3 (0 10 20 50m)

landscape architecture

DRAWING: Area 4 Management Plan Weed Management - Sheet 2

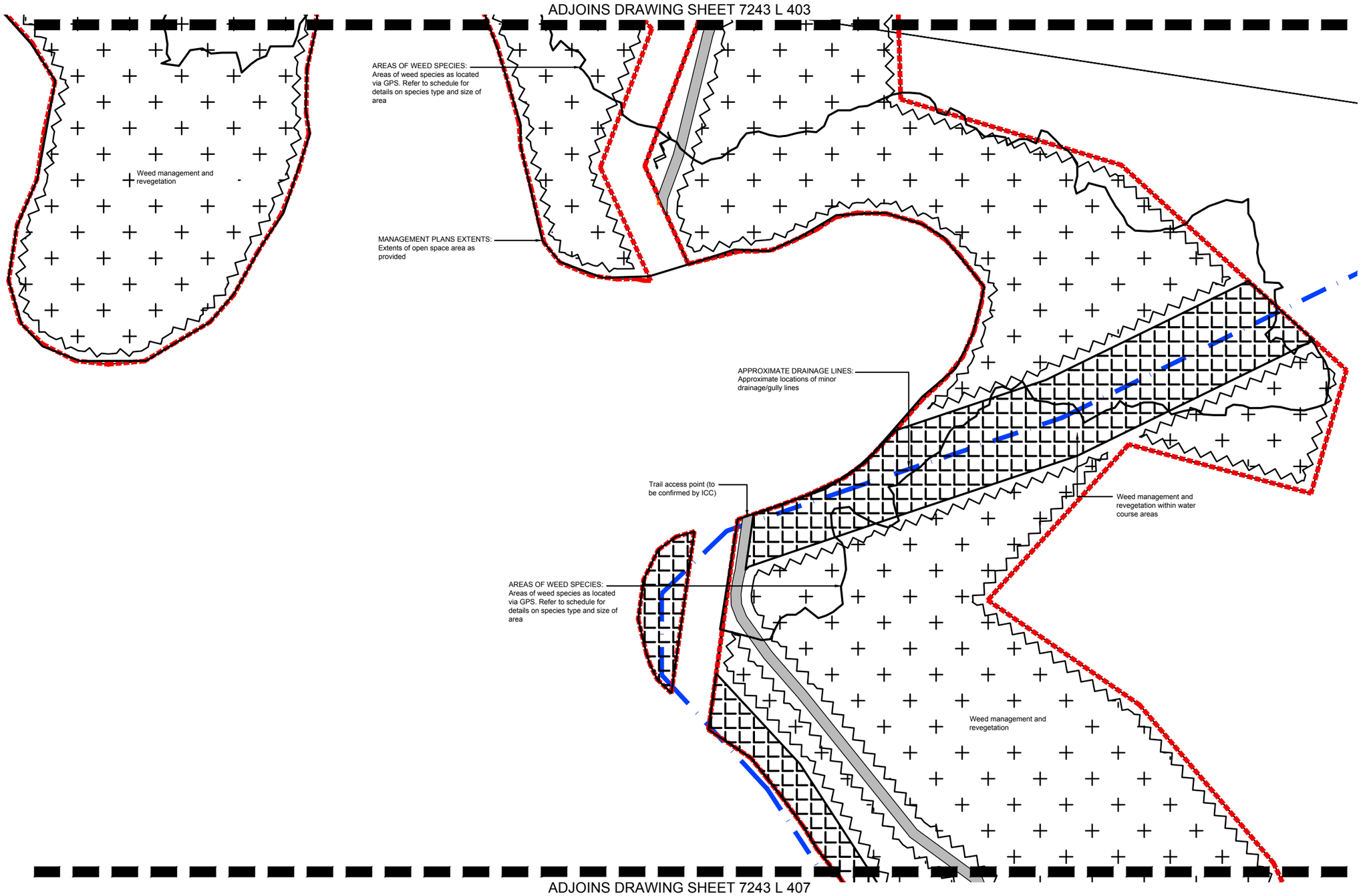
DATE: November 17 | CHECKED: MS

CLIENT REF.: 7243 | DRAWN: TL

DRAWING No.: 7243 L 404 WMP A

Spring Mountain Precinct

AREA 4 WEED MANAGEMENT PLAN



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PROJECT: Spring Mountain Precinct

SCALE: 1:1000@A1 1:2000@A3 (0 10 20 50m)

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DRAWING: Area 4 Management Plan Weed Management - Sheet 3

DATE: November 17	CHECKED: MS
CLIENT REF.: 7243	DRAWN: TL
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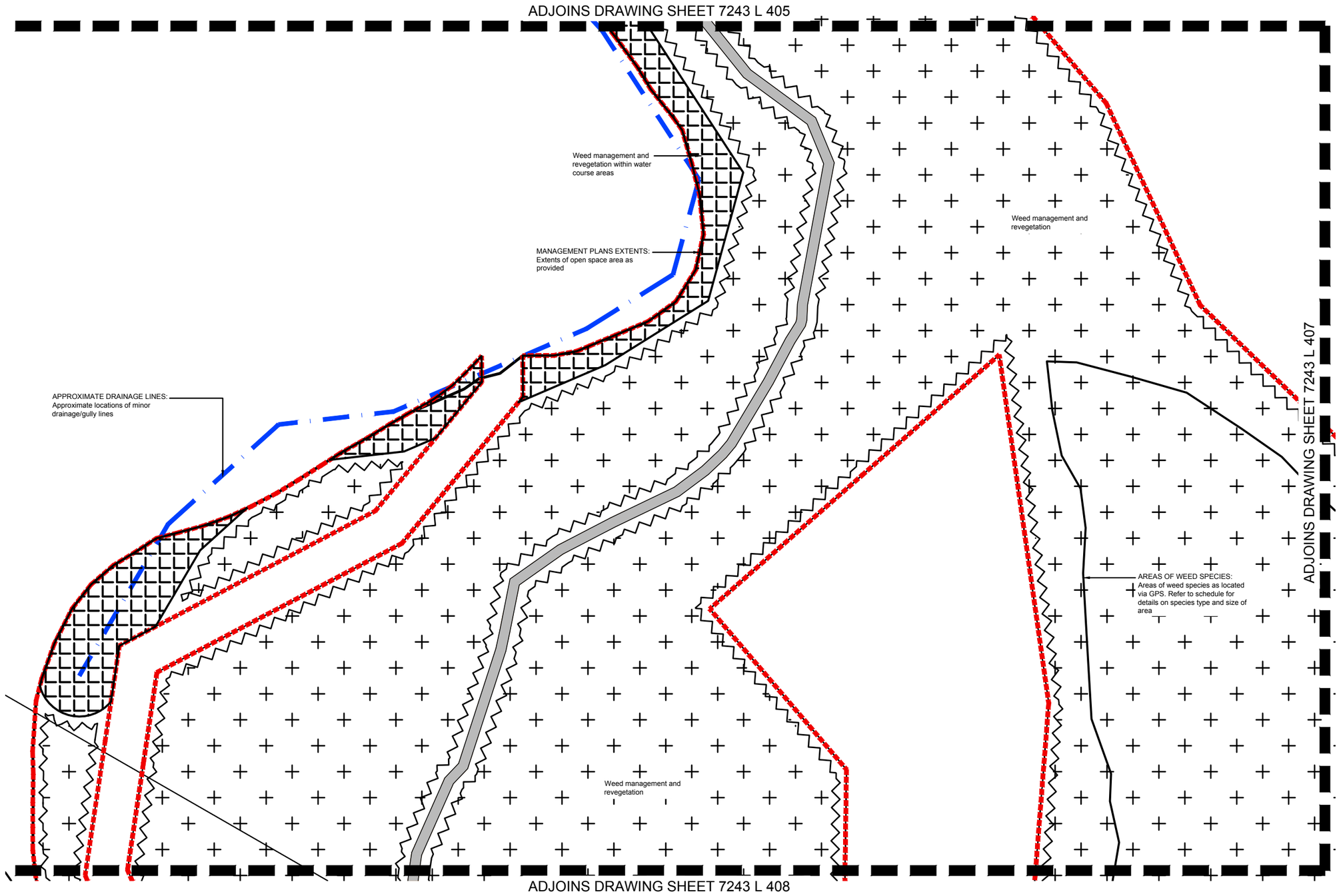
AREA 4 WEED MANAGEMENT PLAN



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AMENDMENTS:

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CLIENT: Lendlease

PROJECT: Spring Mountain Precinct

SCALE: 1:1000@A1 1:2000@A3 (0 10 20 50m)

