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GLNG
Gas Transmission Pipeline

Cycas megacarpa Translocation and Management Plan

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Glossary and Abbreviations

CMP	Cycad Translocation and Management Plan
CTMT	Cycad Translocation Management Team
DEHP	Department of Environment and Heritage Protection
SEWPaC	Department of Sustainability, Environment, Water, Population and Communities
DTMR	Department of Transport and Main Roads
EA	Environment Authority
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
GTP ROW	Gas Transmission Pipeline Right of Way
MNES	Matter of National Environmental Significance
NC Act	*Nature Conservation Act 1992*
Nursery	The place where seeds are propagated and grown into seedlings for final planting into the offset site.
Offset site	The area required to be protected under approval conditions (i.e. *Environmental Protection and Biodiversity Conservation Act 1999* and the *Nature Conservation Act 1992*). For the GLNG project this site will contain the recipient site.
RE	Regional Ecosystem
Recipient Site	The area within the offset site that the Cycads will be planted (salvaged individuals and supplementary plantings).
SEIS	Supplementary Environmental Impact Statement
Temporary storage site	The site used to hold Cycads collected from the ROW to harden and prepare them before being planted into the recipient site.
Threatened Species	A plant or animal assigned a conservation status (Near Threatened, Vulnerable, Endangered or Critically Endangered) under the EPBC Act and/or the NC Act.
Translocation	The term translocation for the purposes of this management plan will follow the guidelines for translocation of threatened plants in Australia (Vallee *et al* 2004) which includes the following: seed collection and propagation; propagation via cuttings or tissue culture; direct seeding; transplantation of seedlings or mature plants; and the transfer of soil, leaf litter or brush.

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1 INTRODUCTION

As a part of the environmental approval process and through discussions with the Commonwealth Department of Sustainability, Environment, Water, Populations and Communities (SEWPaC) and the Queensland Department of Environment and Heritage Protection (DEHP), GLNG is committed to the ongoing development and implementation of the *Cycas megacarpa* Management Plan (CMP) for Cycads impacted as a result of the Santos GLNG Pipeline Project.

In accordance with Condition 24 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Approval 2008/4096, this plan has been developed and approved by an ecologist and Cycad specialist. .

This Plan has been prepared in accordance with the National Multi-species Recovery Plan for Cycads (Qld Herbarium 2007), the *Guidelines for the Translocation of Threatened Plants in Australia* (Vallee *et al*, 2004), approval conditions provided by the Commonwealth under the EPBC Act Approval - 2008/4096). It has been prepared in consultation with SEWPaC and Department of Environment and Heritage Protection (DEHP) and has been endorsed Queensland Herbarium. A letter from Dr Paul Forster (Attachment 1) notes the compliance of this plan with the "National Multi-species Recovery Plan for the cycads*, Cycas megacarpa, Cycas ophiolitica, Macrozamia cranei, Macrozamia lomandroides, Macrozamia pauli-guilielmi and Macrozamia platyrhachis*".

1.1 Purpose of this Plan

In accordance with Condition 25 of the EPBC Act Approval 2008/4096, the CMP provides specific assessment, management, monitoring and reporting measures to be implemented prior to, during and post translocation of:

- *Cycas megacarpa* individuals from the GLNG GTP ROW in the Callide and the Calliope Ranges to their permanent recipient site.
- Nursery grown Cycads (seedlings).

This CMP is a live document and will be updated as required. It is designed to:

- Detail the methods and actions considered essential to the successful translocation of *Cycas megacarpa.*
- Ensure compliance with relevant approval conditions specified by SEWPaC, DEHP and the Coordinator-General (as noted in Section 2).
- Ensure compliance with commitments under the Environmental Impact Statement (EIS) and Supplementary Environmental Impact Statement (SEIS).

Once the CMP has been approved by SEWPaC and DEHP, revisions will require further approval if the works are to be undertaken which are inconsistent with the approved plans and governing conditions. This includes changes to the CMP requested by the Commonwealth and/or the State governments.

Until the revised CMP is approved by Governments, works must continue in accordance with the original CMP. Once the revised CMP is approved, this amended plan will supersede the original CMP.

Throughout this document there are references to the Cycad recipient site and the Cycad offset site. The difference between an offset site and a recipient site is that the recipient site is the area needed to translocate the Cycads, while the offset site is the area required to be protected under approval conditions. In the instance of the GLNG Pipeline Project, the recipient site will be located within the offset site (i.e. the same location).

Upon securing the offset site a management plan specific to the needs of this program and cycad conservation at the site shall be developed to include the following:

- A description of the land, its values and registered interests (including access and grazing).
- Details of analysis of property and suitability for the cycad offset requirement.
- Details of funding to secure, maintain and enhance the values of the offset site for the duration of the cycad offset requirement[1].
- Details demonstrating how the measures for securing and managing the offset will ensure that the cycad offset is protected for the duration of cycad translocation and offset program, including management objectives and management outcomes.
- Details of measures to address current threats to cycads and constraints to achieving management actions, including fire, pest and weed management to ensure protection of the cycads on the site.
- Specific management measures to manage weeds, fire, feral animals, access and grazing management in conjunction with general land management measures to conserve the ecological condition of the supporting habitat for *Cycas megacarpa.*
- Details of the maintenance and management actions for ongoing conservation and survival of cycads within the site and delivery mechanisms for these actions.
- Details of monitoring to assess the success of cycad translocation and propagation to meet the project goals to establish a cycad population of not less than 3990 cycads within in the offset area and reporting and delivery mechanisms.

Management measures outlined in the Cycad Offset Site Management Plan will be consistent with this CMP and current approval conditions and will be submitted to SEWPaC and DEHP for approval prior to its implementation.

[1] GLNG aspire to secure the offset area as protected tenure under the Nature Conservation Act 1992 (e.g National Park (Scientific)). This will be dependent on support from the Department of National Parks Sport, Recreation and Racing. See Section 11 for more details.

2 APPROVALS AND LEGISLATION

2.1 Applicable Legislation

Key environmental legislation relevant to this Plan includes:

- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).
- *Nature Conservation Act 1992* (NC Act).
- *Nature Conservation (Protected Plants) Conservation Plan 2000.*
- *Nature Conservation (Wildlife Management) Regulation 2006.*

2.2 Commonwealth Approval Information

Impacts to *Cycas megacarpa* individuals from translocation and management activities will be managed in accordance with Approval No. 2008/4096 (EPBC Act).

Table 1 provides direction to which section of this Plan addresses the relevant EPBC Act approval conditions.

Table 1 EPBC Act Approval Conditions and Where They Are Addressed.

Relevant EPBC Act Conditions (2008/4096)	Relevant Section of CMP
23. To offset the unavoidable impacts to *Cycas megacarpa* from all activities associated with this approval, the proponent must: If the baseline route through the Callide and Calliope Ranges assessed in the EIS is pursued:	Section 4 confirms that the baseline route is being pursued.
a) within 12 months of the date of this approval, secure an area of at least 166.8ha as an offset for receiving no less than 3990 translocated and propagated individuals;	An extension has been granted by DSEWPC.
b) identify alternative recruitment methods if it is considered unlikely that translocation and propagation will be successful;	Section 7 identifies seed collection and propagation methodologies that could be used if translocation is unsuccessful; however translocation is considered likely to be successful.
c) notify the Department in writing of the acquisition or transfer of ownership of the area identified in Condition 23(a) within one month of securing the land;	An extension to secure the offset site has been granted by SEWPaC.
d) If the proponent proposes any action within a proposed offset area, other than actions related to managing that area as an offset property, approval must be obtained, in writing from the Department. In seeking Departmental approval the proponent must provide a detailed assessment of the proposed action including a map identifying where the action is	Section 10 outlines this requirement.

proposed to take place and an assessment of all associated adverse impacts on MNES. If the Department agrees to the action within the proposed offset site, the area identified for the action must be excised from the proposed offset and alternative offsets secured of equal or greater environmental value in relation to the impacted MNES;	
e) Demonstrate that the measures for securing and managing the offset will ensure that the offset is protected in perpetuity.	An extension to secure the offset site has been granted by SEWPaC. This information will be included within the offset management plan once the site has been secured.
24. The proponent must prepare a *Cycas megacarpa* Management Plan in consultation with an expert approved by the Department in writing.	Refer Section 1. Endorsed by Dr. Paul Forster Principal Botanist of the Queensland Herbarium (SEWPaC approved Cycad specialist). Prepared and reviewed by Joe Adair, GLNG Principal Ecologist (SEWPaC approved Cycad specialist)
25. The *Cycas megacarpa* Management Plan must include:	-
a) confirmation of the pipeline route across the Callide Range	Refer Section 4.
b) measures to ensure all *Cycas megacarpa* within the ROW are avoided using, for example suitable trenchless technique(s) as necessary or, if avoidance is not possible, individual plants must be removed and kept offsite and replanted in the same location, or alternatively translocated. Where it can be demonstrated that removal and translocation of individuals is unlikely to succeed, translocation may be substituted by establishing propagated individuals;	Refer Sections 4.1, 6 and 7.
c) measures to propagate and plant *Cycas megacarpa* individuals removed or impacted by construction activities to maintain a population of no less than 3990 (2610 if the CRAR is pursued) individuals within the offset site required by Condition 23(a);	Refer Sections 6 and 7.
d) a detailed methodology for translocation, propagation, and planting, including a map of the location of the offset site;	Sections 6 and 7 provide the required methodologies. The map will be provided to SEWPaC upon finalisation of the offset site.
e) details of funding required to secure, maintain and enhance the values of the offset site in perpetuity;	Refer Section 11.2

f) details of a suitably qualified person to undertake translocation, propagation and planting;	Refer Section 3 and Appendix 5.
g) details of the erosion and sediment control measures to be implemented in the ROW in the Callide and Calliope Ranges;	Refer Section 8.1.
h) measures to rehabilitate the ROW in the Callide and Calliope Ranges;	Refer Section 8.2.
i) measures for the control and management of weeds, fire, feral animals, access and grazing in translocation sites;	Refer Section 9.1.3.
j) measures for the management, maintenance and protection of the population of *Cycas megacarpa* individuals in the offset site for a period of five years following final planting;	Refer Section 9 for management and maintenance measures. Details regarding how the population(s) will be protected will be included within the offset management plan once the site has been finalised.
k) details of monitoring practices to assess the success of proposed management regimes of the offset;	Refer Section 9.
l) performance measures, reporting requirements, trigger levels for corrective actions and identification of those actions to be taken to ensure performance measures are met; and	Refer Sections 10.1, 9.2 and 9.2.6.
m) A reconciliation statement of impacts against the agreed limit of disturbance, as defined above in condition 11 must be updated by the proponent every 12 months from commencement until construction is complete.	Section 10.
26. The *Cycas megacarpa* Management Plan must be submitted for the approval of the Minister. Commencement in the location covered by the management plan must not occur without approval. The approved plan must be implemented.	-

2.3 State Approval Information

Clearing of least concern vegetation as part of the translocation process (i.e. to access the Cycads in their natural habitat and to prepare the recipient site for planting) will be done in accordance with the exemption granted by DEHP under the Section 41(1) (a) (ii) of the *Nature Conservation (Protected Plants) Conservation Plan 2000* and the approved Species Management Plan for the GLNG Project (Pipeline component). Any clearing for collection of Cycads will be restricted to the Right of Way (30m) and not impinge on the approved EPBC habitat clearing limits.

Impacts to *Cycas megacarpa* individuals and their core habitat, including translocation and management activities will be carried out in accordance with the approved EPBC Significant Species Management Plan (3380-GLNG-3-1.3-003, the Mainland Environment Authority (EA) conditions and the relevant Nature Conservation Act permit conditions granted by DEHP.

3 TRANSLOCATION AND MANAGEMENT TEAM

All *Cycas megacarpa* individuals within the direct disturbance footprint will be translocated, managed and maintained to and on the recipient and offset site respectively. Note that some Cycads are inaccessible and unable to be collected for translocation due to Occupational, Health and Safety requirements. This entire process will be carried out by suitably qualified contractors and overseen by a suitably qualified ecologist approved by SEWPaC as Cycas Megacarpa Specialist. Outlined below and detailed in Appendix 5 are the roles and personnel that are currently engaged and/or involved with the seed collection, translocation, propagation and planting of Cycads, they are as follows:

- GLNG Representative/s, Principle Ecologist.
- Seed collection and propagator specialist/s.
- DEHP representative, Queensland Herbarium.
- Academic, PhD Student.
- Translocation specialist/s.
- Plant (Cycad) care specialist/s.

Suitably qualified personnel are subject to change through the process of this program. If changes/additions are required an amendment will be made to this Plan and it will be submitted for approval to SEWPaC, thereby providing notification of new Cycad specialists to be engaged.

Given the duration, scale and scope of the translocation and offset program the project team will convene regularly to evaluate success of current methodologies, assessments and approaches against available information at the time. Any relevant findings will be incorporated in future revisions of this Plan. Initially, meetings shall be held quarterly for establishing contracts, services and translocation (i.e. the first two years), then annually thereafter. However, if and when circumstances require, a special meeting will be convened.

4 PRE-TRANSLOCATION ASSESSMENT

All information contained within this Plan has been developed for the baseline route through the Callide and Calliope Ranges and therefore adheres to the approval conditions outlined for this route option within approval 2008/4096 (EPBC Act).

4.1 Direct Count Surveys, Extent Mapping & Population Viability

Cycads have been observed in a number of locations throughout the Callide, Calliope and Larcom Range sections of the GTP ROW (refer Appendix 1). Preliminary surveys of the Rev C2 alignment were undertaken throughout these Range crossings during November 2009, January 2010 and August 2010 to map the general location of Cycads within and adjacent to the GTP ROW. Direct impacts to this species is considered to be unavoidable due to constraints associated with pipeline constructability (e.g. topography and geology), therefore the GTP ROW has been reduced from 40m wide to 30m wide in all sections of the Callide and Calliope Ranges containing Cycads. Based on a reduced ROW, the findings of these surveys estimated the likely presence of approximately 1100 individuals within the direct disturbance footprint.

The survey history of the *Cycas megacarpa* along the GLNG GTP ROW has been extensive. Recent efforts in 2012 include tagging the Cycads within the disturbance footprint to enable chain of custody management and accurate location and recording. Despite these efforts, the survey data does vary, as the species is impacted by fires, heavy rainfall, weed competition and fauna impacts. GLNG is committed to an upper limit of cycads impacted (including seedlings) along the GTP ROW of 1100. Additionally, GLNG is committed to undertaking a final survey prior to construction within the impact zones and report to SEWPaC on the total number of plants taken. GLNG will offset the impacts to *Cycas megacarpa* in accordance with the approval conditions of EPBC 2008/4096.

Detailed population assessment of Cycads along the ROW is provided in Appendix 2.

4.2 Genetic Analysis

Because all translocated Cycads are intended to be planted into the one recipient site, it is important that potential genetic variations are considered as part of the translocation process.

In order to understand and manage genetic influences on the final population from genetic differentiation and potential genetic compatibility between the affected populations, GLNG have sponsored a PhD research project through the University of the Sunshine Coast (USC) to examine the genetic variation in *Cycas megacarpa* throughout the Callide and Calliope Ranges. This research project commenced in 2011 and has a particular focus on the following:

- Areas within and adjacent the GLNG GTP ROW.
- The proposed offset/translocation site.
- Potential populations to be used as seed sources.

The first progress report was released by USC to GLNG in April 2012 with the following key findings:

- There appears to be low genetic diversity between the 18 sample sites which are located within and adjacent the GTP ROW and within the general Callide and Calliope Range area.
- Five of the 18 sites contain a degree of inbreed depression
- There appears to be no genetic differentiation between populations within the Callide and Calliope Ranges
- Mixing the Callide and Calliope Range populations is considered unlikely to cause genetic issues due to outbreeding depression in the future. Therefore a single offset site could be utilized.
- There is some evidence to suggest that nearby populations are more genetically similar to each other and therefore grouping the plants within the offset site according to their range of origin is recommended.
- There was no evidence to suggest that seeds collected from areas outside the clusters/populations impacted are genetically distinct therefore introducing seed from the other sample locations into the recipient site is unlikely to cause any genetic issues.

Consultation will be undertaken with both SEWPaC and DEHP regarding these findings and further recommendations as they become available and will inform any updates to this Plan. Reports provided to date will be made available to both levels of Government upon request.

4.3 Temporary Storage Site Assessment

In accordance with EPBC Approval 2008/4096, GLNG is seeking to secure the permanent recipient site (being at least 166.8 ha in size) for a translocation site for the Cycads directly impacted as a result of construction works. However based on the need to move the Cycads and the time sensitive pipeline construction schedule, the Cycads will need to be removed and translocated in March and April of2013.

The Cycad Translocation Management Team have reviewed available information and agree that there are notable benefits and a potential greater level of long term success (i.e. lower mortality rates) to the plants that are transferred to a temporary holding facility and managed for up to a year whilst their root systems re-establish.

The transplanted Cycads will be safely stored at the temporary storage location until the permanent recipient site is secured and prepared.
As shown in Image 1 and 2, the temporary location is located approximately 12km north east of the Calliope Range and is on private property Lot 2 CTN1749.

Image 1 Temporary storage location

Image 2 Temporary storage site

Image 3 Temporary storage site showing method for storing Cycads

A site inspection on 31 August 2012, determined that the temporary site had environmental values consistent with the following criteria for storage (based on Vallee *et al* 2004):

- The temporary site is large enough to adequately store a minimum of 1100 individuals until the permanent recipient site is ready for receiving.
- The current land use will not negatively impact on the health of Cycads in storage (i.e. aerial spraying does not occur onsite and cattle can be excluded from the area by fencing).
- There is nil or minimal presence of weed species within the proposed storage area. Where weeds exist they are easily managed so as to not negatively impact on the stored Cycads for the duration of the holding.
- There is no evidence of feral pigs within the general area.
- The site has an acceptable level of natural shade from the tree canopy. This is particularly important during the hotter months of the year.
- There is minimal risk of flooding events that could wash the Cycads away from the storage site.
- The soils within the storage site are not sodic or erosion prone in a way that could destabilise Cycads being stored.
- The site is secure and therefore far enough away from a road that the risk of poaching is greatly reduced or removed.
- The site contains a reliable source of usable water.
- A firebreak can be established around the Cycads to reduce the risk of wildfire impacting them whilst in storage. In addition the landholder can undertake controlled burns during periods of high fire danger.