landscape architecture

DRAWING: Area 4 Management Plan Weed Management - Sheet 4

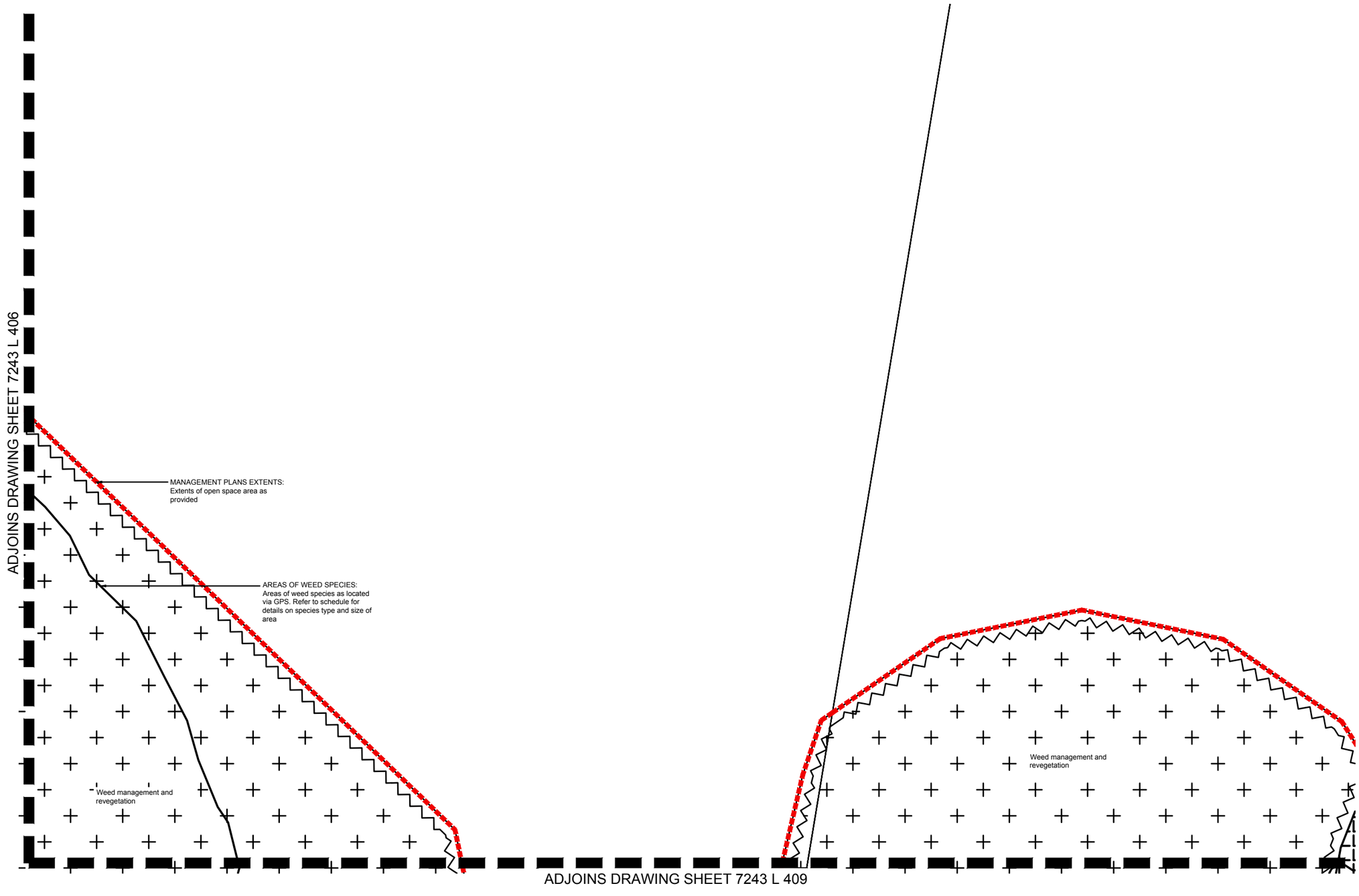
DATE: November 17 | CHECKED: MS

CLIENT REF.: 7243 | DRAWN: TL

DRAWING No.: 7243 L 406 WMP A

Spring Mountain Precinct

AREA 4 WEED MANAGEMENT PLAN



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CLIENT: Lendlease

PROJECT: Spring Mountain Precinct

SCALE: 1:1000@A1 1:2000@A3 0 10 20 50m

landscape architecture

DRAWING: Area 4 Management Plan Weed Management - Sheet 5

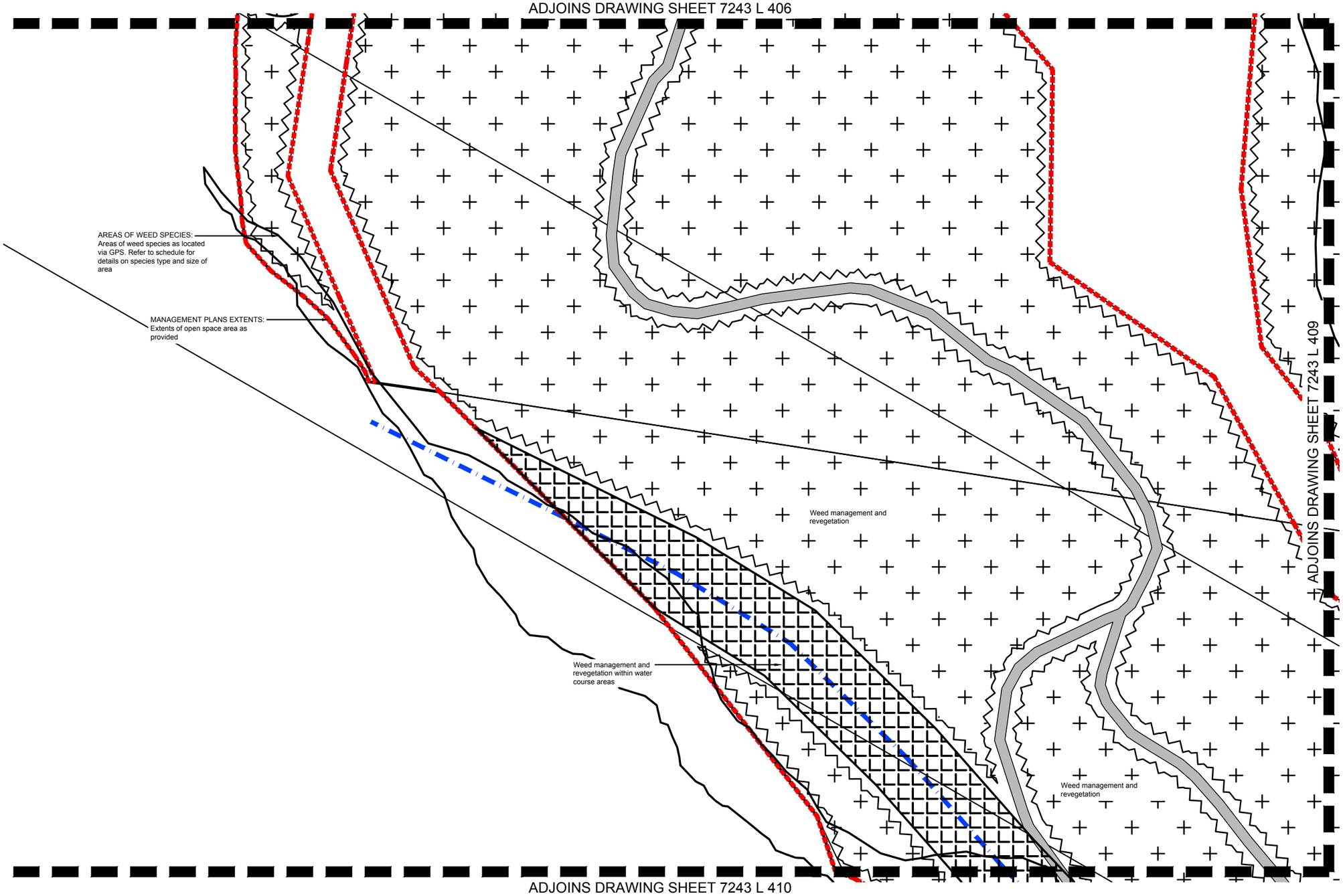
DATE: November 17 | CHECKED: MS

CLIENT REF.: 7243 | DRAWN: TL

DRAWING No.: 7243 L 407 WMP A

Spring Mountain Precinct

AREA 4 WEED MANAGEMENT PLAN



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SCALE: 1:1000@A1 1:2000@A3 0 10 20 50m

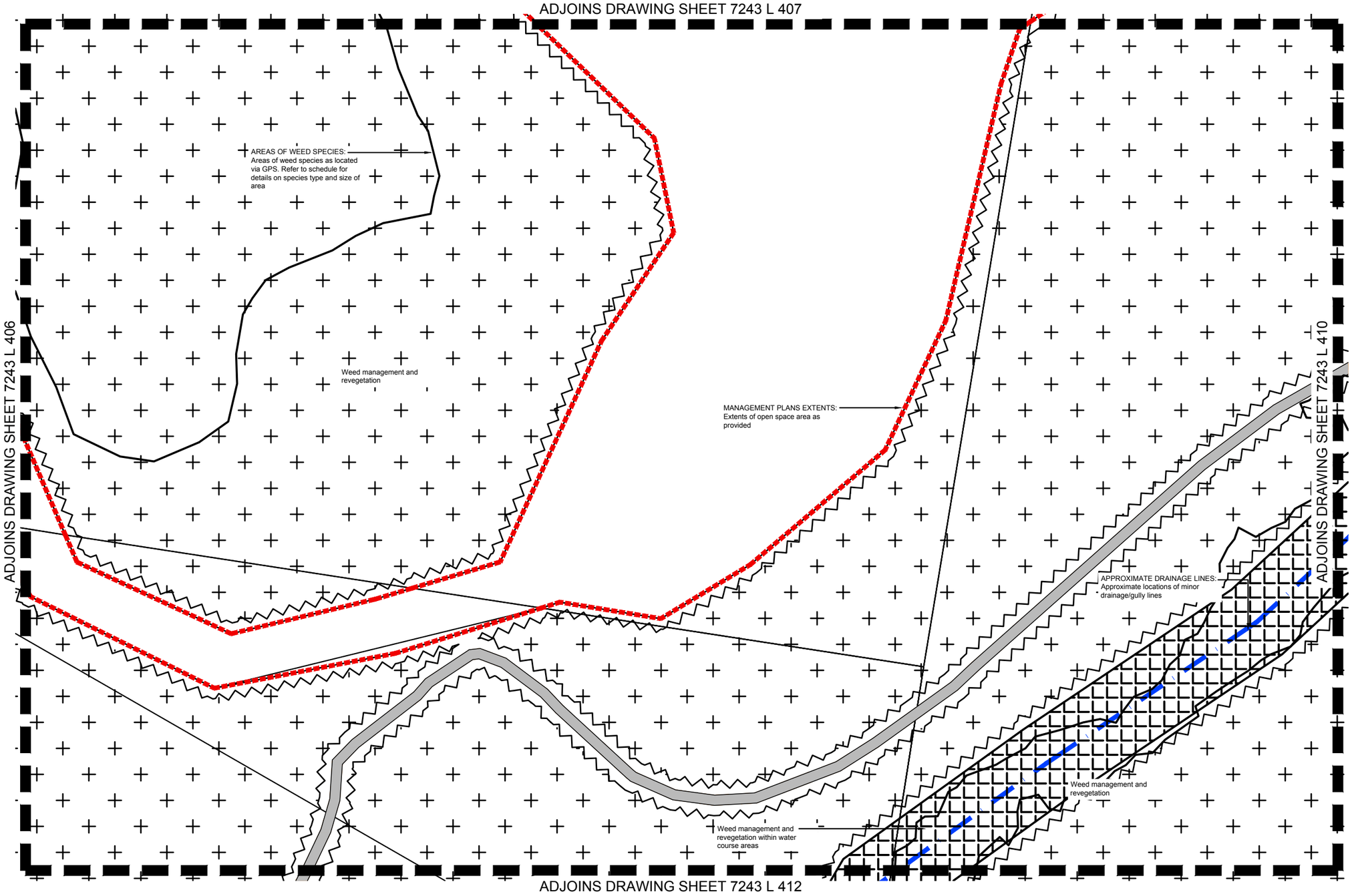
landscape architecture

DRAWING: Area 4 Management Plan Weed Management - Sheet 6

DATE: November 17	CHECKED: MS
CLIENT REF.: 7243	DRAWN: TL
DRAWING No.: 7243 L 408 WMP A	

Spring Mountain Precinct

AREA 4 WEED MANAGEMENT PLAN



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PROJECT: Spring Mountain Precinct