- Cycads are present or nearby thereby increasing the likelihood those local pollinators are present[2].

As shown in Image 2, the temporary storage area appears to be generally consistent with the criteria outlined above. Refer to Section 5.3 regarding temporary site preparation.

4.4 Recipient and Offset Site Assessment (Permanent)

4.4.1 Site Selection Criteria

Vallee *et al* (2004) developed criteria to determine the long term suitability of translocation recipient sites. These criteria are used to determine the suitability of the GLNG *Cycas megacarpa* translocation and offset site. The criteria are:

- Determine whether the biological and ecological requirements of the taxon are able to be met on the recipient site(s) (e.g. an analysis of the soil and geological features, topography, vegetative habitat (including condition) and proximity to other populations of the Cycads, including genetic considerations, will need to be undertaken during this assessment process).
- Determine whether the habitat area is large enough to support a self-sustaining population (and any planned experiments).
- Undertake analysis of the historical land uses and the current degree of disturbance at the site(s) (e.g. whether the site has been used for cropping or grazing and there is a presence of weeds or erosion).
- Determine the ecosystem's current functional status and the ability of the ecosystem to regenerate without intervention once pressure is removed.
- Determine the successional stage of the vegetation community present at the site (e.g. is the rate or stage of succession appropriate for the taxon? Does the successional stage need to be modified, or is the site(s) unsuitable due to the potential impacts of the natural succession of the community?).
- Determine the presence of any current or future threats to the site(s). If threats are present, can they controlled or eliminated?
- Determine the potential risk from threats that may not currently be evident (these threats may be at landscape-level such as salinity and water table changes or diseases such as root rot etc.).
- Determine the security of the land tenure (the long-term security of the site(s) is essential to ensure the translocated plants are secured).
- Determine if the current and future management of the site(s) will be compatible with the management of the translocated species.
- Determine if any land uses within and/or adjacent the recipient site(s) will negatively impact on the translocated species.

Other relevant criteria that require consideration include:

- Ongoing vehicular access both to and from the site and across the site as required for management of the general area (e.g. maintenance trucks, water trucks, machinery and equipment for translocation works).

[2] This is a desirable criterion only and it not considered essential for the temporary storage site.

- Availability of water onsite or ability for necessary water infrastructure to be established and maintained for the life of the program.
- The availability of suitable land for Cycad specific offsets and the willingness of landholders to enter into conservation covenants or sell their land.
- Budgetary/financial considerations.

Key recovery action objectives also requiring consideration when determining site suitability include:

- Secure and protect a significant known population not currently protected in a reserve (on freehold or leasehold property).
- The proximity of the recipient site to the population(s) impacted as a result of project works.

Based on desktop analysis, landholder consultation and targeted survey efforts, 11 locations were identified as potential recipient site and offset areas within the Callide and Calliope Ranges.

These sites were all assessed in accordance with criteria outlined in the *Guidelines for the Translocation of Threatened Plants in Australia* (Vallee *et al*, 2004), the National Multi-species Recovery Plan for Cycads (Qld Herbarium 2007) and in consultation with SEWPaC, DEHP and the Queensland Herbarium.

Key constraints identified on the majority of sites assessed are as follows:

- The presence of weeds[3] is a major issue on the majority of the potential recipient sites requiring significant weed control prior to their use as an offset and recipient site area (>2 years intensive preparation time).
- The cost of weed control is significant and may divert resources away from the primary purpose of the Cycad program.
- All sites were found to contain *Cycas megacarpa* however the size of the populations and their condition were variable as was their carrying capacity (short, medium and long term). Variable cluster sizes and proximity to other clusters may create long term genetic swamping implications. Further carrying capacity is influenced by the available resources which can affect recruitment levels in the population over time.
- A number of sites were severely constrained by current grazing land uses and underlying mining tenures that have the potential to impact on the long term sustainability of the populations (both existing and transplanted).

All sites have been ranked according to how well they meet the criteria outlined above and two sites were deemed feasible with further investigation required to determine the most desirable site.

- “Red Shirt” Lot 2 on SP217658.
- “Inverness” Lot 4 on SP199374.

[3] The presence or absence of weeds is dependent on the species and potential deleterious effects to Cycads. Some species of weeds (exotic grasses and L*antana camera* will have a direct impact to the translocated and offset population of Cycads through increased fire intensities. Other species are likely to be benign.

The sites, Red Shirt and Inverness are those sites selected from an exhaustive process of identifying locations most suitable to: a) translocate Cycads collected from the ROW, and b) propagate and plant additional Cycads to meet Commonwealth and State Government Requirements.

4.4.2 Offset and Recipient Site Assessment, Analysis and Findings

Given both sites were determined to be potentially suitable, GLNG undertook further analysis of the properties. This analysis was:

- A field inspection by the Translocation Management Team conducted in September 2011 to inspect both properties.
- Assessment of both sites using an empirical methodology (Ecological Equivalence Methodology (EEM)) (Eyre *et al.* 2011) developed by DEHP. The methodology (uses criteria to describe the ecological condition of a vegetation community and allows comparison between potential offset sites and the donation site. (Appendix 5)
- A second field inspection by the Translocation Management Team conducted in November 2012 to consider the findings of the EEM study and make a final recommendation to GLNG (refer Attachment 2)

A synopsis of the findings after assessment and analysis concluded that Red Shirt is the preferred translocation recipient and offset site.
The findings that lead to this conclusion and therefore site selection are as follows:

- Findings of first field inspection (September 2011):
    - Overall ecosystem function and health of the area appeared to be high.
    - The floristic structure and composition of the communities present appeared consistent with quality Cycas megacarpa habitat.
    - An existing Cycad population was observed throughout the site.
    - Appeared to be sufficient area available so that Cycads could be planted in a way that would reduce the risk associated with genetic swamping from existing Cycads on the site with those being translocated.
    - Suitable soil type(s) appeared present based on established Cycad populations present.
    - Topography was considered appropriate.
    - The proximity to the Rev C2 GTP ROW was considered appropriate.
    - The nature of the site is such that transplanting of Cycads could be achieved without disturbance to either the existing canopy or in-situ Cycads.
    - Whilst weeds were observed, they were considered manageable across the site.
    - Site would likely allow for long term dispersal throughout the site via natural topography, overland flow and drainage lines.
    - The use of equipment across much of the site (particularly for transplant purposes) would not be considered an OHS risk due to topographical constraints.
- Ecological condition study: Analysis of data derived from site investigations (corrected using specific benchmarks or reference sites and also accounts for the offset/impact area), indicates that the site is of greater ecological condition than the GTP ROW. Factors that have contributed to this result are:

- Size of the area.
- Topographic position in landscape.
- Vegetation structure (canopy height and cover).
- Extent of weed invasion.

- Findings of second field inspection (November 2012) (refer Appendix 5):
  - Access to the site along the rail line was good with no major climbs or steep terrain. A small creek crossing will need to be upgraded. This would provide safe access for work crews, plant and equipment.
  - The site was relatively flat with gentle to moderate side slope and extended for approximately 500 m by 150 m, providing sufficient area to place 3990 Cycads.
  - Additional areas are available within Red Shirt which will allow further offset actions for *Cycas megacarpa.*
  - Weeds in the area appeared to be restricted to *Lantana camara* within the drainage areas on lower slopes. Targeted treatment of this species can be included in the property management program.
  - Relatively flat topography and cleared lands to west on neighbouring land allow for safe fire management.

4.4.3 Site Description of "Red Shirt" Lot 2 on SP217658

This site is an important section of the Calliope Range, is approximately 320ha in size and is currently mapped as Least Concern under the VM Act which affords it only the lowest level of protection. The GLNG offset requirement under the EPBC is 166ha of land Red shirt well exceeds this requirement (refer Appendix 4).

Red Shirt has potential to meet the broader GLNG offset requirements and as an advanced offset solution for other developers requiring offset areas for *Cycas megacarpa.* Further Red Shirt provides a linkage to potential future protected areas to the north east. GLNG will seek approval from the Commonwealth for any future and additional offset arrangements on the property.

A summary of site suitability findings is provided below:

- This site has undergone minimal historical and ongoing disturbance and consequently is considered to be of high ecological value.
- Population 11[4] is considered to extend across the entire proposed offset and recipient site. Based on the presence of Population 11, this site is considered to contain a significant and viable population[5] of *Cycas megacarpa*[6].
- Approximately 50% of Cycads directly impacted by construction works associated with the GLNG Pipeline project are from Population 11. The proposed site would allow them to be replanted back into their population.

[4] Population 11 is currently subject to impacts associated with the Dawson Highway Calliope Range upgrade, the Jemena Pipeline easement, the Moura Short Line rail corridor and a powerline easement. Further impacts to this population are proposed through the GLNG Pipeline Project, Moura Short Line rail upgrade and the CICSDA.
[5] The recovery plan determines a significant and viable Cycad population to contain a minimum of 3500-4500 individuals.
[6] The significance of Population 11 is based on the findings of surveys undertaken during 2008/2009 for the Calliope Range Deviation Project (DTMR). The Recovery Plan for this species was completed prior to relevant government agencies being notified of the findings.

- Pollinators are considered to be present and not a limiting factor across the site.
- The landholder is willing to enter negotiations for eventual forfeiture of this area from his holding and into a protected area.
- The site is considered large enough to support the existing population as well as the planting of no less than 3,990 individuals. This site is also likely to support the sites long term recruitment as a result of the plantings.
- Risks associated with genetic swamping could be greatly reduced on this site based on conditions allowing for the planting layout to strategically place transplanted individuals/clusters[7].
- This site is large enough to include both the recipient site and the offset area.
- The location of the site means it to be considered protected from potential illegal harvesting activities but easily accessible for ongoing management and monitoring.
- The presence, density and extent of declared weeds across the site are considered manageable and are not considered to pose a threat to the long term viability of Cycads present.
- In comparison with other sites assessed, the recipient site area will not require significant site preparation prior to the Cycads being planted, thus reducing the amount of time Cycads would need to be stored in a temporary storage location. In particular, aggressive management of weeds that could prevent scheduled Cycad plantings for a number of years.
- The site contains suitable locations for the placement of necessary infrastructure associated with ongoing Cycad management (e.g. water tanks, access tracks, etc.) with minimal impact on the existing environment.
- In addition the area could form a long-term study area which would assist in further understanding the species habitat, ecological and reproductive needs. Also the study could look at the dynamics of translocating individuals into an existing population and how these actions impact (adversely/beneficially) the existing and translocated individuals.
- Based on the criteria outlined in Section 16 of the NC Act[8], this site is considered to meet the criteria for inclusion in the Protected Area Estate as a National Park (Scientific).

Additional features of the site:

- Provides connectivity to unallocated state land (Mt Rainbow) which could be included as part of the National Park (Scientific) nomination.
- This site is the start of the Running Creek catchment (which feeds into the Calliope River catchment) and contains a significant and relatively undisturbed section of the Calliope Range catchment.
- Because it is the start of the catchment, weed management could support downstream management efforts and reduce long term costs for relevant stakeholders.

[7] The planting layout will be based on the findings of the research program currently underway to determine genetic variability and robustness between *Cycas megacarpa* populations, in particular those within the Callide and Calliope.

[8] Section 16 (2) of the NC Act provides for conservation actions to be directed towards threatened wildlife on a Protected Area declared as National Park (Scientific) the section states the following "However, if threatened wildlife is a significant natural resource for the area, management of the area may include—
(a) manipulation of the wildlife's habitat; and
(b) the control of threatening processes relating to the wildlife, including threatening processes caused by other wildlife.".

- This site is considered likely to contain significant ecological values for other flora and fauna, including conservation significant fauna such as quolls, koalas, the Powerful owl and gliders.

5 TRANSLOCATION PREPARATION

5.1 Tagging & In-Situ Condition Assessment

All Cycads within the disturbance footprint (30m ROW) will be tagged with a unique identification code (fire proof/resistant aluminium tag), marked with hi-visibility paint (non-toxic) and have the following information recorded against their new identification (ID):

- Lat / Long Co-ordinates.
- Plant height.
- Sex, including number of fruit present/presence of pollen cone.
- Presence of insects/insect attack.
- Presence of new growth.
- Overall condition and other relevant observations.
- Current height and crown condition photographed.

The unique identification code will be comprised of the entity name, the date they were first tagged and assessed and their number in sequence (e.g. GLNG 0711 0001, GLNG 0711 0002, etc.).

Seedlings with fronds will receive their own unique ID. However where applicable, the ID of their parent will be noted against them in the database. Details regarding seedlings without fronds (i.e. very young seedlings) will be noted with their locations recorded. Further information about these seedlings is provided in Section 5.2.

To accommodate any potential margin of error in satellite accuracy (when recording each Cycads position) and any additional alignment adjustments, all Cycads within 5m either side of the disturbance footprint will be accounted for and have the following information recorded:

- Latitude / Longitude Co-ordinates.
- Plant height.
- Sex, including number of fruit present/presence of pollen cone.

The field team undertaking the tagging and in-situ condition assessment will be led by a suitably qualified and experienced person(s) (refer Appendix 5) to ensure that the data collection is consistent with the outlined methodology, is adequately captured and is able to be utilised for comparative analysis during future monitoring activities in the recipient site(s). The tagging and assessment activities will begin at least two weeks prior to translocation activities beginning.

Additional baseline data for monitoring purposes (e.g. presence/absence of coralloid roots as well as damage during translocation) will also be collected during translocation activities.

All data collected will be inputted into an appropriate, project specific database that will allow for the monitoring team to track the health of the translocated Cycads and report on the findings as per approval conditions. A summary of the baseline findings is provided as Appendix 7 to this Plan.

Should any additional individuals be located within the direct disturbance footprint (i.e. more than 1100 individuals), GLNG will consult with DEHP and SEWPaC regarding the findings and any potential required amendments to existing approval conditions.

5.2 Temporary Storage Site Preparation

A number of actions will be undertaken prior to the translocation of the Cycads. As a minimum these actions include:

- The removal of any weeds and pest animals from the immediate vicinity.
- The removal of cattle and any other grazing stock from the immediate vicinity. If cattle cannot be adequately excluded from the temporary site in its current state, fencing will be undertaken to minimise risk of both poisoning of cattle and damage to the plants.
- Establishment of a firebreak around the site.
- Establishment of a watering system for the Cycads.
- Preparation of a stable surface area including elevated storage benches were applicable

5.3 Recipient Site(s) Preparation

Vallee *et al* (2004) outlines a number of actions recommended that should be undertaken prior to the translocation of the Cycads into the recipient site(s) with the key action being the removal of any threats from the recipient site(s). This may include the removal of weeds and pest animals (including stock) and hazardous materials (including contamination).

Overarching management principles will be outlined within a Cycad Offset Site Management Plan. Site specific preparation measures will be developed once the defined recipient site(s) area within the offset location has been confirmed.

6 TRANSLOCATION PLAN

6.1 Timing

In order to reduce the stress incurred to Cycads as a result of the translocation process, the optimal period to move them is after flowering and seed set (i.e. normally from April to September). However, other constraints such as seasonal variations and commencement of construction may mean translocation is required to occur outside of the optimal period. In consideration of this, the translocation of the Cycads to the temporary storage site is scheduled to occur in March and April 2013. Translocation into the permanent recipient site will commence during the next identified optimal period following the permanent site being secured.

It has been observed that the majority of mature cycads capable of producing seed have already set seed for the 2012/2013 growing season with the flowering period starting around September 2012. This flowering response appears to be driven by seasonal conditions, rather than the time of year. Therefore, translocation of Cycads in March and April of 2013 is not likely to be detrimental to their survival. Consultation with the Cycad Translocation Management Team (CTMT) has resulted in a risk based approach to the management of the translocation process, informed by the previous experience of key members who have worked on other projects with similar Cycad programs. Accordingly, the timing of removal of the cycads is not now considered the key risk. Reports by experts from the CTMT indicate that the key risks are root rot and fungal infections, possible at any time of the year if the plants are not well managed in the translocation. Further, moving the plants while the soil is moist will lead to less damage to roots and structure of the plant. Moving during dry periods has the potential risk of increased bruising and stress to the root and trunk of the plant. GLNG has proposed the following suite of risk mitigations that it will employ to control the risk of root rot and fungal infections in the translocated Cycads:

- Temporary storage contractor will do the bagging of the cycads at the nursery site. This differs from previously approved Cycad translocation programs and will ensure that the lessons learnt from past proponents translocation work is applied at the nursery. Both the Nursery specialist and the Horticulturalist on the CTMT have gained considerable experience with maintaining the health of Cycads collected from the wild.
- The soil mix used for bagging out the cycads must be conducive to good drainage. In this case the soil will be a mix of granite and local soil with good drainage and structural properties to ensure the health of the plants.
- On receipt of the translocated cycads at the nursery, all cycads roots will be treated with anti-Fungal preparation prior to bagging.
- All bagged cycads will be stored on raised platforms to further facilitate drainage of the bagged plants.
- All relocated cycads will have a minimum 300mm root ball which has potential benefits through less “injury” to the plants. This will promote recovery and establishment of roots, while also reducing potential for root rot and fungal infections.
- All cycads will be under intensive care and monitoring by nursery staff and GLNG

6.2 Translocation Methodology

The translocation methodologies outlined below and throughout this Plan have been developed in consultation with the Queensland Herbarium, by their *Cycas megacarpa* experts from the Tondoon Botanic Gardens.

Three methodologies have been outlined to address the three stages to complete full translocation from in situ through to permanent recipient site.