SCALE: 1:1000@A1 1:2000@A3 0 10 20 50m

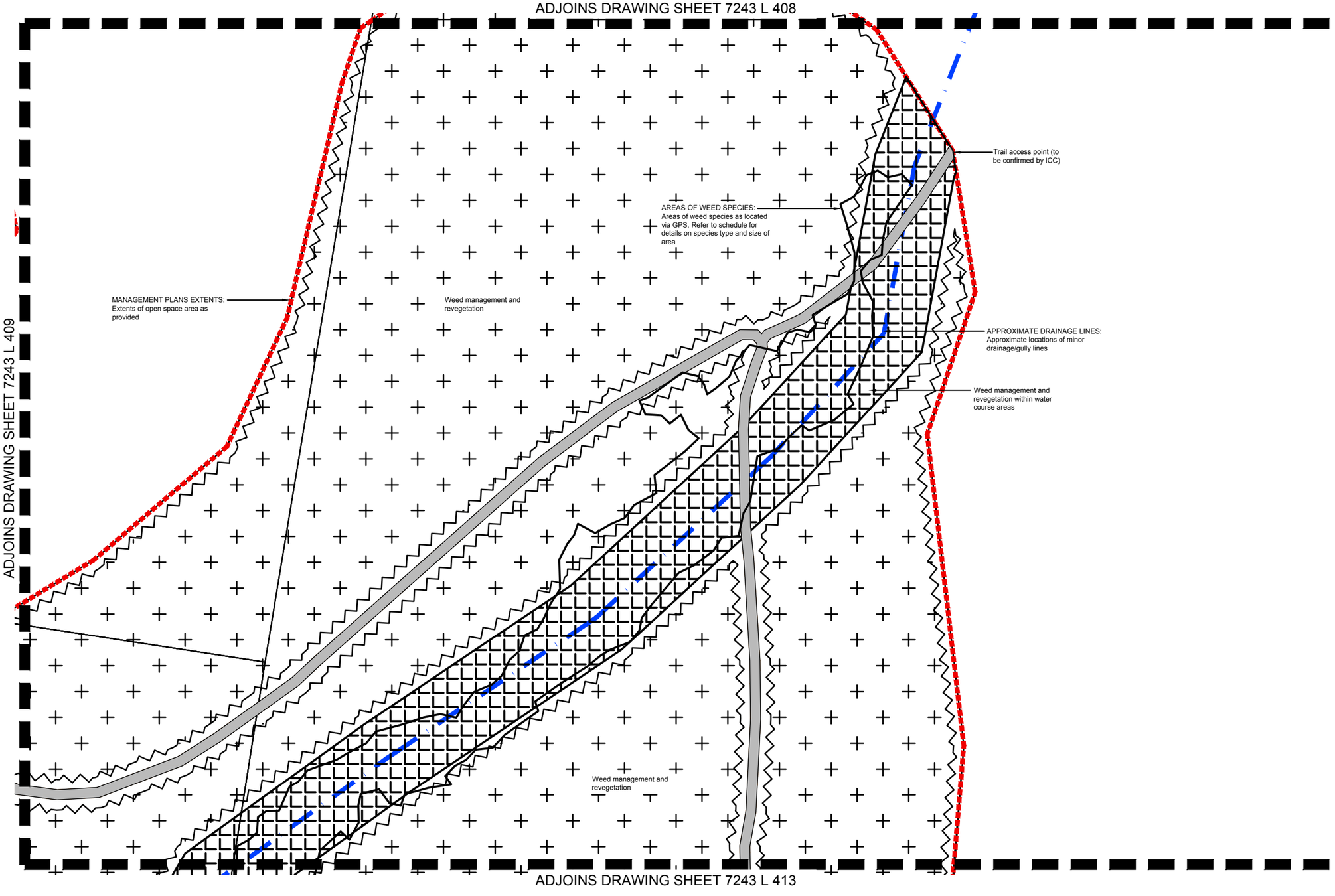
landscape architecture

DRAWING: Area 4 Management Plan Weed Management - Sheet 7

DATE: November 17	CHECKED: MS
CLIENT REF.: 7243	DRAWN: TL
DRAWING No.: 7243 L 409 WMP A	

Spring Mountain Precinct

AREA 4 WEED MANAGEMENT PLAN



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SCALE: 1:1000@A1 1:2000@A3 (0 10 20 50m)