6.2.1 Translocation from In Situ to Temporary Storage Site

1. Using marker paint or fluorescent dye mark the north side of each plant to be translocated. This will ensure that the plants are replanted with a similar north-south orientation.
2. Clear the area surrounding the individual plants by hand or with machinery (bobcat).
3. Trim all fronds back to where the rachis is attached to the stems.
4. Spray trunks and around the crown area (not the crown itself) with an anti-transpirant (e.g. Envy®) to prevent the plants drying out.
5. Using a trench pattern, loosen soil around each plant (either by hand or preferably with an excavator, backhoe or chain digger).
6. Carefully remove each individual from the ground and carefully preserve the rootball(s) of soil for each plant (ideally this should be done by hand for small plants or with an excavator or backhoe bucket for larger plants). Try to retain as much soil around the rootball(s) as possible in order to avoid damaging the root system.
7. Once the plant is out of the ground trim any damaged roots with clean/sterile secateurs and apply fungicide powder (e.g. Banrot®, Formula 20®) to prevent infection. Vitamin B or seaweed may also be applied to encourage root growth.
8. Using dry hessian sacking, wrap the rootball(s) to protect the structure of it. The hessian should be sewn or taped if necessary.
9. In order to avoid bruising the trunks/stems of the Cycads, care should be taken whilst transporting the plants to the translocation site(s). Any large or heavy plants should be loaded using a soft sling that is slung on a backhoe or excavator bucket and packed using rolls of hessian sacking or similar.
10. Upon excavation the plants will be immediately transported to the pre-prepared temporary storage location for potting up and storage until further notice. If there is a delay in the actual potting, the hessian sacking in which the plants are wrapped will be sprayed with water so that the rootball(s) remains moist.
11. The hessian sacking should be removed from each plant as they are placed into their pots. Any roots which have sustained any further damage during transit should be trimmed and sprayed with the fungicide powder.
12. The plants should be positioned with the marked side facing north.
13. The rootball of each plant shall be packed with washed river sand or sandy loam in order to provide a suitable substrate for new roots to grow. This soil must be free of weed seeds. Backfill around the plant using the appropriate topsoil.
14. Where necessary, the plants will be staked with multiple stakes for stability. Rocks or other suitable materials may be placed around the base of the pots to assist in insulating the pots from hot weather conditions, providing protection from fire and to aid in stability.
15. Spray the trunks of the plants again with an anti-transpirant (e.g. Envy®) to prevent them from losing too much moisture.

16. The crown and any remaining foliage on each plant will be sprayed with an insecticide (Confidor® at an application rate of 10ml/9L water or Crown® at an application rate of 5ml/9L water).
17. Using ordinary water, thoroughly water around each translocated plant and then water (5-9litres) around each rootball with a systemic fungicide (Banrot® at the recommended rate).

It should be noted that the actual translocation of each plant will occur as soon as practicable from the time the plant is excavated to the time it is replanted. That is, the time the plant is spent out of the ground will be limited as far as practical.

6.2.2 Translocation from Temporary Storage to Recipient Site(s)

1. If the marker has faded or is no longer visible, use marker paint or fluorescent dye to mark the north side of each plant to be translocated. This will ensure that the plants are replanted with a similar north-south orientation.
2. Clear the area surrounding the individual plants by hand.
3. Trim all fronds back to where the rachis is attached to the stems.
4. Spray trunks and around the crown area (not the crown itself) with an anti-transpirant (e.g. Envy®) to prevent the plants drying out.
5. In order to avoid bruising the trunks/stems of the Cycads, care should be taken whilst transporting the plants to the recipient site(s). Any large or heavy plants should be loaded using a soft sling that is slung on a backhoe or excavator bucket and packed using rolls of hessian sacking or similar.
6. The transplant holes at the recipient site(s) will be dug either by hand or with an excavator or backhoe. The holes should not be too much deeper than the rootball of the plants being transplanted. The soil within the new holes will also be loosened.
7. Carefully remove each plant from its pot whilst preserving the rootball(s) of soil (ideally this should be done by hand). Try to retain as much soil around the rootball(s) as possible in order to avoid damaging the root system.
8. If there is any hessian sacking around the plant(s) it should be removed as they are placed into their new location.
9. Where applicable, trim any damaged roots with clean/sterile secateurs and apply fungicide powder (e.g. Banrot®, Formula 20®) to prevent infection. Vitamin B or seaweed may also be applied to encourage root growth.
10. The plants should be positioned with the marked side facing north.
11. The rootball of each plant shall be re-packed with washed river sand or sandy loam in order to provide a suitable substrate for new roots to grow. This soil should be free of weed seeds. Backfill around the plant using the topsoil removed from the hole.
12. Where necessary, the plants will be staked with multiple stakes for stability. Rocks will be placed around the base of the trunk to insulate the roots from hot weather conditions, provide protection from fire and to aid in stability.
13. Spray the trunks of the plants again with an anti-transpirant (e.g. Envy®) to prevent them from losing too much moisture.
14. The crown and any remaining foliage on each plant will be sprayed with an insecticide (Confidor® at an application rate of 10ml/9L water or Crown® at an application rate of 5ml/9L water).
15. Using ordinary water, thoroughly water around each translocated plant and then water (5-9litres) around each rootball with a systemic fungicide (Banrot® at the recommended rate).

6.3 Planting Design/Layout

The planting layout will be designed once the following inputs are available:

1. The recipient site(s) is confirmed and the site(s) has been inspected to determine the best locations for Cycad placement.
2. Generally, placement of translocated cycads and supplementary plants to meet offset requirements will be consistent with the densities and distribution of natural populations in the Callide and Calliope Ranges. Advice from approved experts will be sought when developing the planting plan.

A site inspection by a suitably qualified ecologist (refer Appendix 5) to determine the best placement areas within the proposed recipient site is currently scheduled to occur by the end of 2013.

7 SEED COLLECTION AND PROPAGATION

In accordance with EPBC Act approval conditions, a minimum of 3990 Cycads must be established and managed within the recipient site and offset area (transplanted individuals and seedlings combined).

In accordance with the Queensland Biodiversity Offsets Policy an offset ratio of 1:5 will need to be applied to comply with State regulatory requirements. The offset requirement is calculated on the number of plants cleared.

To address both the Commonwealth and State requirements associated with translocating the Cycads, an appropriate seed collection methodology has been developed for this project. To encourage genetic variation within the recipient site(s), the agreed methodology ensures that any seed collection will not be restricted to those being directly impacted by the project works.

All ripe seeds present on adult females within the disturbance footprint will be collected prior to the translocation occurring and during the peak fruiting period, September though to January (to improve propagation success).

Additionally, any seedlings observed during the in-situ assessments and tagging activities will need to be collected and propagated in the nursery. These seedlings will be noted and their location recorded during tagging activities. The transplant contractor will carefully remove these during transplanting activities and prepare for transportation to nursery for optimal growing conditions.

Calculations for seed collection requirements are based on the following criteria[9]:

- 70% survival rate of Cycads directly translocated.
- 70% strike rate of seedlings in nursery.
- 70% survival rate for Cycad seedlings planted into recipient site from bushhouse.

Based on the above criteria, approximately 9,653 seeds will need to be collected and propagated to comply with Commonwealth and State approval conditions. The following sections outline the methodologies to achieve this.

7.1 Collection Methodology

7.1.1 Seed Collection Methodology (within 30m ROW)

All fully ripe Cycad seeds within the disturbance footprint will be collected prior to translocation of individuals occurring (Translocation is expected to occur in March and April 2013). Seeds will be collected and bagged according to either their parent plants unique ID or the cluster in which they are located[10].

[9] These data are based on the current survival rates experienced by the Main Roads Calliope Deviation Project and the work undertaken for the QGC CSG project.
[10] Wherever possible, seeds will be linked to adult plants unique ID No. the exception to this rule includes 1) ripe seeds on ground amongst multiple adult females, 2) ripe seeds on ground have dispersed away from obvious adult female.

The following information is to be recorded for each bag collected:

- Bag No.
- No. of seeds in bag.
- Parent ID no. or cluster no. (Whichever is applicable).
- Date collected.
- GPS co-ordinates.
- Presence of predation (eaten by fauna).

Seeds are not to be picked from adult plants and placed in the same bag as seeds found on the ground unless the origin of those on the ground is certain to be the same as those picked.

The field team undertaking the seed collection will be led by a suitably qualified and experienced person(s) (refer Appendix 5) to ensure that:

- Seeds are only collected when fully ripe and either ready to drop from the parent plant or have already dropped from the parent plant.
- The data collection is consistent with the outlined methodology, is adequately captured and is able to be utilised for comparative analysis during future monitoring activities, propagation activities and within the final recipient site(s).

7.1.2 Seed Collection Methodology (all other areas)

Seeds will be collected in accordance with the propagators authority permit(s) issued to successful contractor(s) and bagged according to the population no.[11] and cluster no.[12] (Where known) in which they are located.

The methodology used for seed collection from other sites will then will the same as outlined above (Section 7.1.1) for seeds within the ROW.

7.2 Propagation Methodology

To address the offset requirement associated with translocating the Cycads, seeds will be propagated using appropriate horticultural techniques. An example of the methodology to be adopted is as follows:

- The flesh will be removed from the collected seeds.
- Seeds will be treated with a fungicide and individual seed casing will be cracked for ready germination.
- The seeds will initially be planted in trays containing a suitable seed raising mix.
- The trays will be placed in a suitable seed raising propagation unit and irrigated appropriately.

[11] Where the population no. has been previously recorded this form of identification should be used (eg. population no. within the Cycad recovery plan).
[12] The cluster no. within a population may need to be assigned based on ground truthed findings. However if the absence of detailed information on a cycad population, the population no. along with the GPS co-ordinates may be considered sufficient.

- Once a seed has taken root and the first leaf formed (now considered a seedling) the seedling will be pricked out into 140mm pots filled with suitable potting mix.
- Pots will then be placed into the nursery.
- When the plant's root ball fill's the 140mm pots (approximately 9 – 12 months from potting up), they will be re-potted into 200mm pots with the same mix as used previously.
- Approximately two years after germination, the plants will be transplanted from 200mm pots into 300mm pots and receive new potting mix (same potting mix composition).
- Once seedlings have reached approximately 3-3.5 years in age, they will be re-potted one last time from 300mm pots into 400mm pots using the same mix.
- Propagated seeds will then be planted into recipient /offset site.

8 RIGHT OF WAY (ROW) MANAGEMENT

8.1 Sediment and Erosion Control Measures

Clearance of the GTP ROW (including Callide and Calliope Ranges) will be subject to comprehensive sediment and erosion control measures as per EA conditions. In order to comply with these conditions, the translocation contractor (and the construction contractor) is required to comply with the Erosion and Sediment Control Plan KP200-406 (ESCP) (3380-SAIP-4-1.3-1991) contained within Appendix A of the Mainland Environmental Management Plan (EMP). The ESCP mitigation measures with additional Cycad and Cycad removal specific measures are as follows:

- Minimise quantity of ground/vegetation disturbance and duration of soil exposure.
- Where possible, replacement of any boulders and rocks disturbed as part of Cycad removal and construction works.
- All attempts to be made to minimize damage to vegetation will be avoided and no burning of felled vegetation will occur.
- Unless mature/hollow bearing trees pose a threat to safe working practices, they will be left intact during translocation activities. If removal is necessary, appropriate measures will be in place in accordance with relevant conditions of DEHP Environmental Authority (EA) PEN102664411, specifically the presence of licensed fauna spotter/catchers.
- Root stock will, where practical, be retained for stabilisation of the soil.
- Ensure any removed topsoil is stockpiled separately from subsoil and appropriately marked out on a map.
- Should any topsoil stockpiles be necessary ensure the height is limited to 2m.
- Any access route selection and working areas will avoid areas of side slope wherever possible, thus minimising root-stock loss.
- Works to be minimised during wet weather to reduce potential for soil degradation (e.g. erosion and washouts, etc.).
- Installation and maintenance of suitable erosion-control structures as appropriate depending on site topography etc. All existing controls to be inspected and repaired as necessary to maintain the full effectiveness of erosion-control structures.
- Protect sensitive areas during and after construction by reducing the velocity of water moving across disturbed area and redirecting run-off to stable ground.

8.2 ROW Rehabilitation

To protect the habitat values of *Cycas megacarpa* within the Callide and Calliope Range areas, the ROW will be left in a stable and self-sustaining state following the removal of Cycads from the disturbance footprint. Based on the current construction schedule, it is anticipated that ROW clear and grade activities will closely follow the removal of the Cycads. As such, the focus of the Contractor engaged for the transplanting works will be on leaving the site in a stable state instead of undertaking long term rehabilitation works which will be undertaken post upon completion of backfilling activities. However, in undertaking the transplanting works the Contractor is still required to comply with GLNG Landscape and Rehabilitation Management Plan (LRMP) contained within Appendix G of the Mainland EMP and where applicable, the following measures will be undertaken post Cycad translocation:

- Re-profiling of natural contours and drainage lines to their original profile with topsoil spread across the ROW to minimise erosion and promote vegetation regrowth.
- Spreading of felled vegetation across any cleared areas to protect the topsoil and provide additional seed stock and fauna habitat. When re-spreading on slopes, tree trunks should be along the line of the contour.
- Ensure any stockpiled topsoil is used for rehabilitation purposes and spread over the reinstated areas.
- Reinstatement shall not be undertaken in wet conditions.
- Topsoil and subsoil to be reinstated in the same order as extracted to minimise inversion of sub and top soils. Topsoil to be replaced to match surrounding ground levels.
- Rock may be stockpiled on ROW to 1.5m depth as fauna habitat with approval of GLNG Site Environmental Officer (SEO) and landowner.
- Revegetation to be limited to natural seeding from topsoil with no additional revegetation due to short timeframe until ROW clearing activities to commence and the minimal areas of disturbance anticipated from selective removal of Cycads.
- The Pest and Weed Management Plan to be implemented throughout the entire process (Appendix D of the Mainland EMP).
- No areas left in an unstable condition.
- Drainage patterns reinstated correctly and drainage lines to be restored as appropriate.
- Where practicable, all work areas, temporary access tracks and other areas that have been compacted by construction activities are to be ripped or scarified to relieve compaction and to trap water and seed.
- Any temporary access roads not required for operations or to be retained by the landowner are to be closed and reinstated to a condition compatible with the surrounding land use.
- Access tracks in existence prior to construction are not to be blocked in anyway.
- All waste materials and equipment to be removed from the pipeline construction area once Cycad removal works are completed.

9 MONITORING AND MANAGEMENT

9.1 Management and Maintenance Requirements

The duration of the management and maintenance requirements are based on both the guidelines outlined by Vallee *et al* (2004) and experiences resulting from the Department of Main Road's Calliope Range Deviation Project Cycad Translocation Program. For all aspects of works a suitably qualified horticulturist (refer Appendix 5) with relevant experience in the management of *Cycas megacarpa* will be engaged. Details of successful contractor/s for the following works will be provided to the Department prior to commencement and as a minimum, the following shall occur.

9.1.1 Temporary Storage Site

Methodology for the temporary storage site is outlined below:

- Depending on weather conditions (i.e. rainfall, summer heat, etc.) each plant shall be given approximately 10-20L of water at least once per month or as appropriate.
- Plants will be checked for insect attack at least weekly and treated for insect attack accordingly.
- If plants begin to show signs of growth, they should be watered and sprayed thoroughly with a systemic insecticide (e.g. Crown or Confidor) to reduce insect attack. These systemic insecticides should be applied at a high concentration (e.g. 5ml Crown per 9L of water; 10ml Confidor per 9L of water).

9.1.2 Nursery (Seeds/Seedlings)

Outlined below is the methodology relevant to the nursery aspect of work:

- All seeds and seedlings will be watered as necessary. The watering system will be inspected twice weekly to ensure the plans receive adequate water for the climatic conditions.
- A weekly inspection of the seeds and seedlings will be undertaken to check for signs of pests and/or diseases and weed establishment.
- Pest and disease control through the use of an appropriate spray(s) will be undertaken as necessary.
- Manual weeding will be undertaken as necessary.
- An appropriate slow release fertilizer will be applied to all plants on a biannual basis.
- Cleaning of the entire nursery and surrounds to ensure maximised plant hygiene and health will be undertaken in accordance with Plant Health Australia and Nursery & Garden Industry Australia Standards.

9.1.3 Permanent Recipient Site (Translocated and Nursery Grown Specimens)

A detailed site plan describing the management of the offset site will be prepared once the property is secured by GLNG. This plan shall include but not be limited to the following management threats and related control actions identified for the translocated and propagated cycads at the offset site. They include:

Maintenance and Watering Post Translocation
Insufficient watering and maintenance for weeds and competition can lead to the plants failing to thrive. Controlled watering during exceptionally dry periods will allow the cycads to survive so they can benefit from wetter periods that offer more favourable growing conditions.

> ***Management actions*:** Provide stored water on site ensuring that translocated plants and seedlings receive necessary water while they are being established during dry seasons, and provide a fire management capacity.

Invasive or Declared weeds
Invasive or declared weeds (e.g. *Lantana camera*) have the potential to limit the successful recruitment of *Cycas megacarpa* at the offset site. Dense stands of Lantana also increase the fuel loads resulting in the potential for uncontrolled hot fires.

> ***Management actions***: Manual control and targeted control using Roundup® Bioactive™ with a splatter gun in heavily infested areas of *Lantana camera*. Also native, introduced grasses or other competitive weeds will be controlled using selective recommended herbicides. All herbicides will only be used by trained personnel, in accordance to manufactures guidelines and with appropriate Personal Protective Equipment (PPE).

Feral Animal Control
Feral animals including pigs, horses, cattle and to a lesser extent wild deer can impact on the translocated or propagated new plants.

> ***Management actions***: Secure fencing of the offset site to limit access of these species. This may include establishing a fence suitable to restrict access of feral pigs with ring lock fencing. This fencing will also keep other species of concern and limit the spread of weeds to and from the offset and translocation site. Additional control measures may be employed such as trapping or baiting programs depending on known and/or defined pest populations at various times.

Fire Management
Control of wild fires is essential in ensuring that mature plants and seedlings which are planted out are successful. The area will have a maintained fire break surrounding the entire offset area. In addition, the adjoining cleared grazing lands to the western side of the offset site has established fences, access tracks and fire breaks and to the east the QRN rail line will provide man made fire breaks on the boundary of the offset site.

> ***Management action***: A detailed fire management plan will be prepared and implemented which accounts for the natural habitat and needs of the cycads. As this vegetation is 11.12.6 and 11.12.1 (woodland communities), regular control burns of low intensity will be undertaken to limit the potential for high intensity fires which have potential to destroy the offset establishment program. These burns will only be conducted when there are conducive conditions and in conjunction with neighbours and rural fire management agencies.