landscape architecture

DRAWING: Area 4 Management Plan Weed Management - Sheet 8

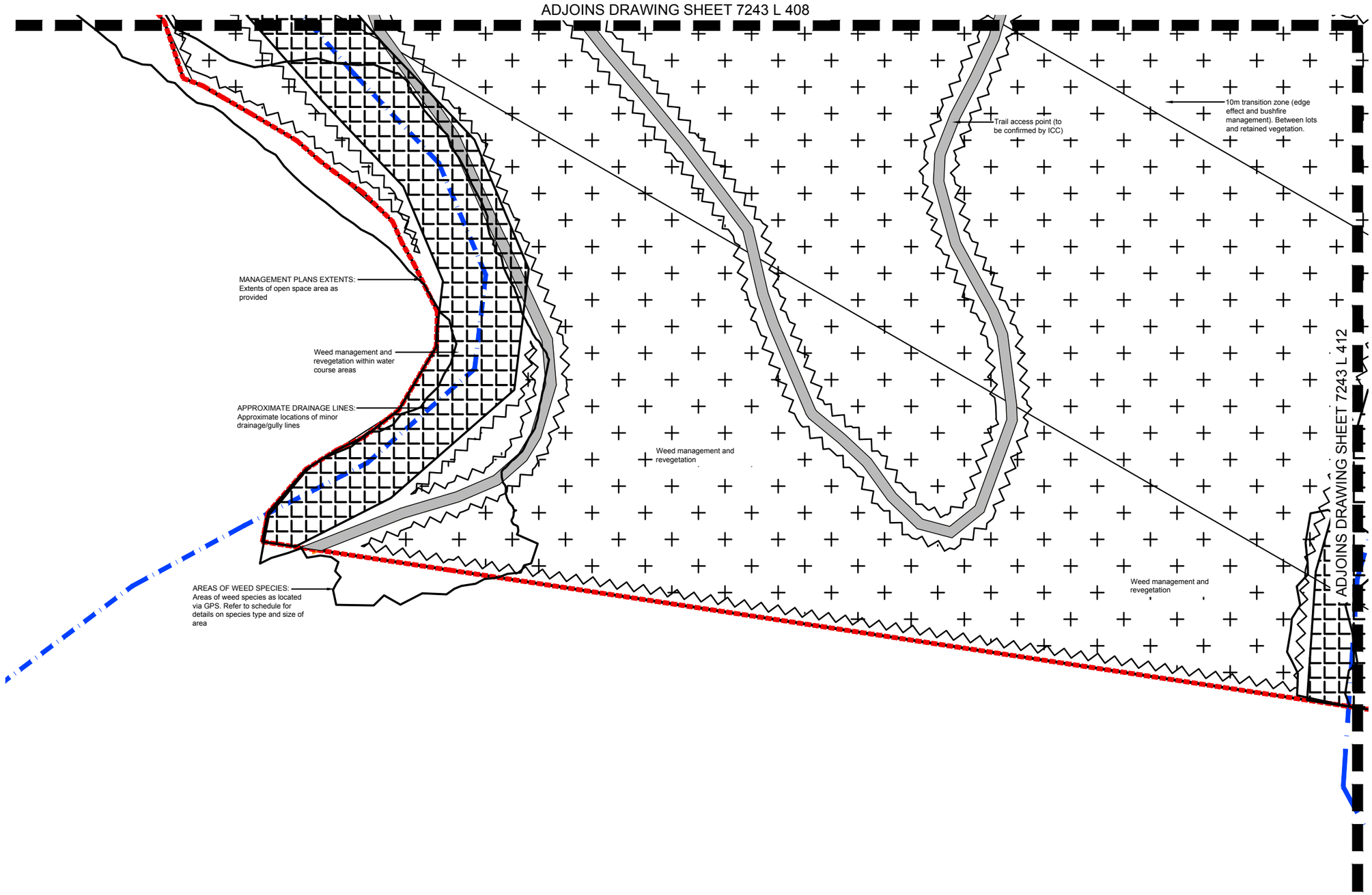
DATE: November 17 | CHECKED: MS

CLIENT REF.: 7243 | DRAWN: TL

DRAWING No.: 7243 L 410 WMP A

Spring Mountain Precinct

AREA 4 WEED MANAGEMENT PLAN



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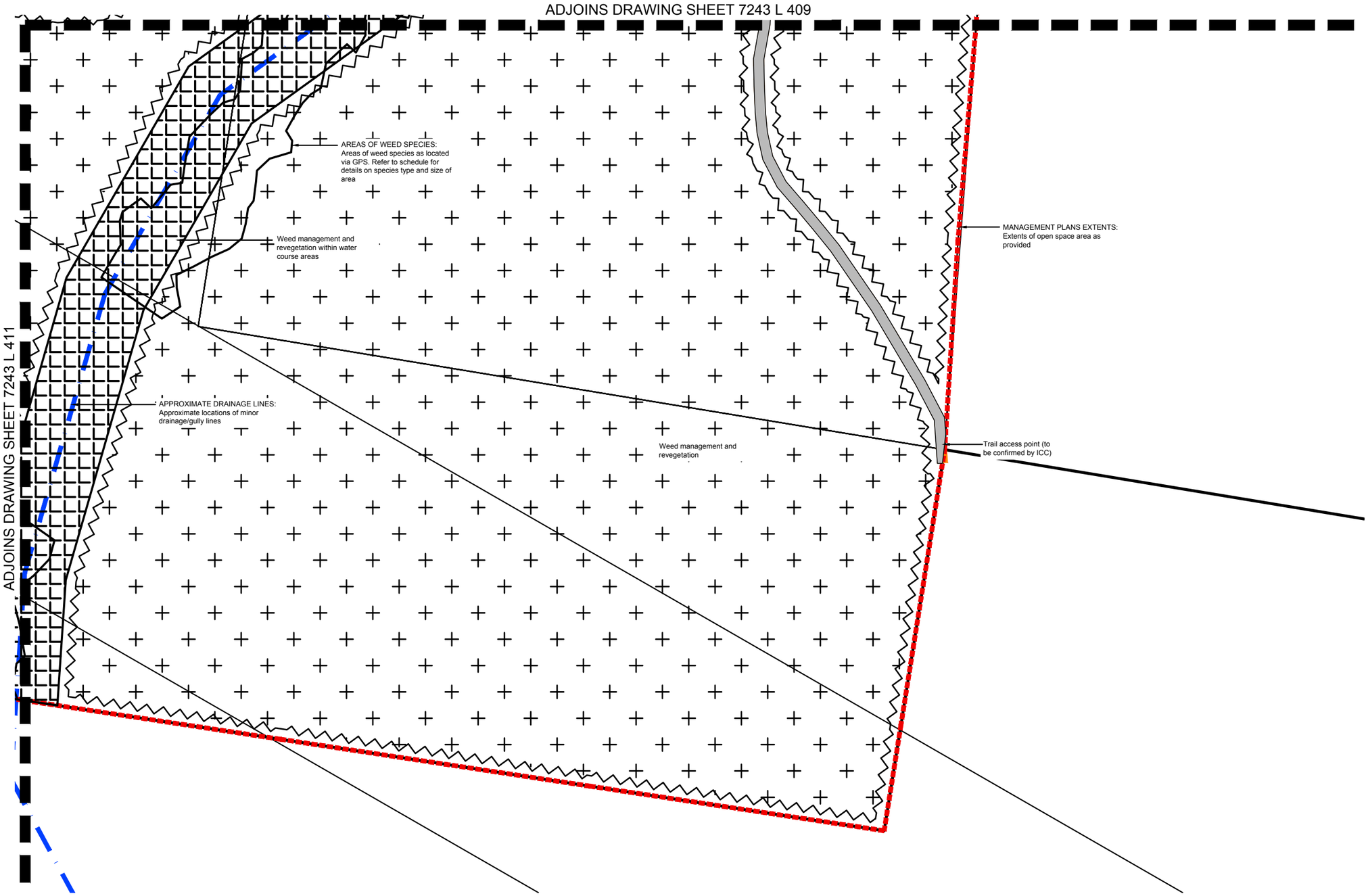
landscape architecture

DRAWING: Area 4 Management Plan Weed Management - Sheet 9

DATE: November 17	CHECKED: MS
CLIENT REF.: 7243	DRAWN: TL
DRAWING No.: 7243 L 411 WMP A	

Spring Mountain Precinct

AREA 4 WEED MANAGEMENT PLAN



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landscape architecture

DRAWING: Area 4 Management Plan Weed Management - Sheet 10

DATE: November 17	CHECKED: MS
CLIENT REF.: 7243	DRAWN: TL
DRAWING No.: 7243 L 412 WMP A	

Spring Mountain Precinct

AREA 4 MANAGEMENT PLAN - TECHNICAL NOTES - GENERAL

NOTES

This Weed Management Plan links specific weed removal and management measures with spatial areas within the declared area included with this application. This Weed Management Plan covers the 100.81ha Area 4 portion of land previous dedicated by Springfield Land Corporation (SLC) to Ipswich City Council (ICC). The main objectives and action items for pest plants are detailed in Table 1 shown on this plan, with the objectives and actions for ecological restoration are detailed in Table 2.

WEED CONTROL PROGRAM TIMING

The primary stage of manual weed removal, treatment and disposal for the parkland dedication is programmed when all existing weeds are removed with secondary and maintenance weeding occurring for another 18 months (18 month program post on-maintenance).

Primary Weed Removal Stage - Consists of the initial weed removal / treatment of site weeds via the methods detailed within the South East Queensland Ecological Restoration Guidelines. Essentially involves the manual removal, stock piling and disposal and initial usage of prescribed herbicides. Additional notes below include:

- Implemented weed control method according to this plan.
- Weed trees located within 20M zone of the existing trail network are to be removed where trunk is cut down to ground level and vegetative matter removed.
- Program timing; primary weed removal phase is considered to be completed when all existing weeds within the stage for the declared area have been removed or treated. Both the secondary phase and the primary phase of weed removal can occur concurrently in different stage areas over time.
- A key map is to be provided logging the progress of areas from primary to secondary phases of weed removal and areas of rehabilitation as part of the reporting progress.

Secondary or Follow-up Weeding - for all areas will involve the quarterly inspection of areas having undergone Primary Weed Removal and treatment of infestations or outbreak as required. Additional notes below include:

- Implemented weed control method according to this plan.
- Weed trees located within 20M zone of the existing trail network are to be removed where trunk is cut down to ground level and vegetative matter removed.
- Program timing; primary weed removal phase is considered to be completed when all existing weeds within the declared area have been removed initially. Both the secondary phase and the primary phase of weed removal can occur concurrently in different work areas over time.
- A key map is to be provided logging the progress of areas from primary to secondary phases of weed removal and areas of rehabilitation as part of the reporting progress.

Maintenance Weeding Phase - final stage of weeding which occurs in areas where the majority of weeds have been removed and treated. Maintenance weeding continues to remove additional outbreaks but also allows for the fostering of natural regeneration and regrowth seedlings. Additional notes below include:

- Implemented weed control method according to this plan.
- Weed trees located within 20M zone of the existing trail network are to be removed where trunk is cut down to ground level and vegetative matter removed.
- Program timing; primary weed removal phase is considered to be completed when all existing weeds within the designated Park have been removed initially. Both the secondary phase and the primary phase of weed removal can occur concurrently in different work areas over time.
- A key map is to be provided logging the progress of areas from primary to secondary phases of weed removal and areas of rehabilitation as part of the reporting progress.

Revegetation occurs in two (2) distinct zones throughout the management area. Refer to Drawing sheets for a full description of proposed plant species, sizes, densities and numbers.

NATURAL REGENERATION

Applies:

- To relatively large, intact and weed-free areas of native vegetation.
- Where the 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-lived disturbance, such as a fire or cyclonic winds.
- When preventative action is all that is required to avert on-going disturbance, e.g. erection of fencing to prevent intrusion from cattle.

Planting in such sites can work against the aims of restoration by interfering with natural regeneration.

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 removal, minor amelioration of soil conditions, erection of fencing, cessation of slashing, etc. will be enough to trigger the recovery processes through natural regeneration.
- When major component is weed control.

Planting in such sites can work against the aims of restoration by interfering with natural regeneration.

The re-establishing plant community will be similar in structure, composition and diversity to the original vegetation.

TABLE 1: OBJECTIVES AND ACTION ITEMS FOR PEST PLANTS

Threats	Opportunities	Management action	Timeframe	Responsibility
Objective: Protect, manage and enhance the diversity of native flora species and vegetation communities within the estate by controlling pest plants.				
Insufficient monitoring of pest plants	Increased knowledge of pest plant abundance and distribution within the estate	Continue to develop and update the management plan for the estate to identify pest plants present and to recommend and prioritise control and monitoring actions	Annually	Saunders Havill Group (SHG)
Establish-ment of large infestations of pest plants Insufficient resourcing of pest plant control measures	Pest plants are controlled effectively and in a way that ensures native vegetation regeneration	Include treating pest plants within the open space area to improve visitors experience to the estate	Ongoing	Contractor
Increased abundance of pest plants due to fire	Increased knowledge of pest plant responses to fire	Conduct follow up pest plant treatment after any fires within the estate	As required	Contractor
Lack of education of visitors and local residents as to the adverse impacts pest plants have on the natural environ-ment	Improved public understanding and support for pest plant control	Provide material for public awareness (ie interpretative signage)	As required	Contractor

TABLE 2: OBJECTIVES AND ACTION ITEMS FOR ECOLOGICAL RESTORATION

Threats	Opportunities	Management action	Timeframe	Responsibility
Objective: Protect, manage and enhance the significant habitat values and ecological processes found within the estate, so as to contribute positively to the conservation values of the local and regional area				
Degraded vegetation communities have adverse impacts on other values within the estate, including native flora and fauna species, fire issues and aesthectics	Restore degraded native vegetation communities and minimise impacts associated with pest plants and animals and their control on native flora and fauna, cultural heritage sites, and landscapes within the estate	Prepare and issue a management plan to: - clearly prioritise actions and zones (eg. focus on declared and environmental pest plants and mapped biodiversity zones) - Divide the site into sub-zones which can be managed in a systematic and structured way - Align with the fire management plan as burns could provide ecological and economical efficiencies; reducing fuel loads at the same time as acting as a pest plant control - Lantana (especially) should be managed to reduce the fuel load, as this is a major fire hazard Incorporate training (eg. for relevant community groups) - Write the plan for the target audience working on the estate (eg. bushcare groups working in particular zones)	Prior to commence-ment	Contractor
Pest plant infestations from high use areas may impact on adjacent ecological values	Improve the flora values within the open space area	As part of the site rehabilitation planning for the open space, a planting list of locally occurring plant species for use in rehabilitation is to be provided to enhance population viability where appropriate and possible. Include threatened and locally significant species in plantings.	Ongoing	Contractor
Trail creation, soil compaction and increased erosion	Restore natural habitats to increase the resilience of the estate	Refer to management plans for further detail	As required	Contractor
Pest plant introduction and spread	Deceased abundance of pest plants	Refer to management plans for further detail	As required	Contractor
Disturbance from pest animals	Deceased abundance of pest animals	Refer to management plans for further detail	As required	Contractor
Insufficient resourcing of restoration measures	Improved public understanding of and support	Refer to management plans for further detail	As required	Contractor
Insufficient data on the effectiveness of ecological restoration programs	The populations and diversity of near threatened, threatened or locally significant plant species are protected and enhanced	Refer to management plans for further detail	As required	Contractor