Other Pests and Potential Threats

Insect attack and fungal infections
A range of boring insects have potential to attack cycads and can cause significant damage to the plants.

> ***Management action****:* Regular inspections will be conducted as per the monitoring program in the Cycas megacarpa Management Plan to ensure no insects are present and check for other issues. A management protocol has been developed to address these issues. Where necessary, a plant may be removed and placed in a suitable nursery for intensive care and monitoring before being placed back into the offset site.

Detailed specific measures for the plants translocated into the offset site include:

- Depending on translocation timing and rainfall, each plant shall be given approximately 10-20 litres of water at least once per month for the first 12 months into the post translocation program or as appropriate (higher frequency may be required in drought or summer periods).
- Plants will be checked for insect attack at least fortnightly for the first six months of the post translocation program and then as required (minimum monthly inspections). If pest attack is observed, plants will be managed accordingly (e.g. sprayed accordingly).
- Plants will be checked within 1-2 weeks following a high rainfall event to mitigate severe insect attack (particularly around the Cycad base)[13].
- When plants begin to show signs of growth, they should be watered and sprayed thoroughly with a systemic insecticide (e.g. Crown or Confidor) to reduce insect attack. These systemic insecticides should be applied at a high concentration (e.g. 5ml Crown per 9 litres of water; 10ml Confidor per 9 litres of water).

9.2 Monitoring and Reporting Requirements

Monitoring of the plants throughout the program is dependent on the need for remedial action to ensure success of the program. If such action is necessary then GLNG will undertake any necessary additional monitoring. Annual reports will be provided to the SEWPaC detailing the actions of this program and results of works to achieve a sustaining population of no less than 3990 *Cycas megacarpa.*

The program will continue to be advised by the Cycad Translocation Management Team for its duration. Any remedial measures required shall be carried out promptly to ensure the survival of the plants. GLNG is committed to the success of the program and will ensure that all necessary measures are taken to achieve a sustaining population of Cycads in the offset site.

GLNG will submit annual progress reports to the SEWPaC and the DEHP on each of the elements of this program, including but not limited to the following:

- Collection of Cycads from the Right of Way (ROW).
- Establishment of temporary holding facility and maintenance of collected Cycads.

[13] Often severe insect attacks, particularly by blow flies on the root systems of the Cycads, coincide with high rainfall events. If a high rainfall event occurs (e.g. spring rains) outside the fortnightly maintenance checks, it is recommended that the contractor undertake a maintenance check 1-2 weeks following the event.

- Collection of seed for propagation.
- Securing of a suitable offset for the translocated plants and final planting of seedlings.
- Translocation of plants from ROW into the offset (recipient) site.
- Planting of seedlings into offset site.
- Any issues and actions to address these and the success or otherwise of these measures.
- Persons engaged in the program if there are personnel changes during the program.
- The Cycad Offset Site Management Plan.

9.2.1 Temporary Storage Site

Monitoring of the temporary storage site
To monitor the health of the transplanted Cycads whilst in temporary storage, the potted Cycads will be inspected by a suitably qualified ecologist and horticulturist (refer Appendix 5) on a monthly basis with inputs from the transplant contractor and other horticultural experts as necessary. The first inspection will take place one month post commencement of translocation activities and will continue until all Cycads are transplanted to their permanent recipient site.

As a minimum, each inspection will involve the following tasks:

- Visually inspect each transplanted Cycad (approximately 1100 individuals).
- Observation data for each individual will be recorded against its unique identification code on a monthly spread-sheet pro-forma. By matching the species to the sequentially listed pro-forma, the margin for error can be reduced and all species can be accounted for and located straight away (the absence of data against a code on the spread-sheet will identify the need to locate it before the end of the monthly monitoring survey). As a minimum, the following data will be collected during the monthly inspections:
    - Frond growth against the photo log[14] (e.g. ENG, etc.).
    - The development of new megasporophylls (females) or pollen cones (males).
    - Any male specimens shedding pollen (November – December).
    - The development of any seeds on the megasporophylls and the number of seeds present.
    - The presence and development of pups.
    - Presence / absence of insects against a photo log[15].
    - Presence / absence of insect attack.
    - Presence / absence of putative pollinators against a photo log[16].
    - If a plant appears to have died (spongy appearance or bark falls off and crumbles), a photograph of the individual will be taken during the field inspection.
    - Monthly rainfall data from the onsite rain gauge.
- Input of collected survey data into the data management tool for analysis.

[14] Photo log will include the different stages of frond growth on Cycads from spikes (S) to advanced new growth (ANG).
[15] Photo log will include commonly observed invertebrates on *Cycas megacarpa.*
[16] Photo log will include known pollinators for *Cycas megacarpa.*

In addition to the data collected on a monthly basis, all individuals will be photo-logged (before fronds are removed) during the final inspection prior to their permanent translocation. Each potted individual will be photographed alongside a measuring staff from the same reference position (north). These photographs will be uploaded against each plant's unique identification code in the data management tool.

Reporting
GLNG and the temporary site Contractor will maintain regular contact throughout the monitoring period. Contact will include:

- Site visit notification of either party.
- Notification if any of the following is observed by either party (this will enable contractor maximum time to manage):
  - Severe stress/death of a plant.
  - The presence of significant numbers of insects.
  - Severe pest attack.
- Contractor to provide a brief description of the outcomes of the monthly monitoring via email within a week of the site inspection.
- Contractor to provide a Six Monthly Progress Report in the form of a memo summarising the findings over each six month period as well as compilation of data for the past six months.

9.2.2 Nursery (Seeds/Seedlings)

As a minimum the following will form part of the monitoring program for nursery grown seedlings:

- Following on from the seed collection methodology, seeds to be propagated will be tagged with an accession number to their Parent ID no. or collection location (whichever is applicable) and linked with their origin data (i.e. date collected, GPS co-ordinates of collection area, etc.).
- Seed/seedling information will be input and maintained within an appropriate data management program and made available to GLNG and DEHP as required.
- Bi-annual reports with photographic documentation conducted and made available to DEHP and GLNG.

9.2.3 Permanent Recipient Site (Translocation Cycads)

In accordance with the EPBC Act approval condition 25, the translocated Cycads will be monitored by a qualified ecologist(s) (refer Appendix 5) for a minimum period of 5 years following their planting into the permanent recipient site[17].

A nearby reference site will also be established and monitored. Further details of this are outlined in Section 10.2.5.

[17] It is anticipated that this monitoring period will be increased to reflect conditions anticipated from DEHP as part of the Protected Plants Permit under the NC Act. Future versions of this CMP will be updated in accordance with the requirements of this DEHP Approval.

It is anticipated that the findings at the end of the monitoring period will enable a determination of success to be made.

Monitoring of recipient site for translocated Cycads
As a minimum, each survey will involve the following tasks:

- Visually inspect each translocated Cycad (approximately 1100 individuals).
- Visually inspect each individual within the control site.
- Observation data for each translocated specimen and control site specimen will be recorded against its unique identification code on a monthly spread-sheet pro-forma. By matching the species to the sequentially listed pro-forma, the margin for error can be reduced and all species can be accounted for and located straight away (the absence of data against a code on the spread-sheet will identify the need to locate it before the end of the monthly monitoring survey). As a minimum, the following data will be collected during each monitoring event:
    - Frond growth against the photo log[18] (e.g. Emerging New Growth (ENG), etc.).
    - The development of new megasporophylls (females) or pollen cones (males).
    - Any male specimens shedding pollen (November – December).
    - The development of any seeds on the megasporophylls and the number of seeds present.
    - Any seeds dropped from the parent plants within the recipient sites. To be noted observations will also be made as to whether these seeds are being caught in long grass in drainage lines/drainage structures (their location will be marked via GPS and also onsite with a stake and pink flagging tape to monitor them).
    - The presence and development of pups.
    - Presence / absence of insects against a photo log[19].
    - Presence / absence of insect attack.
    - Presence / absence of putative pollinators against a photo log[20].
    - If a plant appears to have died (spongy appearance or bark falls off and crumbles), a photograph of the individual will be taken during the field inspection.
    - Monthly rainfall data from the onsite rain gauge.
- Input of collected survey data into the data management tool for analysis.

If a fire (prescribed or wildfire) travels through the recipient site within the first 60 months of the monitoring program, the following information will be collected from each individual noticeably impacted:

- Level of impact to fronds and trunk.
- If fruiting, the number of seeds burnt and stage of ripeness at time of being burnt (if identifiable).
- Level of stress to plant as a whole (i.e. has the plant died; only partially burnt, etc.).
- Rate of recovery (new growth).

[18] Photo log will include the different stages of frond growth on Cycads from spikes (S) to advanced new growth (ANG).
[19] Photo log will include commonly observed invertebrates on *Cycas megacarpa.*
[20] Photo log will include known pollinators for *Cycas megacarpa.*

Each translocated individual and control site individual will be photo-logged on a 12 monthly basis. This will include being photographed alongside a measuring staff from the same reference position (north). Once back in the office, these photographs will be uploaded against each plant's unique identification code in the data management tool.

Monitoring schedule for translocated Cycads

0-18 months

Monthly basis (18 inspections) the first inspection will take place immediately following the completion of the Cycads being placed in their permanent recipient site.

19-30 months

Bi-monthly basis (6 inspections – month 20, 22, 24, 26, 28 and 30).

31-60 months

Quarterly basis (7 inspections – month 34, 38, 42, 46, 50, 54 and 58).

60+ months

Annual basis until the conclusion of monitoring requirements[21].
Final inspection upon completion of monitoring program.

Reporting

The appointed Ecologist(s) will maintain regular contact with GLNG and the applicable landholder[22] throughout the monitoring period. Contact will also be maintained with the lead maintenance contractor on a regular basis for the first two years post permanent translocation and then as needed for the remainder of the monitoring period. Contact will include:

- Notifying the landholder and GLNG of scheduled site visits a week prior to the monitoring event.
- Notification if any of the following is observed by any party (this will enable maintenance contractor maximum time to manage):
  - Severe stress/death of a plant.
  - The presence of significant numbers of insects.
  - Severe pest attack.
- Providing a brief description of the outcomes of the monitoring event via email within a week of the site inspection.
- A twelve monthly progress report. As a minimum, this report will discuss and provide the following information: the findings over the past 12 month period; a comparative analysis of the overall health of the translocated Cycads to date and; the raw data for the past 12 month period.

9.2.4 Permanent Recipient Site (Nursery Grown Seedlings/Juveniles)

As part of the post translocation management requirements, the nursery seedlings will be monitored by a qualified ecologist(s) (refer Appendix 5) for a minimum period of 5 years

[21] The conclusion of monitoring is five years post final planting of nursery raised seedlings.
[22] Where the Cycads are permanently placed.

following the final planting. The monitoring and reporting requirements for these seedlings are provided below.

Monitoring of nursery grown Cycad seedlings

As a minimum, each survey will involve the following tasks:

- Visually inspect each Cycad (5355 to be propagated over time with the translocation target number of 3376 to recipient site required to help meet conditions)).
- Visually inspect a sample of seedlings within the control site[23].
- Observation data for each specimen will be recorded against its unique identification code on a monthly spreadsheet pro-forma. By matching the species to the sequentially listed pro-forma, the margin for error can be reduced and all species can be accounted for and located straight away (the absence of data against a code on the spreadsheet will identify the need to locate it before the end of the monthly monitoring survey). As a minimum, the following data will be collected during each monitoring event:
  - Frond growth against the photo log[24] (e.g. ENG, etc.).
  - The development of new megasporophylls (females) or pollen cones (males).
  - Presence / absence of insects against a photo log[25].
  - Presence / absence of insect attack.
  - Presence / absence of putative pollinators against a photo log[26].
  - If a plant appears to have died, a photograph of the individual will be taken during the field inspection.
  - Monthly rainfall data from the onsite rain gauge.
- Input of collected survey data into the data management tool for analysis.

If a fires (prescribed or wildfire) travel through the recipient site within the first 60 months of the monitoring program, the following information will be collected from each individual noticeably impacted:

- Level of impact to fronds and if plant is still visible.
- Level of stress to plant as a whole (i.e. has the plant died; only partially burnt, etc.).
- Rate of recovery (new growth).

Each individual will be photo-logged on a 12 monthly basis. This will include being photographed alongside a measuring staff from the same reference position (north). Once back in the office, these photographs will be uploaded against each plant's unique identification code in the data management tool.

Monitoring schedule for nursery grown seedlings/juveniles

An indication of years for this schedule will be provided once seed collection has commenced and an indicative timeframe for seedling/juvenile planting can be provided.

[23] If seedlings of a similar age or younger are not present during this time, it will not be possible to compare success during final reporting. Any necessary amendments to the reporting requirements should be amended in consultation with relevant government agencies.
[24] Photo log will include the different stages of frond growth on Cycads from spikes (S) to advanced new growth (ANG).
[25] Photo log will include commonly observed invertebrates on *Cycas megacarpa.*
[26] Photo log will include known pollinators for *Cycas megacarpa.*

However as a guide, the following is provided based on an initial five year monitoring program following final planting of Cycad seedlings.

0-18 months
Monthly basis (18 inspections) the first inspection will take place immediately following the completion of the Cycads being placed in their permanent recipient site)).

19-30 months
Bi-monthly basis (6 inspections – month 20, 22, 24, 26, 28 and 30).

31-60 months
Quarterly basis (7 inspections – month 34, 38, 42, 46, 50, 54 and 58).
Inspection (1 inspection – month 60) for preparation of report on outcomes of program

60 + months
Six monthly basis for the next three years (12 inspections) if no remedial action is necessary.
Annual inspections for the next 5 years or as necessary up to a maximum of 20 years.

If the 60 month inspection by a qualified ecologist and horticulturalist (refer Appendix 5) reveals that remedial action is necessary to ensure the continued survival of the plants then monitoring shall revert to a schedule necessary to ensure remedial measures are successful.

Reporting
The appointed Ecologist(s) will maintain regular contact with GLNG and the applicable landholder[27] throughout the monitoring period. Contact will also be maintained with the lead maintenance contractor on a regular basis for the first two years post permanent translocation and then as needed for the remainder of the monitoring period. Contact will include:

- Notifying the landholder and GLNG of scheduled site visits a week prior to the monitoring event.
- Notification if any of the following is observed by any party (this will enable maintenance contractor maximum time to manage):
  - Severe stress/death of a plant.
  - The presence of significant numbers of insects.
  - Severe pest attack.
- Providing a brief description of the outcomes of the monitoring event via email within a week of the site inspection.
- Where applicable, a Six Monthly Progress Report in the form of a memo. This report will only be provided if monitoring results indicate a greater than 30% fail rate/mortality rate of seedlings in the permanent recipient site. It is anticipated that this will allow for ameliorative measures to be established (e.g. additional pest control measures, watering, additional seed collection requirements, etc.).
- A twelve monthly progress report. As a minimum, this report will discuss and provide the following information: the findings over the past 12 month period; a comparative

[27] Where the Cycads are permanently placed.

analysis of the overall health of both translocated Cycads and nursery propagated seedlings to date and; the raw data for the past 12 month period.

Following the conclusion of the monitoring program, a final report discussing the findings and outcomes of the monitoring will be provided for submission to both SEWPaC and DEHP within three months of the completion date. This will assist GLNG meet their approval conditions.

As a minimum, this final report will include an executive summary, the results of the monitoring period and a discussion on the level of success of the translocation.

9.2.5 Reference Site Suitability Assessment

In order to measure the success of the translocation program, the establishment of a reference site will be required so that the temporal variation between the recipient and reference site specimens can be analysed and compared. This site will be in a nearby area that can be accessed during the life of the monitoring program and will be located in an area not subject to future development (e.g. offset area away from future pipeline corridors) and within a remnant community not subject to grazing pressures.

The reference site will be a representative sample of the naturally occurring population(s) within either the Callide or Calliope Range and will comprise of similar height classes and similar topography and aspect to those translocated as part of the project works.

It is anticipated that the findings at the end of the monitoring period will assist in determining the level of translocation success.

9.2.6 Correction and Prevention

General maintenance

The primary management goal of the offset site shall be to secure a population of at least 3990 *Cycas megacarpa.* Specific details for the management of weeds, fire, feral animals and access by public and other will be outlined in the Cycad Offset Site Management Plan.

Both GLNG and the lead maintenance contractor will be notified within one week of each monitoring event if the any of the following is observed:

- Severe stress/death of a plant.
- The presence of significant numbers of insects.
- Severe pest attack.

In each case corrective actions will be targeted to the specific threat to the plant/s. Where pesticides are to be used, this will be at the direction of the supervising horticulturist and ecologist. Use of any herbicides, insecticides, fungicides and other chemicals will be carefully assessed to ensure suitability of application and does not cause environmental damage.

Plants will be watered during dry weather periods to prevent potential cause stress or death of the plants. In the event of exceptionally wet weather, plants may require augmented soil drainage to prevent waterlogging of the roots during the establishment period.

The lead maintenance contractor will be given a list of impacted individuals using their unique identification code for tracking and it is expected that where possible, the contractor should begin measures to restore the health of the impacted individuals within one week of notification.

If their health cannot be restored within a six month period the lead maintenance contractor will provide a report outlining measures taken to try and restore the health of the individuals, the individuals still affected (using the identification codes).

It is expected that where possible, relevant parties will either commission or undertake the necessary maintenance and management requirements to maintain a minimum of 3990 individuals in a healthy condition for the duration stated within relevant approval conditions (EPBC and NC Act approval conditions).

Fire
If a wildfire appears to negatively impact on the individuals present within either the temporary or permanent recipient sites, individuals will be monitored for a period of 12 months. If they do not recover within this period (i.e. no indications of growth) DEHP and SEWPaC will be consulted regarding potential compliance implications on the translocation and monitoring program. If deemed necessary, the propagation contractor will be notified of additional seed collection and propagation requirements to amend situation.

Seedlings
In order to comply with the Commonwealth approval requirements the project must maintain a surviving population containing no less than 3,990 individuals at the recipient site. In order to help achieve this number, a total of 9000 seeds will be collected from the wild with a propagation target number of 5355. It is estimated that a minimum of 3376 nursery grown seedlings will be required to be planted into the permanent recipient site. GLNG will undertake corrective measures outlined above should a wildfire occur that impacts on the recipient site.

GLNG anticipates that all viable seeds from the ROW will be collected, stored and propagated to achieve the final population number. The seed collection targets are attached with this response. Seed collection may take several years to achieve the final number of plants to meet the State and Commonwealth offset requirements. With respect to genetic variation, the nursery and preferred GLNG offset site are situated close to the construction of the ROW. Any seeds and seedlings held by GLNG and in excess of the offset requirements will be planted back into the Right of Way to encourage connectivity of Cycad populations in that area.

10 COMPLIANCE AND EVALUATION

This section will be further developed in accordance with State approval conditions. However, the following commitments are considered to be in compliance with the Commonwealth approval conditions (pursuant to EPBC Act).

GLNG will be responsible for engaging an appropriately qualified and Commonwealth approved Ecologist (refer Appendix 5) to uphold the monitoring and reporting requirements outlined in Section 8.2. GLNG will forward this information to DEHP and SEWPaC as per reporting requirements outlined in the approval conditions.

GLNG will also be responsible for ensuring that maintenance and management on the translocated Cycads is undertaken as per management requirements outlined in Section 8.1.

As per Condition 11 of the Commonwealth approval conditions (EPBC Act) the agreed limit of disturbance to Cycads and their associated habitat is 27.8 hectares. A reconciliation statement of impacts against the agreed limit of disturbance should be updated by the Construction Contractor every 6 months (a minimum of once every 12 months) from the commencement of works until construction is complete. As per Condition 25(m) (EPBC Act) GLNG will be responsible for ensuring this is updated every 12 months from commencement to the completion of construction.

In accordance with Condition 23(d) of the Commonwealth approval conditions (EPBC Act) if any future action within the offset area is proposed by GLNG, other than actions related to managing that area as an offset property, prior approval must be obtained from SEWPaC in writing. In seeking approval GLNG must provide a detailed assessment of the proposed action including a map identifying where the action is proposed to take place and an assessment of all associated adverse impacts on Matter of Environmental Significance (MNES). SEWPaC agrees to the action within the offset area, the location identified for the action must be excised from the offset area and alternative offsets secured of equal or greater environmental value in relation to the impacted MNES.

As per Condition 58 of the Commonwealth approval conditions (EPBC Act), the proponent must, when first becoming aware of a non-compliance with applicable conditions:

- Report the non-compliance and remedial action to the Department within five business days.
- Bring the matter into compliance within a reasonable timeframe specified in writing by the Department.

In accordance with Condition 59 of the Commonwealth approval conditions (EPBC Act), an accurate record of Cycad relevant data will be maintained and be made available to SEWPaC, DEHP or an independent auditor[28] upon request.

[28] In accordance with Section 458 of the EPBC Act.

10.1 Criteria for Success – EPBC Approval

The criteria for compliance success are as follows:

- No more than 27.8 hectares of Cycads and their associated habitat will be impacted as a result of the Project.
- No more than 1100 [29] Cycads will be directly impacted as a result of the Project.
- The methodologies outlined in the approved and current revision of the CMP will be complied with.
- A minimum of 3990 Cycads (both direct translocation and nursery raised seedlings) are alive within the recipient site area at 5 years after planting.
- At 5 years after final planting management measures at the offset site (including the Cycad Offset Site Management Plan) are assessed as adequate by an appropriately qualified specialist (refer Appendix 5) in *Cycas megacarpa* (i.e. botanist or horticulturalist), to ensure the ongoing health and persistence of the individuals and population at the site.
- Maintenance and/or management concerns noticed during the monitoring surveys were relayed back to GLNG and/or the applicable 3rd party within a reasonable timeframe.
- A report for each 12 month monitoring period was received by GLNG for submission to relevant government agencies. This report complied with the monitoring and reporting methodologies outlined in this Plan.
- A final report at the end of the monitoring period was received by GLNG for submission to relevant government agencies. This report complied with the reporting methodology outlined in this Plan.

The criteria for translocation success are as follows:

- Overall success:
  - A minimum of 3990 Cycads (both direct translocation and nursery raised seedlings) are alive within the recipient site area[30].
  - The overall health of directly translocated specimens is equal to or better than those within the reference site. This may for example include crown health, trunk condition, degree of pest attack and reproductive capacity.
- Translocation (temporary and permanent):
  - A minimum 70% survival rate[31] 5 years after planting.
  - With consideration to the above criteria, the health of these specimens is at least equal to their condition prior to translocation from the direct disturbance footprint.
- Nursery raised seedlings:
  - Greater than 70% survival rate[25] 5 years after final planting[32].

[29] Detailed site surveys have identified 1100 cycads within the ROW, Assessment of these plants identifies about 878 plants that are suitable for translocation with about 227 Cycads being avoided.. Field surveys undertaken in September 2012 identified a large number of seedlings growing in the vicinity of the mature plants.
[30] This total is not in consideration of those that may be detrimentally impacted by wildfires.
[31] This is excluding uncontrollable factors such as wildfires which may occur from time to time.
[32] Due to the number of Cycad seedlings required and the limited availability of seeds in the wild, it may take several years to plant seedlings out once they are ready to be planted (3-5 years from collection).

11 OFFSET MANAGEMENT

11.1 Offset Site Management

The preferred offset site will require considerable management to ensure that the translocation and offset program is a success and complies with commitments of Condition 25 of EPBC Approval 2008/4096. Issues that will require management include:

1. Grazing controls.
2. Weed controls.
3. Pest / feral animal controls.
4. Irrigation/water supply.
5. Fire management.
6. Access maintenance.
7. Plant monitoring.
8. Plant maintenance.
9. Detailed reporting.

In addition the site will require pre planting surveys, site infrastructure planning and plant out planning to ensure the various issues can be successfully managed and maintained. Planning, surveying, monitoring and reporting activities will be carried out by Santos/GLNG employees while plant maintenance, fire control, weed control and pest and feral animal control would be delivered by a sub-contract.

These issues and there management and implementation will be dealt with in a separate Offset Management Plan for the site, to be developed by GLNG.

In order to ensure the planned controls can be successfully implemented, GLNG will secure permanent tenure over the proposed offset site. Once tenure is secured, GLNG intends to offer the area to the State of Queensland as a Protected Area listed under the S14 of the *Nature Conservation Act 1992*. The tenure adopted is at the discretion of the State Government and its assessment of the suitability to secure the land under the NC Act.

11.2 Offset Assurance

In accordance with Condition 25 e) of EPBC Act Approval 2008/4096, the following section outlines GLNG's commitment for providing funding to secure, maintain and enhance the values of the *Cycas megacarpa* offset site into perpetuity.

The management costs for the above actions are preliminary cost estimates only and will be updated once the preferred offset site has been secured and additional studies undertaken.

Costs and associated activities to meet these obligations have been divided into two phases over 20 years, with phase 1 running for approximately 10 years and including the following activities:

- Secure the offset site by acquisition (or alternate mechanisms, e.g. Nature Refuge or covenant).
- Cycad translocation program including the temporary storage of the Cycads in a specialist care nursery.
- Seedling establishment program (e.g. Seed collection, nursery services (propagation), subsequent planting out into the offset site etc).

- Provision of services to the offset site (e.g. Water for irrigation, Power, Site office & Logistics).
- Fencing (i.e. boundary and internal).
- Pest and Feral Animal management (in accordance with the GLNG GTP Pest & Weed Management Plan).
- Fire Management - management of fuel loads, fire intensity by prescribed burning programs.
- Site access and security measures.
- Monitoring and Reporting Requirements.

The cost estimates are based on an initial 10 year program and assumes that the seedlings will be ready for planting approximately 5 years out from collection of seeds. Planting of necessary seedlings may take up to three years plus to achieve final population number of 3990 cycads on the site. The indicative cost to secure the offset site plus management costs for the initial 10 year program is estimated to be $2.1M. The estimated cost to establish and maintain the propagation facilities and to propagate the balance of the cycads is estimated to cost $5M in the first 10 years.

The second phase of the program seeks to further establish and maintain the offset site into perpetuity. The offset site will have been secured, the full planting and early plant maintenance program will be complete and facilities established to enable long term maintenance of the site and the translocated cycad population. In recognition of the long term ongoing management costs of the offset site including maintenance and monitoring post translocation and planting, GLNG will allocate funding for the next 10 years in the order of $0.75M (i.e. being approximately $50,000 – $75,000 per annum). This time period aligns with the monitoring and management requirements of the Clearing Permits for *C. megacarpa* issued by the Queensland government under the NC Act. These long term costs will involve management of the offset site and include the following work programs:

- Maintenance of Cycads (both translocated and propagated individuals) within the offset site.
- Continuation of the Pest and Weed Management Program.
- Maintenance of the offset site infrastructure including access tracks, fire breaks and related infrastructure.
- Fire Management – management of fuel loads, fire intensity by prescribed burning programs.
- Ongoing offset site security.
- Monitoring activities in accordance with approval conditions.

The management costs post the 20 year period will be provided by GLNG (or their subsidiary company or representative entity) as required. GLNG commits to provide funding for the ongoing management post the 20 year establishment phase in the order of $35,000 - $50,000 per annum. The cost estimates for ongoing management of the offset site will be determined more accurately after completion of the 20 year program and will be reflected in subsequent updates to this Plan. These funds will be secured from GLNG (or their subsidiary company or representative entity).

In accordance with Condition 27 of EPBC Act Approval 2008/4096, GLNG will provide a detailed Vegetation Management Plan for the offset site that will be developed and submitted to the Department as part of the GLNG Offset Plan for the GLNG GTP Project. The Plan will provide detailed management measures and further cost estimates for the proposed works.

Given the conservation significance of the proposed offset site, GLNG proposes that the site will be afforded some form of protected tenure or status under the Queensland Government legislation. There are a number of options to secure the offset site and provide measures that would protect the site into perpetuity. The following legally binding mechanisms have been put forward as being suitable for GLNG to achieve compliance with the conditions of the Project approvals. They are:

- Declaration of the land as future protected State Land (e.g. National Park (Scientific), Conservation Park or Nature Refuge) under the NC Act; or
- Declaration as an area of high nature conservation value under the Vegetation Management Act (i.e. a Voluntary Declaration); or
- Covenant – A statutory covenant is a written agreement in a prescribed form that is registered on the property title. Compliance with the covenant is legally binding.

Declarations of future protected areas, whether they are under the NC Act or VM Act, must be made by the State government. These measures provide the greatest long term security of the offset site. However, there are a number of assessment criteria under the relevant legislation that must be met. Once the offset site is secured, GLNG will work with the State government to progress the prerequisite tenure dealings required to protect the offset site into perpetuity. The final arrangements for securing the most appropriate protection mechanism will be determined in close consultation with both State and Commonwealth Governments. If the offset site is afforded a protected area tenure or a declaration area by its conservation significance by the Queensland Government, then the long term management costs for the offset site will be determined in future consultation with the State government or a third party service provider via a commercial arrangement with GLNG. The details of these arrangements will require an amendment to this plan and corresponding approval by the Minister.

During the interim period while the long term securing mechanisms are being established, the security of the tenure and ongoing management and maintenance for the offset site will be established by GLNG (or a subsidiary company or entity) by securing and operating the land as an approved offset site under the EPBC Approval 2008/4096. GLNG commits to establish interim protection measures (e.g. Conservation Covenant) over the preferred offset site within the first 12 months of securing the site. The establishment of these measures will be subject to acceptance and approval by the Queensland State Government for related land tenure dealings.

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APPENDIX 1 – Mapping for *Cycas megacarpa*

KP410
KP400
KP390
KP380
KP370
KP360
KP350
KP340
KP330
KP320

N

GLNG Gas Transmission Pipeline (A8 Revision)
Watercourse
Protected Area
Cycad Megacarpa
Cycad Megacarpa Habitat inside ROW

High Value Regrowth Vegetation
Endangered Regional Ecosystem
Of Concern Regional Ecosystem
Least Concern Regional Ecosystem

Regional Ecosystem Mapping
Endangered - Dominant
Endangered - Sub-Dominant
Of Concern - Dominant
Of Concern - Sub-Dominant
Least Concern

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GLNG Gas Transmission Pipeline

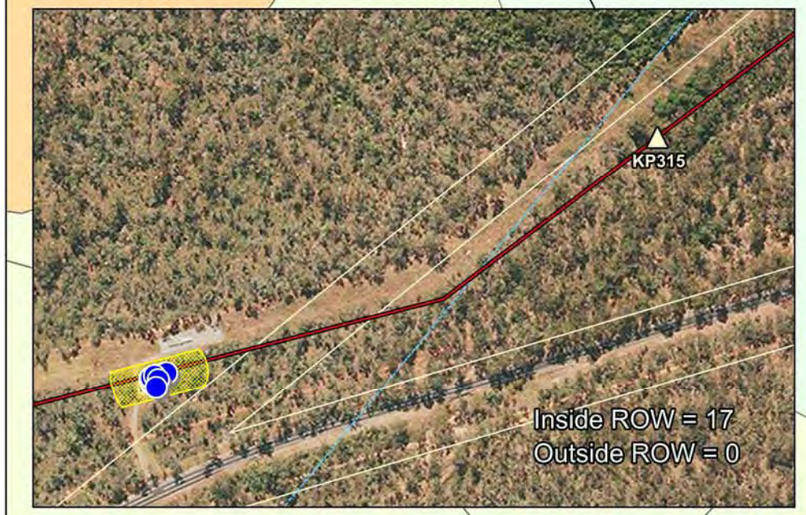
Cycas Megacarpa Habitat Overview

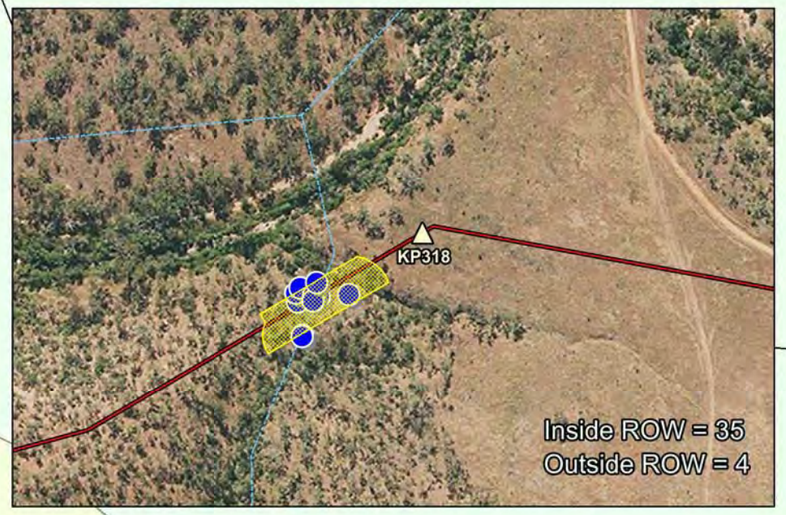
GLNG GTP

500m 0 500m 1 Km 1.5 Km

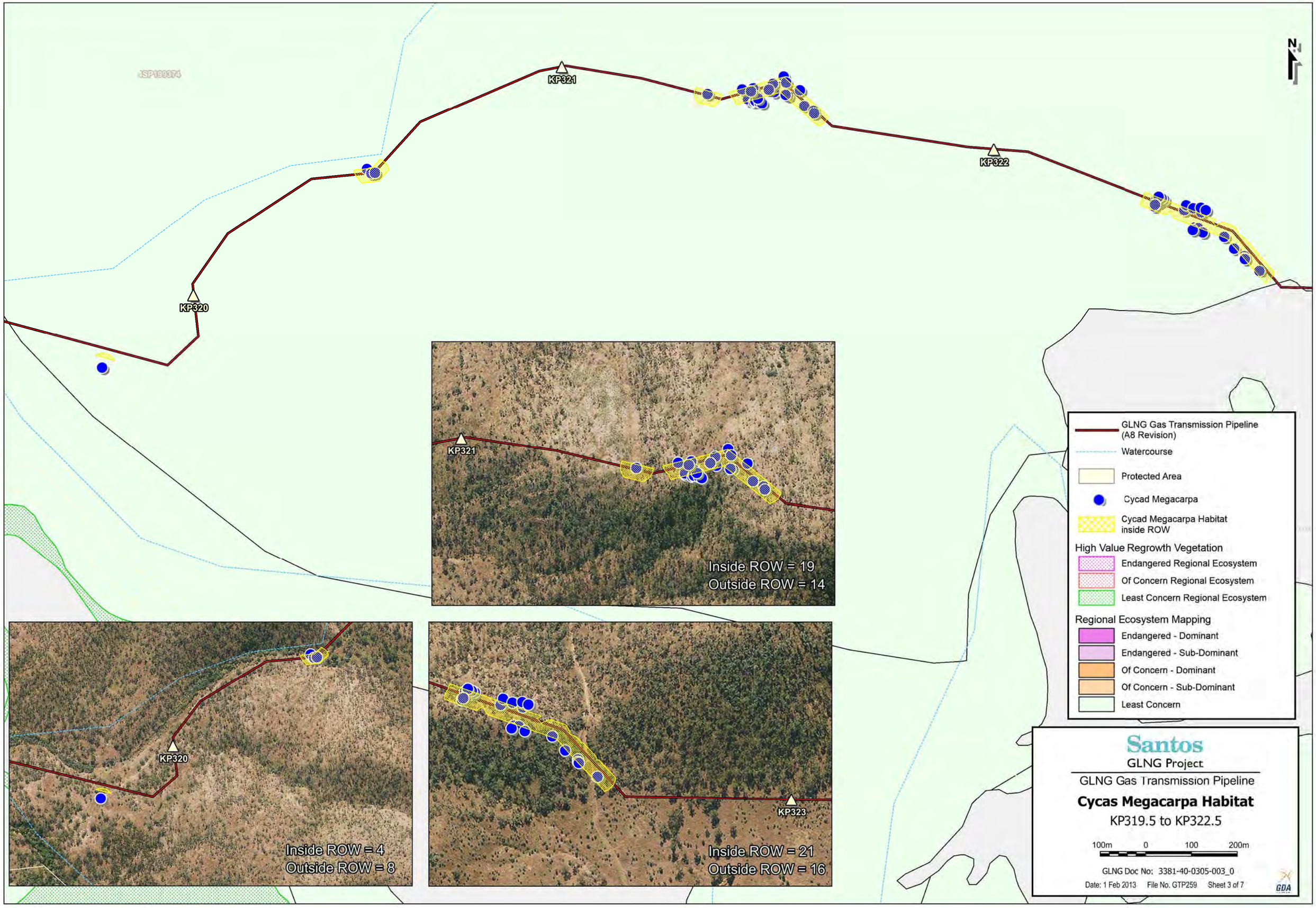
GLNG Doc No: 3381-40-0305-001_0

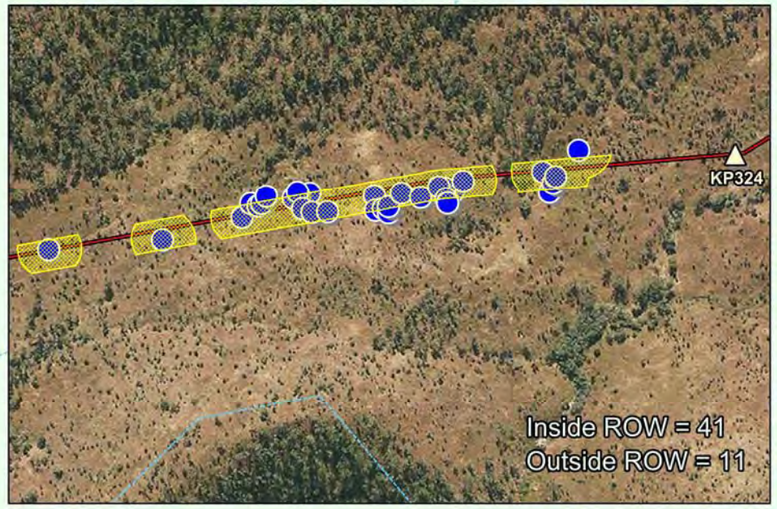
Date: 1 Feb 2013 File No. GTP259 Sheet 1 of 7