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40 YEARS 1975-2015

AMENDMENTS:

Issue	Date	Description	Checked
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CLIENT: lendlease

PROJECT: Spring Mountain Precinct

SCALE: AS NOTED

landscape architecture

DRAWING: Area 4 Weed Management Plan Technical Notes - General

DATE: April 17	CHECKED: MS
CLIENT REF.: 7243	DRAWN: TL
DRAWING No.: 7243 L 413 WMP A	

Spring Mountain Precinct

AREA 4 MANAGEMENT PLAN - WEED TREATMENT & REMOVAL STRATEGY

NOTE:
Species highlighted have been identified within the 'Springfield Wildlife Corridor Management Requirements' list which have specified removal and/or treatment techniques for Class 1 or 2 weeds. Environmental weeds and weeds of National Significance (WONS) Class 3 are to be:

- Remove dumped garden weeds from urban interface. Liaise with ICC Supervisor regarding ongoing Compliance issues.
- Lantana controlled within 20m of track edges (ie walking, shared and service).
- Strategic treatment of gully infestations staged from head of gullies downstream utilising cut stump method and chopping lantana into small (150mm) pieces. Areas to be determined by consultation with ICC.
- Assisted natural regeneration following removal including direct seeding utilising endemic seed from site. Follow up weed control by spot spraying emerging weeds in cleared areas or hand removal.

QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND

Rank	Family	Scientific and common names	Subregion	Rec No	Score	Life form & Source	Non Chemical Control	Chemical Control
1	Verbenaceae	Lantana camara var camara (lantana)	10	455	5	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	168	4.8	S/O	Cut stump prior to flowering	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	38	4.9	H/O	Hand removed and bagged or larger infestations sprayed	Plantlets: spray G200 + MM or MM (ref 1).
4	Bignoniaceae	Macfadyena unguis cati (cat's claw creeper)	5	36	4.9	V/O	Tubers: crown or dig up, bag and remove.	Regrowth and tuberlings: spray G100 + MM or F100 (ref 1).
	Basellaceae	Anredera cordifolia (madeira vine)	8	16	4.9	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	26	4.9	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	19	4.9	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	25	4.8	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
9	Anacardiaceae	Schinus terebinthifolius (broad-leaf pepper tree)	6	49	4.8	T/O	Seedlings: Hand pull	Saplings: CS&P (G1.5); Trees: F/I (G1.5), Seedlings: spray G200 (ref 1).
	Salviniaceae	Salvinia molesta (salvinia)	8	57	4.9	Ha/F	Mechanical removal of small infestations; Salvinia weevil (Biological control)	Aquatic areas: calcium dodecylbenzene sulphanate (AI -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	12	4.9	Ha/F	Mechanical removal of small infestations	2, 4-D N-Butyl Ester (Rubber Vine Spray) @ 12.5L/VL water (see ref 2. for application guide).
12	Asteraceae	Chrysanthemoides monilifera subsp. rotundata (bitou bush)	3	23	4.9	S/OA	N/A	Stems, C&P or F/I (G1.5), Bushes: spray or cut down and spray regrowth G100 or MV (ref 1)
13	Pontederiaceae	Eichhornia crassipes (water hyacinth)	4	8	4.9	Ha/OI	Mechanical removal of small infestations	Waterways: 2, 4-D acid (AI 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	7	5	Ha/I	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)
	Oleaceae	Ligustrum lucidum (tree privet)	5	9	4.8	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 MV or G200 + MM if other weeds such as Lantana or Camphor Laurel are present
16	Asteraceae	Sphagneticola trilobata (Singapore daisy)	6	34	4.6	H/O	Hand pull	Hand pull and/or spray G200 + MM (ref 1).
17	Asteraceae	Ageratina adenophora (crofton weed)	6	38	4.6	H/O	Hand pull and hang to dry.	Spray MM or G200 or G200 + MV if other weeds such as Lantana or Camphor Laurel are present (ref 1).
18	Verbenaceae	Lantana montevidensis (creeping lantana)	8	62	4.8	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; Splatt
19	Fabaceae	Neonotonia wightii (glycine)	5	16	4.7	H/A	N/A	Vines: CS&P (1:1.5) or spray G100 + MM or MM (ref 1)
	Poaceae	Panicum maximum (green panic and guinea grass)	8	78	4.6	H/A	Hand or mechanical removal of small infestations	Spray: glyphosate @ 13mL/1L water (ref 2.)
21	Oleaceae	Ligustrum sinense (Chinese privet)	4	11	4.6	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	33	4.5	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 T100 or G200 + MM (ref 1).
23	Asparagaceae	Asparagus aethiopicus cv Sprengeri (asparagus ground fern)	5	35	4.5	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
24	Poaceae	Sporobolus pyramidalis and S. natalensis (giant rat's tail grasses)	8	72	4.8	H/U?	Seed heads cut and bagged, remaining leaves sprayed	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).
	Asteraceae	Ageratina riparia (mistflower)	5	38	4.6	H/O	Hand pull and hang to dry.	Spray G100 or MM (ref 1).
26	Asclepiadaceae	Araujia sericifera (mothvine)	9	38	4.4	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	15	4.5	H/O	Hand pull and dispose	Plantlets: spray G200 + MM or MM (ref 1)
28	Convolvulaceae	Ipomoea cairica (mile-a-minute)	7	56	4.4	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	31	4.4	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	19	4.4	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	61	4.3	H/O	Hand pull and hang to dry.	Spray G100 (ref 1).
32	Poaceae	Sporobolus africanus (Parramatta grass)	8	48	4.5	H/U	Hand or mechanical removal of small infestations	Small infestations: spray glyphosate @ 15mL/L water, flupropanate @ 2mL/L water + ionic wetter @ 1mL/L water, Dense Infestations: blanket spraying glyphosate 3L/ha, flupropanate 2L/ha (ref 2).
33	Poaceae	Sporobolus fertilis (giant Parramatta grass)	9	27	4.5	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	29	4.3	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	4	4.7	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
36	Amaranthaceae	Alternanthera philoxeroides (alligator weed)	12	3	5	Ha/U	physical removal of plant should not be attempted	Terrestrial 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	166	4.2	V/O	N/A	Stems: CS&P; Seedlings & Regrowth: spray G200 or G200 + MM (ref 1).
38	Poaceae	Melinis minutiflora (molasses grass)	5	17	4.5	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	30	4.3	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	24	4.3	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 T150 (ref 1).
41	Mimosaceae	Leucaena leucocephala (leucaena)	6	14	4.3	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	18	4.4	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	7	4.4	Ha/I	hand pulling, cutting and digging with machines effective	N/A
44	Pinaceae	Pinus elliottii (slash pine)	4	22	4.3	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	33	4.2	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	55	4.3	H/A	Hand pulling and removal and digging of larger clumps	Spray: glyphosate @ 1l/100L water
47	Crassulaceae	Bryophyllum pinnatum (resurrection plant)	6	17	4.2	H/O	Hand pull and dispose	Plantlets: spray G200 + MM or MM (ref 1).
48	Asteraceae	Parthenium hysterophorus (parthenium weed)	6	14	4.2	H/U	hand pulling of small areas is not recommended	Spot spray 2,4-D amine 500 g/L @ 0.4 L/100 L
49	Caprifoliaceae	Lonicera japonica (Japanese honeysuckle)	3	6	4.3	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	22	4.2	H/O	N/A	CS&P (G1.5); spray G200 or G200 + MM (ref 1).
51	Fabaceae	Macroptilium atropurpureum (siratro)	8	30	4.2	V/A	N/A	Vines: CS&P (1:1.5) or spray G100 + MM or MM (ref 1).
52	Rosaceae	Rubus ellipticus (yellowberry)	4	26	4.1	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	26	4.1	V/O	N/A	Young Shoots: spray G200 or G200 + MM. Best results in Oct-Nov and by using 'Pulse' as surfactant (ref 1)
54	Verbenaceae	Phyla canescens (lippia, Condamine couch)	3	4	4.2	Ha/O	a combined approach of different control methods including chemical and mechanical with land management practices is most effective	Foliar spray 600 g/L Dichlorprop @ 5 ml /1 L water or 2,4-D amine (500 g/L) + 1% crop oil @ 2–4 L/ha + 1% crop oil
55	Solanaceae	Solanum seaforthianum (Brazilian nightshade)	8	78	4	V/O	Hand pull	Spray G100 (ref 1).
56	Araceae	Pistia stratiotes (water lettuce)	3	8	4.1	Ha/OI	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	8	4.1	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)

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PROJECT: Spring Mountain Precinct

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DRAWING: Area 4 Weed Management Plan
Weed Management Techniques