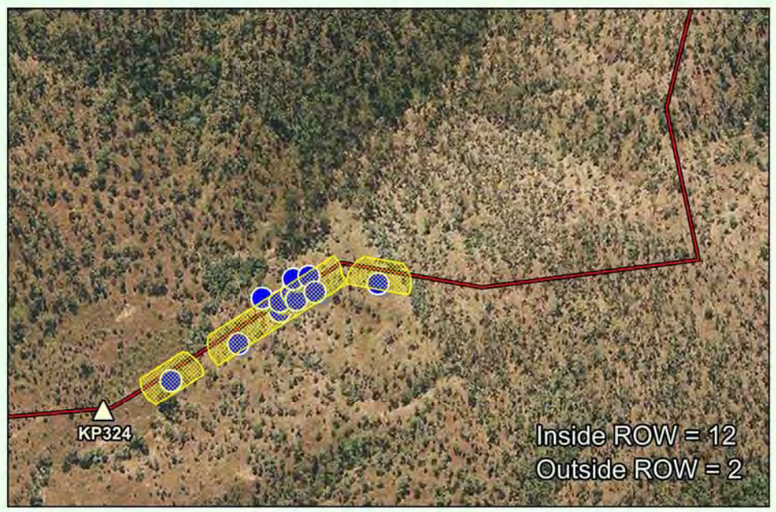

KP315
Inside ROW = 17
Outside ROW = 0

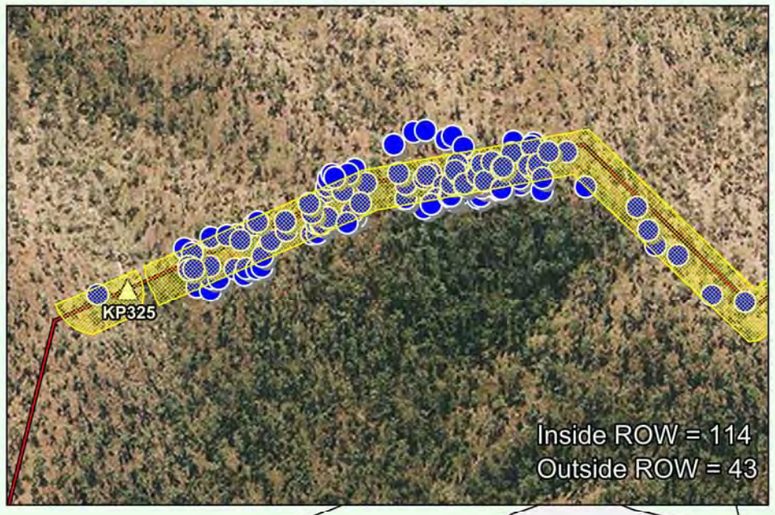

KP318
Inside ROW = 35
Outside ROW = 4

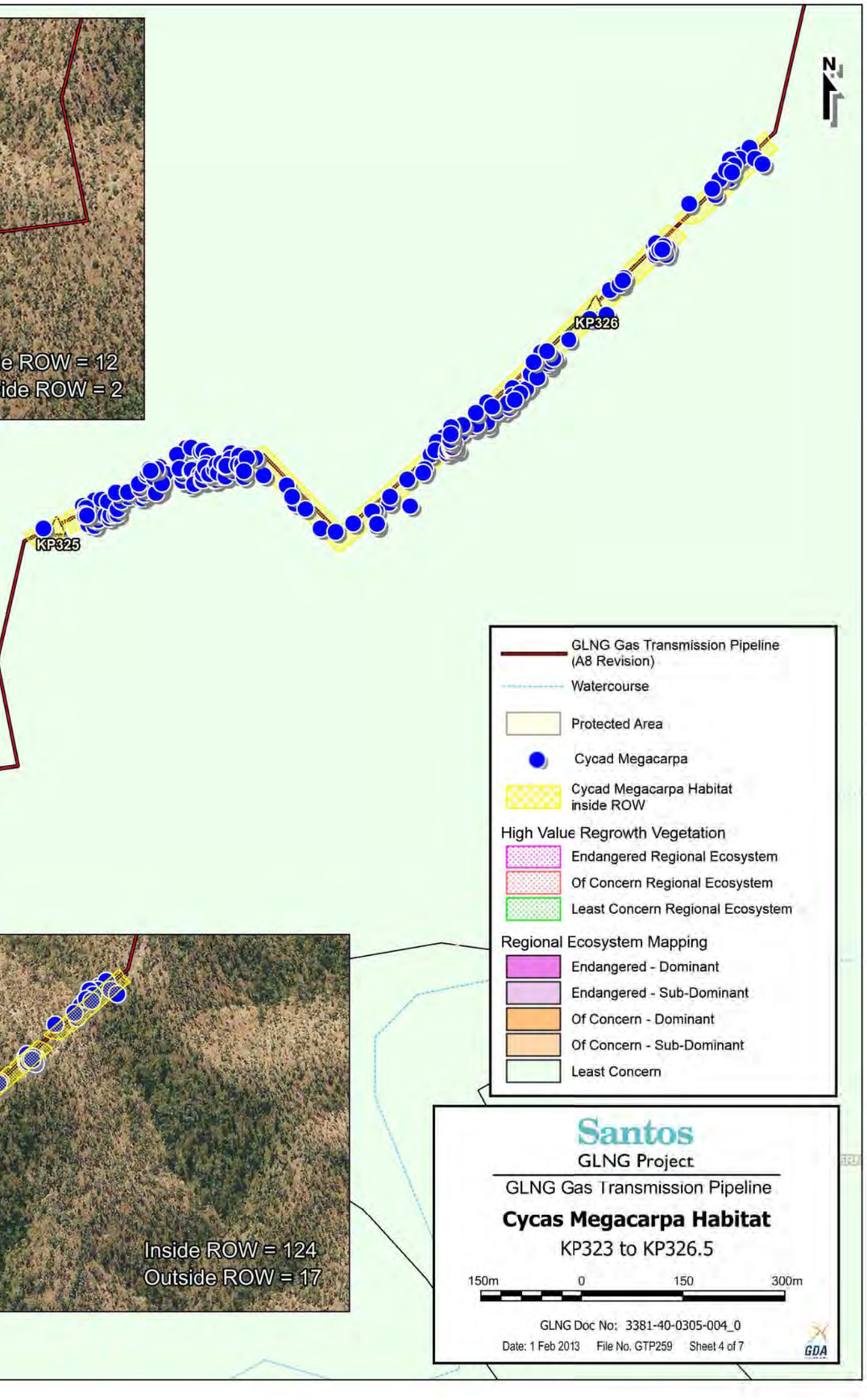
N
KP318
4SP199374
KP317
KP316
KP315
170FTY1843
GLNG Gas Transmission Pipeline (A8 Revision)
Watercourse
Protected Area
Cycad Megacarpa
Cycad Megacarpa Habitat inside ROW
High Value Regrowth Vegetation
Endangered Regional Ecosystem
Of Concern Regional Ecosystem
Least Concern Regional Ecosystem
Regional Ecosystem Mapping
Endangered - Dominant
Endangered - Sub-Dominant
Of Concern - Dominant
Of Concern - Sub-Dominant
Least Concern
Santos
GLNG Project
GLNG Gas Transmission Pipeline
Cycas Megacarpa Habitat
KP314.5 to KP318
150m 0 150 300m
GLNG Doc No: 3381-40-0305-002_0
Date: 1 Feb 2013 File No. GTP259 Sheet 2 of 7
GDA

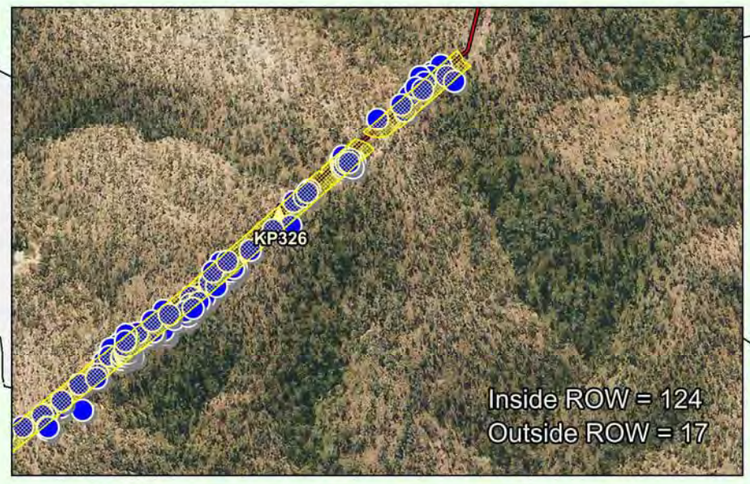

KP321
KP322
KP320
KP321
Inside ROW = 19
Outside ROW = 14
KP320
Inside ROW = 4
Outside ROW = 8
KP323
Inside ROW = 21
Outside ROW = 16
GLNG Gas Transmission Pipeline (A8 Revision)
Watercourse
Protected Area
Cycad Megacarpa
Cycad Megacarpa Habitat inside ROW
High Value Regrowth Vegetation
Endangered Regional Ecosystem
Of Concern Regional Ecosystem
Least Concern Regional Ecosystem
Regional Ecosystem Mapping
Endangered - Dominant
Endangered - Sub-Dominant
Of Concern - Dominant
Of Concern - Sub-Dominant
Least Concern
Santos
GLNG Project
GLNG Gas Transmission Pipeline
Cycas Megacarpa Habitat
KP319.5 to KP322.5
100m 0 100 200m
GLNG Doc No: 3381-40-0305-003_0
Date: 1 Feb 2013 File No. GTP259 Sheet 3 of 7
GDA











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GLNG Gas Transmission Pipeline (A8 Revision)
Watercourse
Protected Area
Cycad Megacarpa
Cycad Megacarpa Habitat inside ROW

High Value Regrowth Vegetation
- Endangered Regional Ecosystem
- Of Concern Regional Ecosystem
- Least Concern Regional Ecosystem

Regional Ecosystem Mapping
- Endangered - Dominant
- Endangered - Sub-Dominant
- Of Concern - Dominant
- Of Concern - Sub-Dominant
- Least Concern

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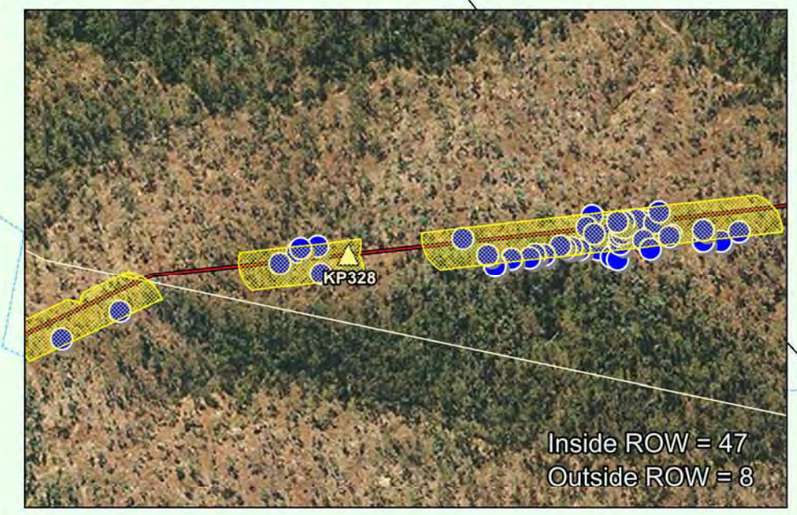
GLNG Gas Transmission Pipeline
Cycas Megacarpa Habitat
KP323 to KP326.5

150m 0 150 300m

GLNG Doc No: 3381-40-0305-004_0
Date: 1 Feb 2013 File No. GTP259 Sheet 4 of 7



N

KP332

KP331

KP330

KP329

KP328

KP327

7RP843126

8RP843126

4SP199374

GLNG Gas Transmission Pipeline (A8 Revision)

Watercourse

Protected Area

Cycad Megacarpa

Cycad Megacarpa Habitat inside ROW

High Value Regrowth Vegetation

Endangered Regional Ecosystem

Of Concern Regional Ecosystem

Least Concern Regional Ecosystem

Regional Ecosystem Mapping

Endangered - Dominant

Endangered - Sub-Dominant

Of Concern - Dominant

Of Concern - Sub-Dominant

Least Concern

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GLNG Gas Transmission Pipeline

Cycas Megacarpa Habitat

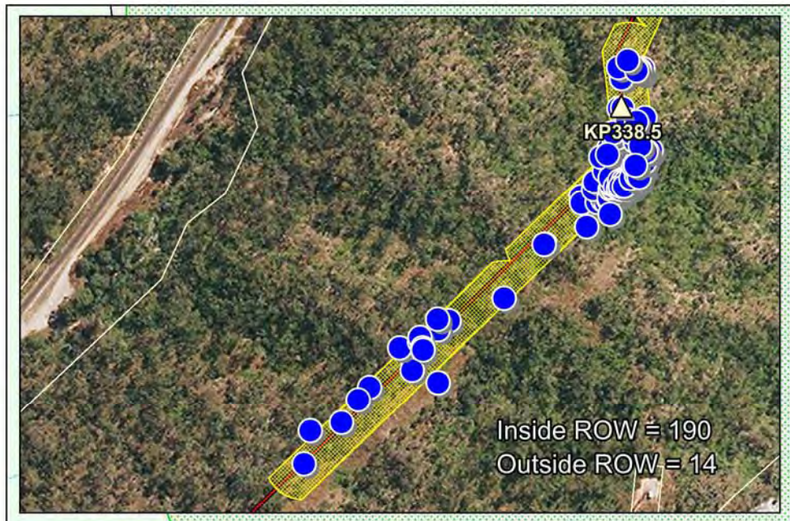
KP326.5 to KP333

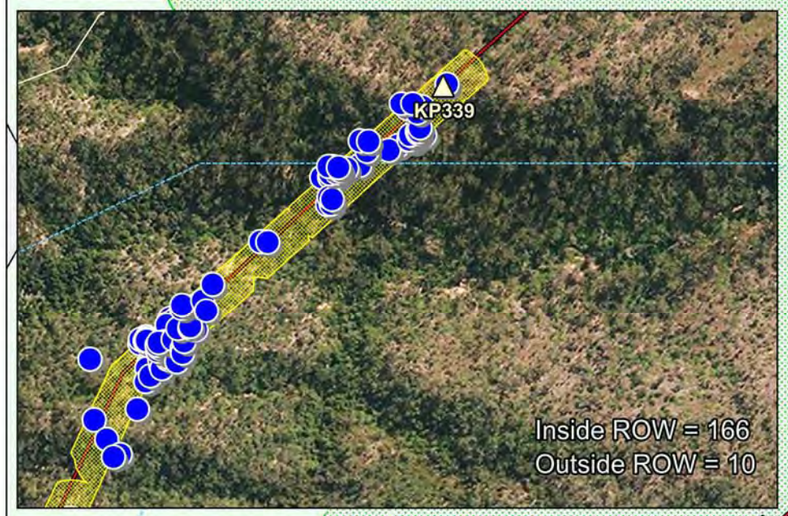
250m 0 250 500m

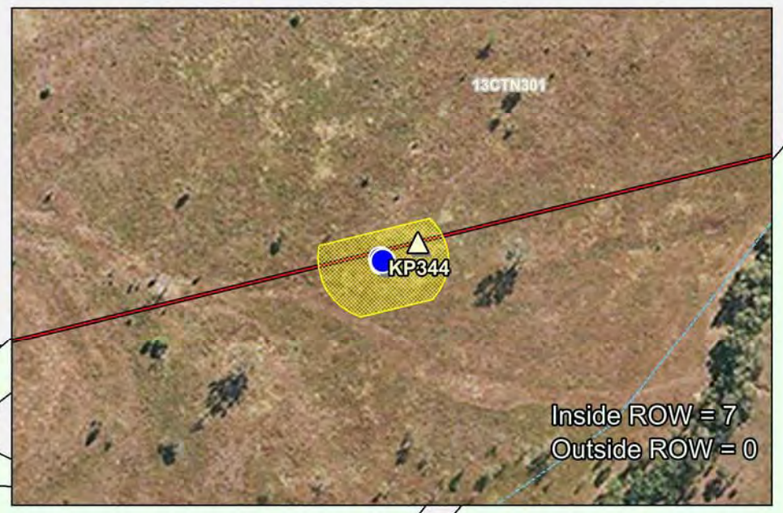
GLNG Doc No: 3381-40-0305-005_0

Date: 1 Feb 2013 File No. GTP259 Sheet 5 of 7

GDA







KP344
KP343.5
KP343
KP342.5
KP342
KP341.5
KP341
KP340.5
KP340
KP339.5
KP339
KP338.5
KP338

GLNG Gas Transmission Pipeline (A8 Revision)
Watercourse
Protected Area
Cycad Megacarpa
Cycad Megacarpa Habitat inside ROW

High Value Regrowth Vegetation
- Endangered Regional Ecosystem
- Of Concern Regional Ecosystem
- Least Concern Regional Ecosystem

Regional Ecosystem Mapping
- Endangered - Dominant
- Endangered - Sub-Dominant
- Of Concern - Dominant
- Of Concern - Sub-Dominant
- Least Concern

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GLNG Gas Transmission Pipeline

Cycas Megacarpa Habitat Overview

KP338 to KP344

500m 0 500m 1 Km 1.5 Km

GLNG Doc No: 3381-40-0305-006_0
Date: 1 Feb 2013 File No. GTP259 Sheet 6 of 7

KP399.5

KP399

GLNG Gas Transmission Pipeline
(A8 Revision)
Watercourse
Protected Area
Cycad Megacarpa
Cycad Megacarpa Habitat
inside ROW
High Value Regrowth Vegetation
Endangered Regional Ecosystem
Of Concern Regional Ecosystem
Least Concern Regional Ecosystem
Regional Ecosystem Mapping
Endangered - Dominant
Endangered - Sub-Dominant
Of Concern - Dominant
Of Concern - Sub-Dominant
Least Concern

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GLNG Gas Transmission Pipeline
Cycas Megacarpa Habitat Overview
KP 400
500m 0 500m 1 Km 1.5 Km
GLNG Doc No: 3381-40-0305-007_0
Date: 1 Feb 2013 File No. GTP259 Sheet 7 of 7

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Appendix 2 – Population structure of *Cycas megacarpa* along the ROW

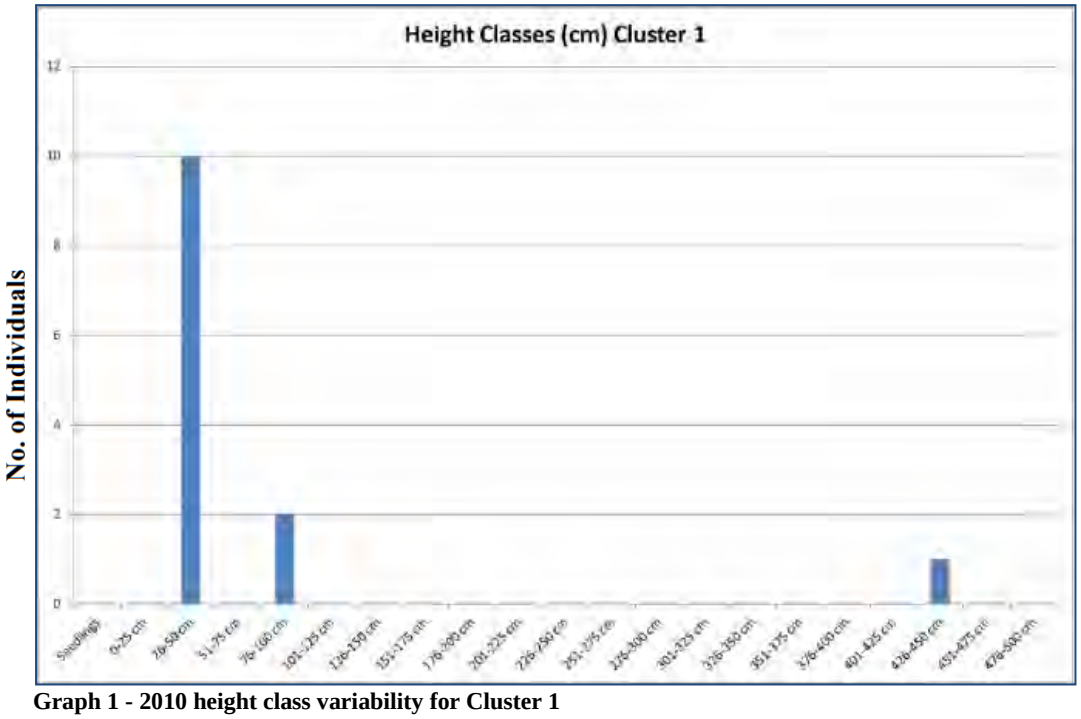
Callide Range Population

Direct count surveys for the Callide Range population(s) were completed in April 2010. Based on a 30m wide ROW there were approximately 488 individuals across five clusters within the direct disturbance footprint between KP314 to KP329.

Cluster 1 is located between KP314 and KP315 in the Callide Timber Reserve and occurs on what appears to be colluvial flats within RE11.10.1. As shown in Graph 1, individuals within this cluster fell into three height classes (26-50cm, 76-100cm and 426-450cm). There are no individuals outside the GTP ROW in this area and based on its small size and lack of recruitment (no seedlings or juveniles), the medium to long term viability of this population undisturbed is considered to be low.

Based on topography, drainage lines and the age of some individuals present, it is plausible that this cluster may have originated from a population(s) on the southern side of the Dawson Highway (on the north faces slopes). No population data is currently available for this area and field surveys would be required to confirm the presence/absence of a population(s) there.

On the northern side of the Dawson Highway, there appears to be no connectivity to other clusters/populations. Within the GTP ROW, the closest cluster located is east of KP317 (approximately 3km away) and outside the ROW a cluster has been located approximately 600m north of KP316 (approximately 2km NE of cluster 1).

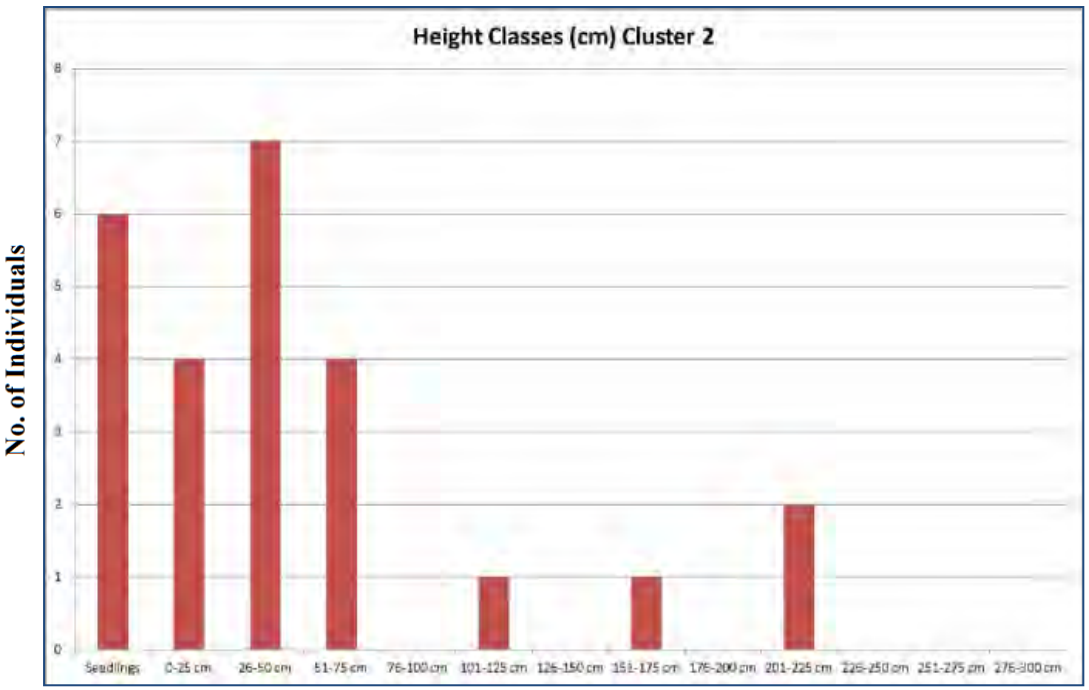


Graph 1 - 2010 height class variability for Cluster 1

Cluster 2 is located on private property between KP317 and KP318. This cluster occurs within RE11.11.4 on a steep, rocky, NE facing footslope above a drainage line. As shown in Graph 2, seven height classes were recorded for this cluster with at least 30% of individuals considered to be of reproductive age (>50cm in height aboveground).

The total size and extent of this cluster is not currently known, however random meander surveys within a 1.5km radius indicate the population stretches from drainage lines and west facing slopes south of the GTP ROW to at least the northern and eastern facing slopes and drainage lines approximately 1.6km N/NW of cluster 2 (in the GTP ROW). The approximate size of this population is considered >500 individuals and is likely to form part of Population 14.

The population in which this cluster occurs is considered to form part of Population 14 which is one of nine currently known significant and viable populations[33].



Graph 2 - 2010 height class variability for Cluster 2

Cluster 3 is located between KP320 and KP321.25 within RE11.11.15/11.11.4. Individuals within this cluster were observed on west and south facing upper and mid slopes as well within the sandy bed of an unnamed ephemeral creek (tributary of Collards Creek). Within the GTP ROW, this cluster contains individuals across 12 height classes (smallest being seedlings to tallest at approximately 451-475cm in height) and as shown in Graph 3, at least 40% of these individuals are of reproductive capacity with two males and two females positively identified during the 2010 survey period.

[33] The size of a significant and viable population for Cycads in the long term is considered to be a minimum of 3500-4500 individuals containing a variety of height classes, in particular >30% of individuals <25cm (Forster and Holland 2007).

The total size and extent of this cluster is not currently known, however the individuals and clusters have been located in the following nearby locations:

- As occasional individuals 450m and 1.2km upstream of those located within the unnamed creek.
- As both occasional individuals and small clusters approximately 760m south along nearby ridgelines.
- As Cluster 3 on mid and lower east facing slopes approximately 800m east of Cluster 2.

The population in which this cluster occurs is considered to form part of Population 14 which is one of nine currently known significant and viable populations[34].

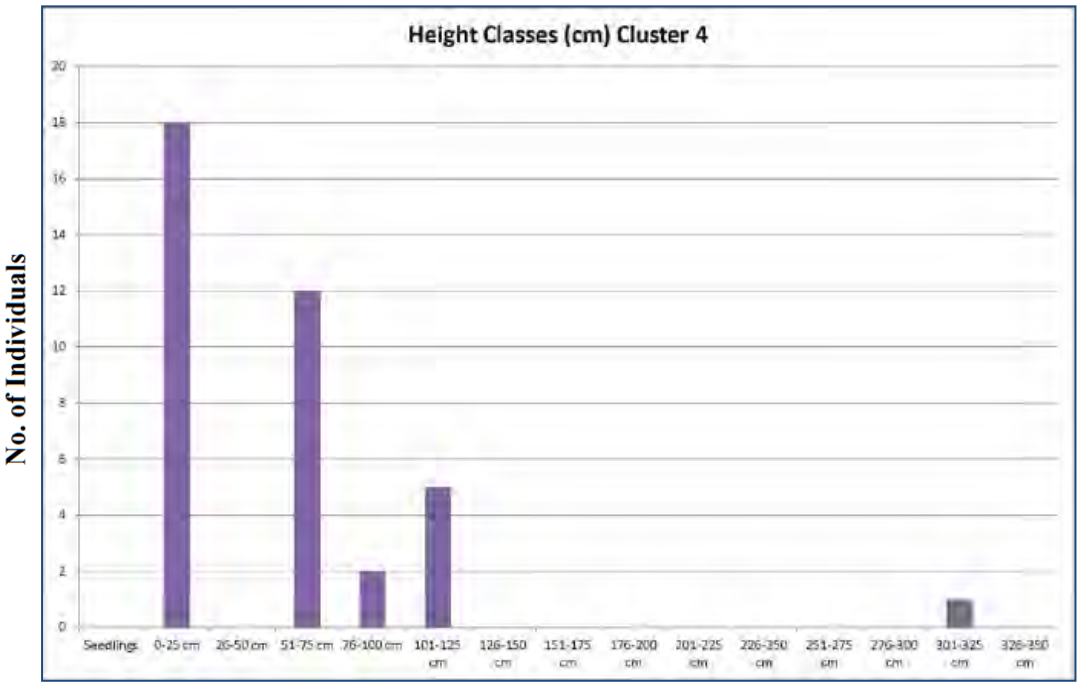
Graph 3 - 2010 height class variability for Cluster 3

Cluster 4 is located between KP322 and KP322.50 within RE11.11.15/11.11.4. Individuals within this cluster were observed on east and south facing mid and lower slopes.

As shown in Graph 4, five height classes were recorded for this cluster with 48% of individuals less than 25cm tall. The total size and extent of this cluster is not currently known, however opportunistic observations outside the GTP ROW have located individuals likely to form part of this cluster on lower slopes up to 450m south of the GTP. Based on the findings of previous survey effort, it is also considered highly likely that Cycads will be present on slopes and ridgelines immediately east and north of this cluster.

[34] The size of a significant and viable population for Cycads in the long term is considered to be a minimum of 3500-4500 individuals containing a variety of height classes, in particular >30% of individuals <25cm (Forster and Holland 2007).

As noted with Cluster 3, the population in which this cluster occurs is considered to be Population 14.

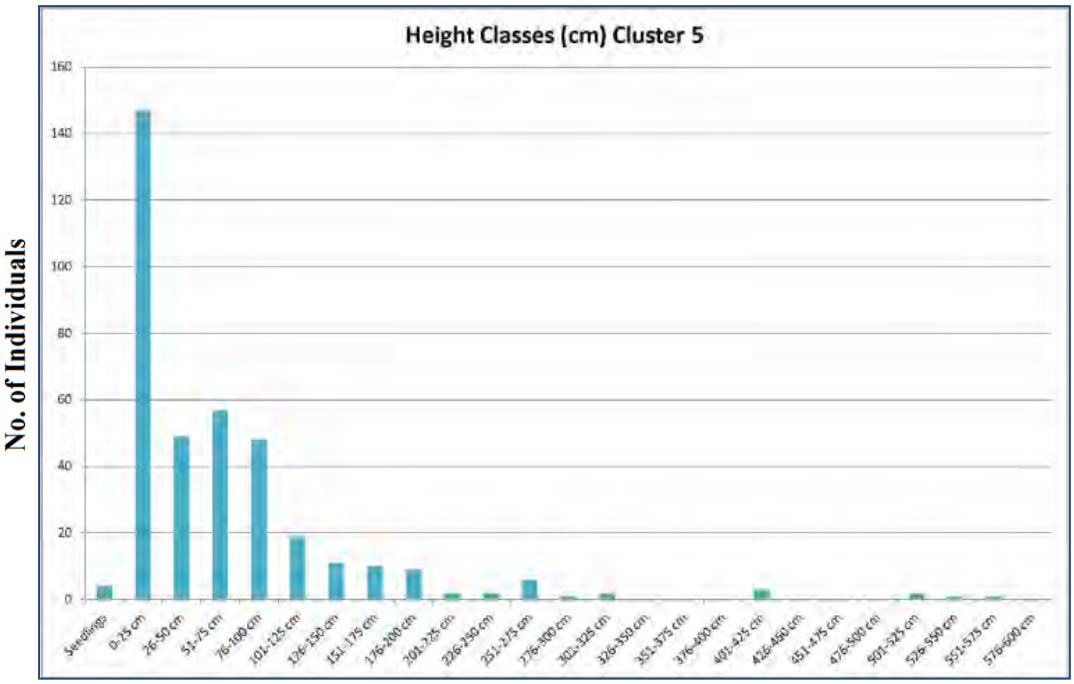


Graph 4 - 2010 height class variability for Cluster 4

Cluster 5 is located between KP323 and KP328 within RE11.11.15/11.11.4. Individuals within this cluster were observed in a variety of locations, including ephemeral creek beds, foot, mid and upper slopes as well as along ridgelines. In this area, aspect was not considered to be a defining factor, however due to current land use (i.e. grazing), Cycads, particularly those greater than 2m, were generally confined to steeper slopes not easily reached and the edges of ridgelines adjacent cleared firebreaks and fences.

As shown in Graph 5, 18 height classes were recorded for this cluster with approximately 40% of individuals less than 25cm tall and at least 33% of individuals considered being at reproductive capacity[35]. The total size and extent of this cluster is not currently known however this cluster forms part of Population 14 which is predicted to be greater than 14,000 individuals in size. Additionally, aerial transects as well as opportunistic observations outside the GTP ROW predict this population to extend north throughout the Callide Range and potentially link with Population 8 in the Don River State Forest (a significant and viable population). Southwards, this population is considered likely to link with Population 15 on the southern side of the Dawson Highway.

[35] For this purposes of this Plan reproductive age is considered to be 50cm in height or greater. There is currently no documented evidence of viable seed being produced below this height.



Graph 5 - 2010 height class variability for Cluster 5

Calliope Range Population

From previous surveys conducted in this area and a full desktop analysis it is predicted that for this section of the GTP ROW it will impact on Cycads present within Population11[36]. During 2008, Cycad surveys were undertaken in the Calliope Range to determine the approximate size of the population to be impacted by the Department of Transport and Main Roads (DTMR) Calliope Range Deviation Project (refer Appendix 3).

The survey findings located approximately 2,250 Cycads across 176ha[37] of mapped Essential Habitat (Connell Wagner 2008). Of the 2,250 Cycads surveyed approximately 73% of individuals were less than 50cm tall (majority less than 25cm tall) and 27% considered to be at reproductive age (51cm to 700cm).

Based on these findings, the total mapped Essential Habitat area is predicted to contain approximately 4,368 individuals with an average of 13 Cycads per hectare (Connell Wagner 2008). Further ecological studies targeting the presence/absence of this species were undertaken for GLNG in 2011.
The key findings of these surveys indicate:

- The size of the population to be greater than 8,000 individuals.
- It extends north and west of the mapped Essential Habitat area.
- It links with Population 8 in the Don River State Forest.
- It potentially links with Population 14 in the Callide Range.

[36] Populations 11 and 12 are present within the Calliope Range Essential Habitat area for this species. However based on the findings of the 2008 survey, these populations are considered to be one population.
[37] Total mapped Essential Habitat area equals 336ha

Populations 8 and 14 are considered to be significant and viable populations and collectively (8, 11 and 14) are predicted to exceed 137,000 individuals.