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AREA 4 MANAGEMENT PLAN - WEED TREATMENT & REMOVAL STRATEGY

58	Commelinaceae	Tradescantia fluminensis (Qld use T. albiflora) (wandering jew)	5	9	4.1	H/C	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	36	3.9	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	25	4	S/C	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	30	4	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	22	4	S/O	Hand pull	Spray G100 (ref 1).
63	Passifloraceae	Passiflora subpeltata (white passion flower)	10	60	3.9	V/O	Stems: Hand pull	Stems: CS&P; Seedlings & Regrowth: spray G200 or G200 + MM (ref 1).
64	Fabaceae	Desmodium uncinatum (silverleaf desmodium)	5	14	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 (ref 1).
65	Poaceae	Melinis repens (red Natal grass)	10	134	4.1	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	17	4	Ha/CF	Hand pull small infestations	Spray with or Diquat Glyphosate. Occurs in waterways, thus EPA should be notified before any herbicide use (ref 5).
67	Onagraceae	Oenothera drummondii subsp. drummondii (beach evening primrose)	3	17	4	H/C	Hand pull	Spray G100 (ref 1).
68	Tiliaceae	Triumfetta rhomboidea (Chinese burr)	7	44	4	H/C	Hand pull	Spray G100 (ref 1).
69	Haloragaceae	Myriophyllum aquaticum (parrot's feather)	3	15	4	Ha/F	N/A	Spray. glyphosate 360g/L @ 100mL/10L water (ref 1).
70	Passifloraceae	Passiflora foetida (stinking passion flower)	7	50	3.9	V/O	Hand Pull	CS&P (G1.5); spray G200 or G200 + MM (ref 1).
71	Asteraceae	Verbesina encelioides (crownbeard)	7	34	4	H/C	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	6	4	H/A	N/A	Spray G200 - resistant to weaker strength (ref 1).
73	Poaceae	Paspalum dilatatum (paspalum grass)	10	30	3.9	H/A	Hand pull or dig up	Spray G100 (ref 1)
74	Ruppiaceae	Ruppia maritima (sea tassel)	2	8	4	Ha/F	Hand pull or dig up	Spray G100 (ref 1)
75	Arecaceae	Syagrus romanzoffiana (queen palm)	4?	10	3.9	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?	1	4	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	8	4	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	15	4.1	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	3	5?	V/O	N/A	CS&P (G1.5); spray G200 (ref 1).
80	Cactaceae	Opuntia tomentosa (velvet tree pear)	8	46	3.9	S/O	Hand removed, stem injected, or over sprayed with garlon	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	20	3.9	S/C	Seedlings: Hand pull	Shrubs: S: CS&P or F/I (G1.5); Seedlings: spray G200 (ref 1).
82	Asteraceae	Senecio madagascariensis (fire weed)	6	28	3.8	H/U	Hand pulled and bagged	Stems: S&P (GU); Regrowth and seedlings: spray G200 or G200 + MM (ref 1).
83	Cyperaceae	Cyperus involucratus (African sedge)	6	15	3.8	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	11	3.9	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	41	3.8	H/A	Hand pull or dig up	Spray G100 (ref 1).
86	Asclepiadaceae	Gomphocarpus physocarpus (balloon cotton bush)	10	132	3.7	S/OU	Slash in winter and burn cuttings. Wanderer Butterfly can also be used.	Spray: glyphosate @ 1:1000 with water, in spring before seeding (ref 3).
87	Poaceae	Digitaria didactyla (Queensland blue couch)	9	70	3.7	H/A	Hand pull or cultivation	Spot Spray: glyphosate or 2,2-DPA (ref 3)
88	Caesalpiniaceae	Gleditsia triacanthos (honey locust)	7	12	3.8	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 fluroxypyr (Starane 200®) @ 1.5 L 75ml/100 L diesel
89	Poaceae	Paspalum notatum (bahia grass)	4	10	3.8	H/A	Hand pull or dig up	Spray G100 (ref 1)
90	Cactaceae	Opuntia monacantha (drooping tree pear, syn. O. vulgaris)	2	3	4	S/O	Hand removed stem injected, or over sprayed with garlon	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	38	3.8	H/A	Cut below crown.	Spot Spray: glyphosate or 2,2 DPA (ref 3)
92	Malpighiaceae	Hiptage benghalensis (hiptage)	3	5	4	S V/O	Hand pull small infestations.	Seedlings: Foliar spray of dicamba, fluroxypyr, and triclopyr/picloram. Larger plants cut stump application of fluroxypyr and triclopyr/picloram with diesel, glyphosate with water and picloram undiluted (ref 7).
93	Solanaceae	Solanum torvum (devil's fig)	6	39	3.9	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	20	3.9	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	29	3.8	H/O	Hand Pull	Spot Spray: glyphosate or 2,2 DPA (ref 3)
96	Verbenaceae	Duranta erecta (duranta)	6	14	3.6	ST/O	Shrubs: CS&P (1:1.5)	Spray G100 (ref 1)
97	Brassicaceae	Nasturtium officinale (Qld use Rorippa nasturtium-aquaticum) (watercress)	7	19	3.7	Ha/FU	Manually grub and destroy.	Spray G100 and replace with local species (ref 1).
98	Polygonaceae	Acetosa sagittata (rambling dock)	4	18	3.7	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	45	3.6	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	16	3.6	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	10	3.5	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	12	3.7	S/A	N/A	Pastures - Fluroxypyr/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	9	3.9	H/C	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	5	4	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	12	3.7	H/C	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	16	3.8	H/O	N/A	Spray G200 + MM (ref 1).
107	Poaceae	Pennisetum clandestinum (kikuyu grass)	4	12	3.8	H/A	Hand Pull	Spot Spray: glyphosate or 2,2 DPA (ref 3)
108	Liliaceae	Lilium formosanum (Taiwan lily)	5	10	3.8	H/C	Hand pull or crown and dispose	Spray G100 + MM or MM (ref 1).
109	Asteraceae	Sigesbeckia orientalis (Indian weed)	10	148	3.6	H/U	Hand pull or cultivation.	Spray with 2,4 D amine or sodium, pr MCPA + dicamba (ref 3).
110	Asteraceae	Bidens pilosa (cobbler's pegs)	10	110	3.5	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	67	3.6	S/O	Hand removed stem injected, or over sprayed with garlon	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	55	3.5	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	23	3.6	H/AO	Cut stems from roos.	Spot spray with Glyphosate (ref 3).
114	Lamiaceae	Salvia coccinea (red salvia)	9	46	4	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 10 parts kerosene
115	Asteraceae	Ageratum houstonianum (blue billygoat weed)	8	81	3.8	H/UO	N/A	Spray G100 or hand pull and spray regrowth G100 (ref 1).
116	Myrtaceae	Psidium guajava and P. guineense (yellow guava and West Indes guava)	4	7	3.7	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	22	3.5	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	19	3.5	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	6	4?	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	Brachiaria decumbens (signal grass)	4	14	3.5	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	4	4.3?	H/A	N/A	Vines: CS&P (1:1.5) or spray G100 + MM or MM (ref 1).
122	Commelinaceae	Commelina benghalensis (hairy wandering jew)	4	7	3.5	H/O	Collect and Bag	Spray G200 or G200 + MM (ref 1)
123	Poaceae	Pennisetum purpureum (elephant grass)	2	9	3.5	H/O	Grazing or mechanical removal	N/A (ref 2).
124	Zingiberaceae	Hedychium coronarium (wild ginger)	2	2	3.5	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	50	3.4	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	43	3.4	S/O	Hand pull, Slash	Slash and/or spray G100 (ref 1).
127	Solanaceae	Lycium ferocissimum (African boxthorn)	1?	5	4.4?	S/O	N/A	Stems: C&P (G1.5); Regrowth: spray G200 + MM (ref 1).
128	Mimosaceae	Prosopis pallida (algaroba)	2	2	4	ST/O	When using mechanical control methods, it is important to remove the bud zone of the root system (about 30 cm below the ground surface). If this is not removed, re shooting can occur.	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	2	4	Ha/FO	Hand pull.	Spot spray with Glyphosate, 2,2-DPA or MCPA + dicamba (ref 3).
130	Cactaceae	Opuntia aurantiaca (tiger pear)	1	2	4	S/O	Hand removed, stem injected, or over sprayed with garlon	Spray; Basal Bark application; Injection: Triclopyr: .8L/60L diesel. Picloram + Triclopyr: 1L/60L diesel. Amitrole: 1mL/3cm (ref 3).
131	Poaceae	Arundo donax (giant reed)	1	4	3.8	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	1	4	T/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	1	4	V/O	N/A	CS&P (G1.5); spray G200 (ref 1).
134	Poaceae	Cortaderia selloana (pampas grass)	2	1	3.7	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	23	3.8	S/O	Hand pull	Spray G100 (ref 1).
136	Agavaceae	Furcraea foetida (Cuban hemp)	3	4	4.3?	S/OA	Dig out by hand or machine	CS& P near ground or spray MM (ref 1).
137	Agavaceae	Furcraea selloa (hemp)	1	2	4?	S/OA	Dig out by hand or machine	CS& P near ground or spray MM (ref 1)
138	Agavaceae	Agave americana (century plant)	4	9	3.7	S/OA	Dig out by hand or machine	CS& P near ground or spray MM (ref 1).

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40 YEARS 1975-2015

AMENDMENTS:

Issue	Date	Description	Checked
A	13/11/2017	Preliminary Issue	MS

CLIENT: lendlease

PROJECT: Spring Mountain Precinct

SCALE: AS NOTED

landscape architecture

DRAWING: Area 4 Management Plan Weed Management Techniques

DATE: November 17 | CHECKED: MS

CLIENT REF.: 7243 | DRAWN: TL

DRAWING No.: 7243 L 415 WMP A

AREA 4 MANAGEMENT PLAN - WEED TREATMENT & REMOVAL STRATEGY

139	Rutaceae	Murraya paniculata cv. Exotica (murraya)	6	26	3.6	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	10	3.7	S/CA	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	24	3.7	H/O	Manually grub and destroy.	Spray G100 and replace with local species (ref 1).
142	Balsaminaceae	Impatiens walleriana (busiam)	2	6	3.7	H/O	N/A	Spray G100 (ref 1).
143	Agavaceae	Agave sisalana (sisal)	2	4	3.7	S/CA	Dig out by hand or machine	CS& P near ground or spray MM (ref 1).
144	Agavaceae	Agave vivpara var. vivpara (sisal)	2	3	3.7	S/CA	Dig out by hand or machine	CS& P near ground or spray MM (ref 1).
145	Rosaceae	Prunus munsoniana (wild goose plum)	7	81	3.7	S/TA	Seedlings: Hand pull	Shrubs: CS&P or F/I (G1.5); Seedlings: spray G200 (ref 1).
146	Poaceae	Echinochloa crus-galli (barnyard grass)	6	34	3.7	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	15	4?	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)	5	4	3.8	V,S/C	Slash. Diminish by spraying site.	CS&P (G1.5); spray G200 or MM (ref 1).
149	Alismataceae	Sagittaria graminea var. platyphylla (sagittaria arrowhead)	5	7	3.8	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	4	3.7	Ha/CF	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	2	3.7	S/C	N/A	Stems: cut and fill segment (G1.5); Regrowth: spray G100 (ref 1)
152	Euphorbiaceae	Jatropha gossypiifolia (cotton leaf physic nut, bellyache bush)	1	1	3.7	S/O	Hand pull	Spray G100 (ref 1).
153	Malvaceae	Sida rhombifolia (Paddy's lucerne)	9	69	3.6	S/O	Hand pull or dig out.	Spray with 2,4-D amine or fluroxypyr (ref 3).
154	Poaceae	Themeda quadrivalvis (grader grass)	8	25	3.6	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)	8	14	3.6	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	12	3.4	T/O	Seedlings: Hand pull	Saplings: CS&P (G1.5); Trees: F/I (G1.5); Seedlings: spray G200 (ref 1).
157	Acanthaceae	Justicia betonica (squirrmtail)	2	4	4	S/C	Hand pull small infestations. Can be controled 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 baileyana (Bolivian wattle)	1	1	4	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	3	3.6	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	44	3.3	H/A	Hand or mechanical removal of small infestations	Spray: glyphosate @ 13ml D/1L water (ref 2.)
161	Cyperaceae	Cyperus brevifolius (Mullumbimby couch)	6	53	3.4	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-pa, glyphosate-mas, imazapyr
162	Moraceae	Morus alba (white mulberry)	3	10	3.4	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	Araceae	Colocasia esculenta (taro)	3	4	3.4	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 5).
164	Cannaceae	Canna indica (canna lily)	3	9	3.8	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	6	3.4	S,V/O	N/A	Stems: CS&P (L1.5). Vines: spray or cut down and spray regrowth G200 (ref 1).
166	Bignoniaceae	Tecoma capensis (Cape honeysuckle)	3	8	4	ST/O	N/A	Stems: CS&P (G1.5) or spray G200. Seeds: collect, bag and remove (ref 1)
167	Cactaceae	Hamsia martinii (hamsia cactus)	27	4	4	S/O	The use of the biological mealy bug agent is recommended	Triclopyr + picloram at 1.0l /60l diesel. Dichlorprop 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	1	4	V/O	N/A	CS&P (G1.5); spray G200 (ref 1).
169	Fabaceae	Erythrina crista-galli (cockspur coral tree)	27	4	3.5	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, Tril Tryton (ref 1).
170	Sapindaceae	Koelreuteria elegans (Chinese rain tree)	17	1	3.67	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)	17	3	3.6	T/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 gauge rhizome - fill hole with G1.5 with injector kit or similar (ref 1).
172	Acanthaceae	Hypoestes phyllostachya (polka dot plant)	3	5	3.5	T/O	Hand pull or crown and dispose	Spray G200 or G200 + MM (ref 1).
173	Caprifoliaceae	Sambucus canadensis (American elder)	3	7	3.4	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	45	3.3	F/O	Hand or mechanical removal of small infestations	Seedlings: Atrazine 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	5	3.4	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	32	3.3	F/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).
177	Caesalpiniaceae	Chamaecrista rotundifolia (round-leaf cassia)	8	14	3.3	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	40	3.0	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).
179	Asteraceae	Conyza canadensis (Canadian fleabane)	10	55	3.3	F/O	Hand or mechanical removal of small infestations	Seedlings: Atrazine 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	20	3.3	H/O	Hand pull	Spray G100 (ref 1)
181	Poaceae	Setaria palmifolia (palm leaf setaria)	5	13	3.3	H/O	Hand pull or dig up	Spray G100 (ref 1)
182	Euphorbiaceae	Euphorbia heterophylla (milk weed)	5	12	3.4	H/O?	Hand pull	Spray G100 (ref 1).
183	Fabaceae	Desmodium intortum (green leaf desmodium)	4	11	3.3	F/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	11	3.3	H/O	Hand Pull	Spot Spray. glyphosate or 2,2 DPA (ref 3).
185	Asteraceae	Conyza bonariensis (flax leaf fleabane)	7	38	3.3	F/O	Hand or mechanical removal of small infestations	Seedlings: Atrazine 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 enanthum (a tobacco bush)	7	19	3.2	S/O	Hand pull	Spray G100 (ref 1).
187	Poaceae	Stenotaphrum secundatum (buffalo grass)	8	23	3.2	H/AO	Hand or mechanical removal of small infestations	Spray: glyphosate @ 13ml P/l water (ref 2.)
188	Apocynaceae	Cascabela thevetia (syn. Thevetia peruviana) (yellow oleander)	5	9	3.1	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:5L Diesel; Foliar Spray of fluroxypyr 1:120 for larger plants, 1:200 for seedlings (ref 2).
189	Rubiaceae	Coffea arabica (coffee)	5	7	3.2	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)	12	1	3.4	T/O	N/A	Saplings: CS&P (G1.5); Trees: F/I (G1.5); Seedlings: spray G200 (ref 1).
191	Fabaceae	Macroptilomia axillare (perennial horse gram)	4	12	3.1	V,H/A	N/A	Vines: CS&P (1.1.5) or spray G100 + MV or MM (ref 1).
192	Bromeliaceae	Watsonia meriana var bulbillifera (bulbil watsonia)	2	3	3.1	H/O	Dig up, bag and remove	Spray C200 + MM (ref 1)
193	Passifloraceae	Passiflora edulis (passion fruit)	8	12	3.2	V/AO	Hand Pull	CS&P (G1.5), spray G200 or G200 + MV (ref 1).
194	Asteraceae	Zinnia peruviana (wild zinnia)	6	33	3.1	H/O	Seedlings: Hand pull	Shrubs: CS&P or F/I (G1); Seedlings: CS&P (G1.5) or spray G200 (ref 1).
195	Dracaenaceae	Sansevieria trifasciata (sansevieria)	27	7	3.1	H/O	Hand pull or dig up	Spray G100 + MM (ref 1).
196	Poaceae	Digitaria eriantha (pangola grass)	5	20	3.1	H/A	Hand pull or cultivation	Spot Spray. glyphosate or 2,2-DPA (ref 3)
197	Rosaceae	Eriobotrya japonica (loquat)	3	5	3.1	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	1	3.3	S/O	Biological controls available. cactoblastis cactorum successful. Mechanical control difficult. Fire can be used	Spray; Basal Bark application; Injection. Triclopyr, 1L/62L diesel. Picloram + Triclopyr 1L/62L diesel. Armure. 1ml/3cm (ref 3).
199	Mimosaceae	Acacia nilotica subsp. indica (prickly acacia)	3	3	4.4?	I/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)	5	15	3.1	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)

Explanatory notes:
Sub-region: Number of the ten sub-regions of the Southeast Queensland bioregion (Young and Dillewaard 1999) within which species recorded
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), S1-small tree (2-5m), S-shrub (woody <2m), H-herb (grasses & forbes), Ha-aquatic herbs.
Source: A-agriculture, O-ornamental and landscaping, F-fish aquarium, U-unintentional introduction and/or contaminant.

Abbreviations: Control Methods
CS&P = cut scrape and paint
S&P = scrape and paint
C&P = cut and paint
F/I = frill or inject stem

Abbreviations: Herbicide
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
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.

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40 YEARS 1975-2015

AMENDMENTS:

Issue	Date	Description	Checked
A	13/11/2017	Preliminary Issue	MS

CLIENT: lendlease

PROJECT: Spring Mountain Precinct

SCALE: AS NOTED

landscape architecture

DRAWING: Area 4 Management Plan Weed Management Techniques

DATE:	November 17	CHECKED:	MS
CLIENT REF.:	7243	DRAWN:	TL
DRAWING No.:	7243 L 416 WMP A		

Spring Mountain Precinct

AREA 4 MANAGEMENT PLAN - MONITORING & REPORTING

MONITORING & REPORTING

MONITORING AND REPORTING PROCEDURES

Monitoring and maintenance of the weed management and vegetation, both adjacent to proposed works and within the management area, is a vital component to the success of this management plan set.
An ongoing maintenance schedule, detailing the monitoring program, management intervals, methodologies, and corrective actions for contractors undertaking rehabilitation works within the ecological area is provided below. It is the responsibility of the rehabilitation landscape contractor to ensure the ongoing maintenance and monitoring schedule is actioned. Monitoring of the parkland weed management and revegetation works allows for:

- A review of the pre-established performance indicators for measuring the success of the weed removal and control;
- Ensure the 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; and
- Identification of new weed threats or other factors which may be effecting areas designated for ecological rehabilitation.

Monitoring is required for weed eradication, revegetation and assisted regeneration.

MAINTENANCE ACTIONS AND METHODOLOGIES

Tree Retention - Construction Phase
- Ecologist / Arborist to assess tree exclusion zones are adhered to;
- Trees assessed for signs of stress or die back; and
- Implementation of VMP if retained tree roots Critical Root Zone (CRZ) is impacted upon.

Initial Establishment - Rehabilitation Planting
Initial 12 week establishment period applies to all rehabilitation planting works. During this period weekly maintenance is to occur that involves the following:
- Watering;
- Ongoing weed control;
- Fertilising; and
- Replacement of dead or damaged stock.

Ongoing Maintenance - Rehabilitation Planting
After this period, it is recommended that the ecological planting site be maintained on a monthly basis over a 5 year period to ensure that the planting has been successful. The following is to occur:
- Conduct weed spraying, plant watering, plant replacement of losses as necessary to maintain >95% survival rate;
- All other areas of non-use / limited access or steep terrain areas are to be hydro seeded to maintain a minimum 90% ground cover;
- All planting species will be disease free and supplied from an accredited nursery supplier;
- Assess condition of sediment control devices and replace if necessary; and
- Removal of excess sediment from erosion control devices as required.

MONITORING TIME FRAMES

For weed removal and revegetation three (3) Council determined timeframes form the anchor of the monitoring process. These include:

Council Pre-Start - *On-site meeting prior to the initial commencement of work within each stage of weed management. Will involve Consultant, Contractor and Council to work through weed treatment areas and clarify works approved and appointed.*

On-Maintenance - *At the completion of the Primary Weed Removal Stage and Secondary weeding an On-Maintenance meeting will be held with Council to inspect the works on-site in relation to the approved plans and previously agreed on-maintenance criteria.*

Off-Maintenance - *At the completion of all site weeding works and the agreed maintenance timeframe a final inspection will be held by Council to determine if works have been completed to the required level for Council hand over.*

REPORTING

Reporting to **Ipswich City Council** will occur on a yearly interval during the total period. Council will physically attend the Pre-Start, On-maintenance and Off-maintenance meetings. For this project it is recommended reporting include a short memo styled report responding to agreed criteria. As part of the monitoring a number of pre-determined transect and quadrant sampling sites have been allocated. At these locations a number of baseline studies have been completed and will be repeated post weed removal and maintenance to measure the success of the programmed works. It is also recommended this include a visual diary of imagery from selected locations at each inspection (Including the pre-start and monthly inspections). The imagery for the each period will be included with the report to Council.

In addition to the photo monitoring the biannual report to Council should include sufficient information on:
- Date, time and whether conditions at time of inspection
- Changes in weed extent populations (spreading / contracting)
- Changes in weed densities
- Health of existing vegetation protected by NRM provisions
- Rate of success for revegetation plantings
- Growth and PFC rate of assisted regeneration areas
- Occurrences of new weed infestations or species outbreaks
- Comments on any indirect changes to the area as a result of weed management (ie erosion / change in weed footprints / death to natives)
- Annual reporting is required to be sent to the Department of the Environment (DOE).

NOTES

MONITORING PARAMETERS

The monitoring should address the following issues:
- Maintained health and vigour of retained Remnant Trees adjacent to the corridor;
- Plant growth, percentage cover and survival rates;
- Plant losses through herbivores, disease, vandalism, storm damage or other factors;
- Weed re-growth and control measures;
- Plant replacement;
- Maintenance watering regime; and
- Erosion prevention.

It is also essential to keep an accurate photo record of the retained trees and progress of the rehabilitation planting by setting fixed photo monitoring points across the site. Photos should be taken by a digital camera and recorded in the project file by date and discrete photo monitoring point number. Photo monitoring point locations should be clearly marked on site and mapped by a surveyor or by GPS.

Corrective Actions
If trees adjacent to the sewer alignment disturbance are dying or impacted upon:
- Monitor construction activity;
- Educated construction team on tree retention measures;
- Review and / or respond to tree retention mitigation measures ie. exclusion zones;
- Review VMP for particular trees;
- Remove if necessary unsafe tree;
- Compensation by planting;
- If soil erosion is still occurring in planting zones the following is to occur:
- Review rehabilitation techniques conducted by contractor;
- Assess the potential for disturbance to occur;
- Assess other potential sources or causes of disturbances to occur; and
- Maintain planting regimes to a minimum of 95% survival rate.

If weed infestations occur in planting zones or in disturbed construction area, the following is to occur:
- Review weed removal and weed management techniques conducted by contractor;
- Assess the appropriate use and amounts of herbicides are being used;
- Assess the potential for weeds to occur;and
- Assess other potential sources or causes of weeds to occur.

If there is poor regeneration of plants occurring in ecological areas, the following is to occur:
- Review planting and direct seeding management techniques conducted by contractor;
- Assess the appropriate use and amounts of herbicides are being used in planting areas;
- Assess the potential for weeds to occur in ecological areas; and
- Assess other potential sources or causes of weeds or limited re-growth of native plants to occur, ie. plant pests and disease monitoring.

RESOURCES / ROLES & RESPONSIBILITIES

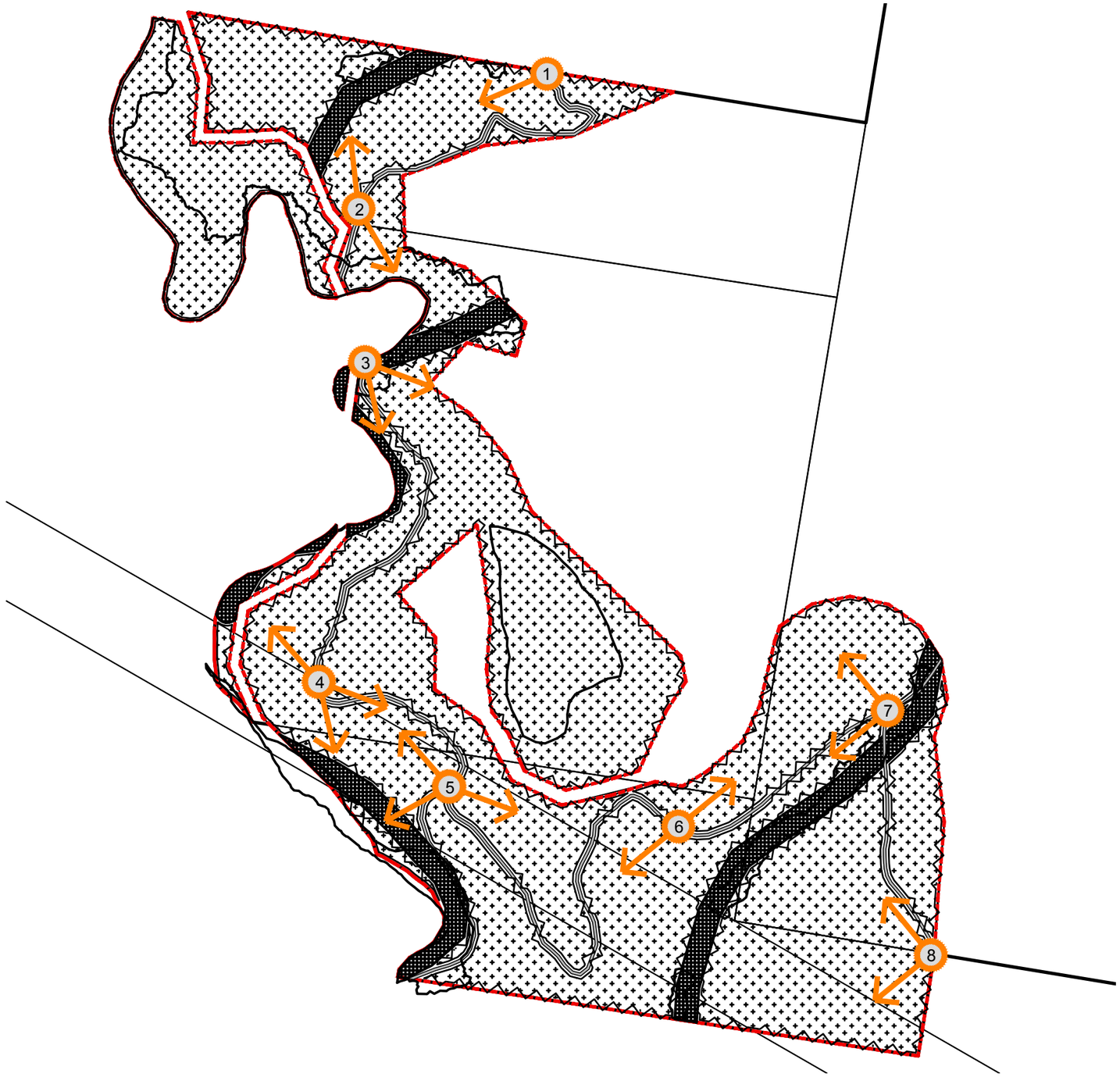
All resources required to implement this plan will be provided by the proponent (Lendlease). The following roles are applicable:

PROPONENT
- Ensure all consultants, contractors, sub contractors or others utilizing the area are aware of the Weed Management Plan.
- Appoint appropriate consultants and contractors to undertake works as prescribed on the drawings and conditioned by **Ipswich City Council**.
- Cover the costs of all necessary resources to ensure works are completed as per the approved documents.

CONSULTANTS
- Brief the proponent on their requirements in implementing and maintaining works as per the Weed Management Plan.
- Attend pre start, on maintenance and off maintenance meetings.
- Undertake monitoring and reporting to **Ipswich City Council** as set up by this document.
- Be available to respond to technical queries or departures to the approved documentation when on-site conditions require changes.
- Liaise with Council throughout all stages of approval, initial works and maintenance of works.

COUNCIL
- Provide technical expertise via commentary on the approval of documentation.
- Attend pre-start, on and off maintenance inspections.
- Undertake random inspections through the Secondary weed management and Maintenance weed management phases.
- Accept and review biannual reports as dictated in this document.

CONTRACTOR
- Complete works in strict accordance with the documentation.
- Recommend changes to the documentation when specific experience or on-site conditions require so.
- Attend pre-start, on and off maintenance inspections.



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40 YEARS 1975-2015

AMENDMENTS:

Issue	Date	Description	Checked
A	13/11/2017	Preliminary Issue	MS

CLIENT: Lendlease

PROJECT: Spring Mountain Precinct

SCALE: NOT TO SCALE

landscape architecture

DRAWING: Area 4 Weed Management Plan Monitoring & Reporting

DATE: November 17	CHECKED: MS
CLIENT REF.: 7243	DRAWN: TL
DRAWING No.: 7243 L 417 WMP A	

Appendix I

Securement Point Review 2024

Securement Points

Securement Point 1

Address: Sundown Park, Twilight Drive




Notes:

Sandstone blocks have been replaced with a secure vehicle access bollard.

Securement Points

Securement Point 2

Address: Peter Tullett Memorial Park

Notes:

Vehicle access bollard is locked with ICC key, signage and pathway is in okay condition, minor erosion present along gravel track.

Securement Points

Securement Point 3

Address: Cul-de-sac of Barbara Plant Court

Notes:

Vehicle access gate locked with ICC key, pedestrian access unlocked, no signs of forced entry.

Securement Points

Securement Point 4

Address: Grech Park, Silvertop Crescent




Notes:

Vehicle and pedestrian access gate locked with ICC key, pathway is in good, maintained condition.

Securement Points

Securement Point 5

Address: Wild Iris Terrace

Notes:

Pedestrian Access only, signage is present and in good condition

Securement Points

Securement Point 6

Address: Springfield Greenbank Arterial (South)

Notes:

Locked fauna fence gate and vehicle access bollards with ICC Key (outside of EPBC 2013/7057 Conservation Area)

Securement Points

Securement Point 7

Address: Springfield Greenbank Arterial (north)

Notes:

Locked vehicle access gate and fauna fence gate (further in) with ICC Key (outside of EPBC 2013/7057 Conservation Area)