Larcom Range Population

Direct count surveys for the Larcom Range section of the GTP ROW were undertaken during preclearance tagging. Based on the Rev C2 alignment,13 Cycads are present within the GTP 40m ROW disturbance footprint. These Cycads are located within an area currently mapped as SEVT and in an area of Eucalypt and Acacia regrowth. Due to the presence of a listed threatened species, the GTP ROW has been reduced from a width of 40m to 30m allowing the project to avoid impacting all but 4 individuals.

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APPENDIX 3 – Calliope Range Deviation Project, *Cycas megacarpa* Mapping

Calliope Ranges Deviation

Queensland Government
Department of Main Roads

DAWSON HIGHWAY

Source: Running Creek Catchment Boundary and Grid, Department of Main Roads, November 2008, Transect Grid, Connell Wagner and Department of Main Roads, 2008.

N

0 750m

Reference Scale: 1:15 000

LEGEND

- Cycad Observed
- No Cycad Observed
- Running Creek Catchment
- Drainage
- Proposed Diversion Drain
- Proposed Road Alignment (Nov 2008)
- Rail

Findings of Field Investigations Targeting Cycas Megacarpa

Figure 6

P:\CIV\36001003 - Preliminary Design\GIS\Calliope_031.WOR BY: SLG Date: 19/12/08 Version 1

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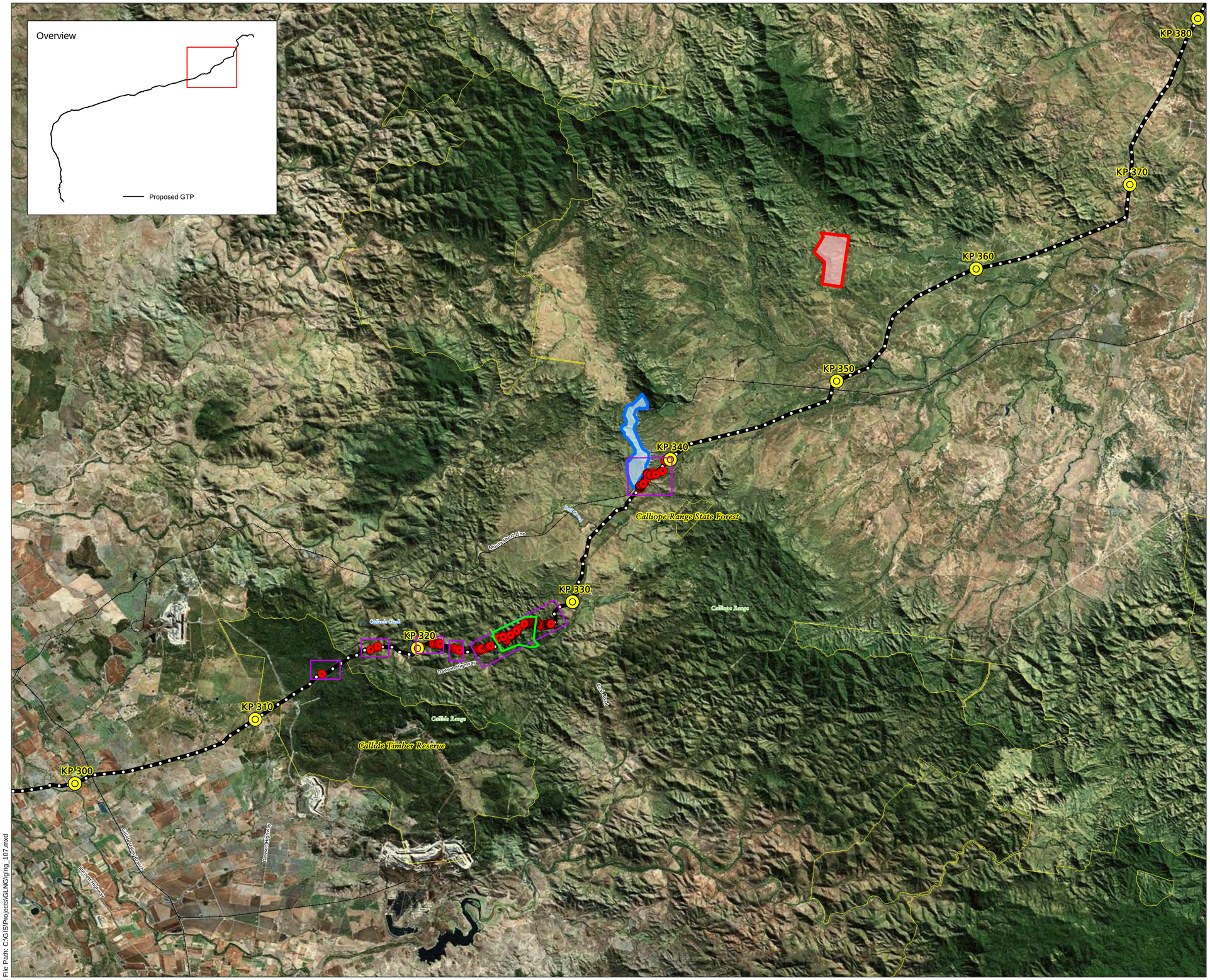
APPENDIX 4 – Mapping Showing "Red Shirt" Recipient and Offset Site



Ecologica consulting

LNG

GLNG Gas Transmission Pipeline Corridor

- Proposed Gas Transmission Pipeline (GTP)
- Kilometre Post Distance Marker (KP)
- Proposed Permanent Recipient Site
- Proposed Temporary Storage Site
- Cycas Megacarpa Cluster
- *Cycad Megacarpa*
- Protected Area
- Rail
- Proposed Secondary Recipient Site

Source:
Gas Transmission Pipeline (GTP): EMP Rev C2, Santos, Jan 2011.
Cycas Megacarpa: Ecologica Consulting, GLNG, 2012.
Cadastre: DERM, Nov 2011.
Protected Area: DERM, Feb 2012.
Aerial: BING, April 2012.

File Path: C:\GIS\Projects\GLNG\glng_107.mxd

Created by: Sarah Glover
Date: 25/04/2012
Version: 1

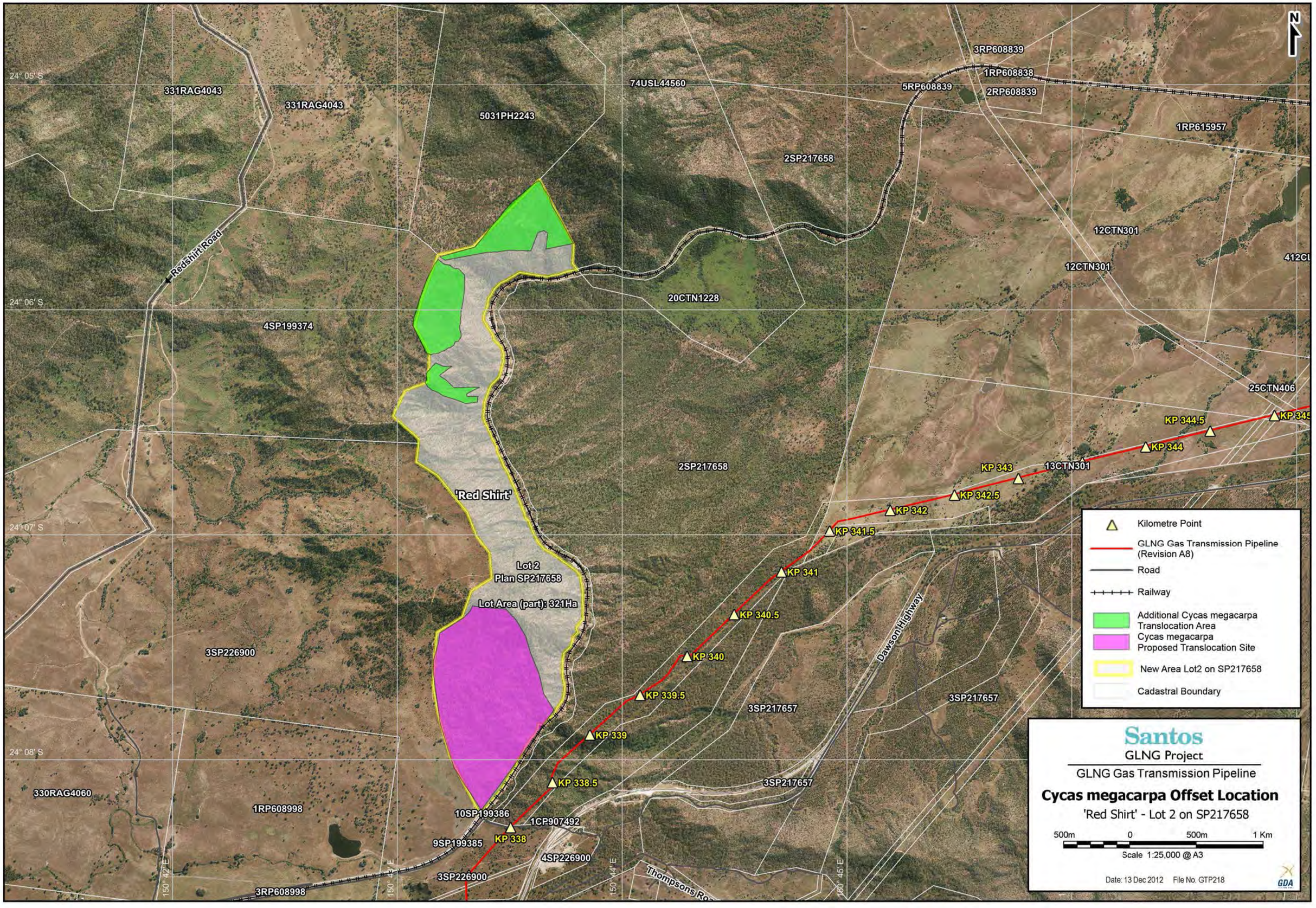
N

A1 scale 1:106,905

0 1.5 3 4.5 6 7.5 Kilometres

Coordinate System: GCS GDA 1994
Datum: GDA 1994

Proposed Cycad Recipient Site (Temporary and Permanent)


24° 05' S
24° 06' S
24° 07' S
24° 08' S
150° 42' E
150° 43' E
150° 44' E
150° 45' E
331RAG4043
331RAG4043
5031PH2243
74USL44560
3RP608839
1RP608838
5RP608839
2RP608839
1RP615957
2SP217658
12CTN301
12CTN301
412CL
20CTN1228
4SP199374
25CTN406
KP 344.5
KP 345
KP 344
KP 343
13CTN301
KP 342.5
KP 342
KP 341.5
KP 341
KP 340.5
KP 340
KP 339.5
KP 339
KP 338.5
KP 338
Redshirt Road
2SP217658
'Red Shirt'
Lot 2
Plan SP217658
Lot Area (part): 321Ha
3SP226900
Dawson Highway
3SP217657
3SP217657
3SP217657
330RAG4060
1RP608998
10SP199386
1CP907492
9SP199385
4SP226900
3SP226900
3RP608998
Thompsons Ro
Kilometre Point
GLNG Gas Transmission Pipeline (Revision A8)
Road
Railway
Additional Cycas megacarpa Translocation Area
Cycas megacarpa Proposed Translocation Site
New Area Lot2 on SP217658
Cadastral Boundary
Santos
GLNG Project
GLNG Gas Transmission Pipeline
Cycas megacarpa Offset Location
'Red Shirt' - Lot 2 on SP217658
500m 0 500m 1 Km
Scale 1:25,000 @ A3
Date: 13 Dec 2012 File No. GTP218
GDA

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APPENDIX 5 – Suitably Quality Cycad Specialists

The current list of contractors either engaged or in detailed discussions with GLNG is as follows:

- Mr. Joe Adair (GLNG representative - Principal Project Ecologist). Mr Adair will provide program management and supervision of the implementation of the Cycad Management Plan including assurance that all assessment, monitoring and reporting requirements are met, including any necessary updates to the Cycad Management Plan.
- Mr. Brent Braddick - Propagation, maintenance and management specialist (water, pest and general horticultural) with appropriate Cycad experience. Seed collection, propagation and management of seedlings and the associated nursery as well as post translocation management of the Cycads will be managed by Brent Braddick of Keepit Native Nursery. Keep it Native Nursery has an approved Authorisation to Propagate Permit (WIPQ09746111) to collect seed for this purpose issued by the Queensland Department of Environment and Resource Management.
- Dr Paul Forster (DEHP representative – Queensland Herbarium) - Cycad specialist (advisory). Dr Forster will provide ongoing expert advice and inputs regarding the taxonomy and biology of the *Cycas megacarpa*.
- Dr Alison Shapcott, University of Sunshine Coast (USC) - Conservation geneticist with appropriate translocation experience. Dr Shapcott will supervise the genetics research undertaken as a result of needing to move multiple clusters/populations together and provide input into the planting layout design for the permanent recipient site.
- Mr Trevor Mylrea (Mylrea Plant Care) – Mr Mylrea is suitably experienced in cycad care and will be responsible for the care of the Cycads while in the temporary storage facility.
- Mr Russel Clark (Ace of Spades) Cycad transplant specialist – Mr Clark will be responsible for the translocating of Cycads from their in-situ location of the ROW to their permanent recipient site.
- Mr Luke Jones (Perfect Earth) Cycad transplant specialist – Mr Jones will be responsible for the translocating of Cycads from their in-situ location of the ROW to their permanent recipient site.

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APPENDIX 6 - Report of Cycas megacarpa Offset Site Assessment using Ecological Equivalence Methodology

aurecon

Project: Santos GLNG Project – Gas Transmission Pipeline

BioCondition and Ecological Equivalence Assessment Report – Proposed Recipient Sites for Cycas megacarpa

Reference: 232072

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1 Introduction

1.1 Project overview

GLNG Operations, a joint venture between Santos GLNG Pty Ltd (Santos), PAPL (Downstream) Pty Ltd (PETRONAS), Total GLNG Australia (TOTAL) and KGLNG Liquefaction Pty Ltd (KOGAS) propose to construct a high pressure Gas Transmission Pipeline (GTP) to transport coal seam gas (CSG) from the CSG fields at Roma and Fairview to a liquefied natural gas (LNG) facility on Curtis Island. The GTP forms one component of the Gladstone LNG (GLNG) Project (the Project), which includes:

- Exploration and production of CSG in the Surat and Bowen Basin gas fields
- Construction and operation of an approximately 420 km GTP from the CSG fields in Roma and Fairview to the LNG Facility on Curtis Island (Santos GLNG GTP)
- Construction and operation of a gas liquefaction and export facility on Curtis Island and associated infrastructure

On 16 July 2007, the Queensland Coordinator-General declared the Project to be a 'significant project' for which an environmental impact statement (EIS) is required in accordance with Part 4 of the *State Development and Public Works Organisation Act 1971* (Qld) (SDPWO Act).

The Queensland Coordinator-General approved the GLNG project on 28 May 2010 under the SDPWO Act, becoming the first major coal seam gas to LNG project to receive its environmental approval from the Queensland Coordinator-General.

On 22 October 2010 the Australian Government Minister for Sustainability, Environment, Water, Population and Communities approved the pipeline component of the project under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act).

The approvals for the GTP require a broad range of environmental offsets for a diverse suite of environmental values that will be impacted. This is due to the extent of the geographic area that the GTP spans and the diversity of ecosystems and habitats to be impacted.

1.2 Purpose of the Ecological Equivalence assessment

A number of fauna species of local, State and/or National significance are known from, or are likely to utilise, habitats within and/or directly adjacent the GTP alignment. In addition, some of the vegetation communities and/or areas are also protected under local, State and/or National legislation.

An Environmental Offset proposal for the GLNG Project has been developed by Ecofund Qld on behalf of GLNG, outlining the environmental offset requirements for the GTP corridor under both Queensland and Australian Government offset policies. The extent of offset requirements is based on information collated from the Santos GLNG Project EIS, SEIS and detailed field surveys undertaken during 2010, 2011 and 2012.

Pre-clearance ecological surveys undertaken along the GTP alignment north-east of Biloela identified areas containing *Cycas megacarpa*, which is listed as 'endangered' under the provisions of both the EPBC Act and the *Nature Conservation Act 1992* (Qld) (NC Act). Under the NC Act, a vegetation clearing permit is required to be submitted to Department of Environment and Heritage Protection (DEHP) to clear any native flora species unless eligible for an exemption under the provisions of the NC Act. The EPBC Act approval for the Project includes conditions requiring the mitigation, management and offsetting of impacts to this species. Unavoidable impacts to matters of national environmental significance (MNES) associated with the construction of this section of the pipeline right of way (ROW) will be reported within the approved Significant Species Management Plan for KP312-420.

In order to determine the offset requirements, ecological investigations are required to determine the suitability of the proposed recipient sites by assessing their current ecological condition (ie BioCondition) and comparing this to the current ecological condition of the areas of impact.

The purpose of this assessment is to identify the relative ecological condition (ie BioCondition) of those areas within the GTP alignment that contain *Cycas megacarpa*, and the proposed recipient sites.

The ecological equivalence of these areas (ie the impact area compared to each of the proposed recipient sites) will then be assessed in accordance with the *Ecological Equivalence Methodology Guidelines* (Version 1) (DERM 2011) produced by the former Department of Environment and Resource Management (DERM).

GLNG is currently assessing two potential recipient sites for the translocation of *Cycas megacarpa* from within the GTP alignment, and will ultimately secure an offset of at least 166.8 ha of land within one of these sites to mitigate disturbance associated with the GTP construction. The potential recipient sites (known as 'Inverness' and 'Red Shirt'), GTP alignment and the location of identified *Cycas megacarpa* are shown on Figure 1.1.

It should be noted that for the purposes of the ecological equivalence assessment, the 'clearing area' refers to the impact area within the GTP ROW and the 'offset area' refers to the proposed recipient sites.

It is also important to note that the preferred offset site will be assessed by GLNG Operations for listed fauna and flora habitat values to in order to provide additional offsets as required by both Commonwealth and State Government requirements. GLNG Operations will report these additional fauna habitat offset values to Government in a separate report.

1.3 Locality and study area

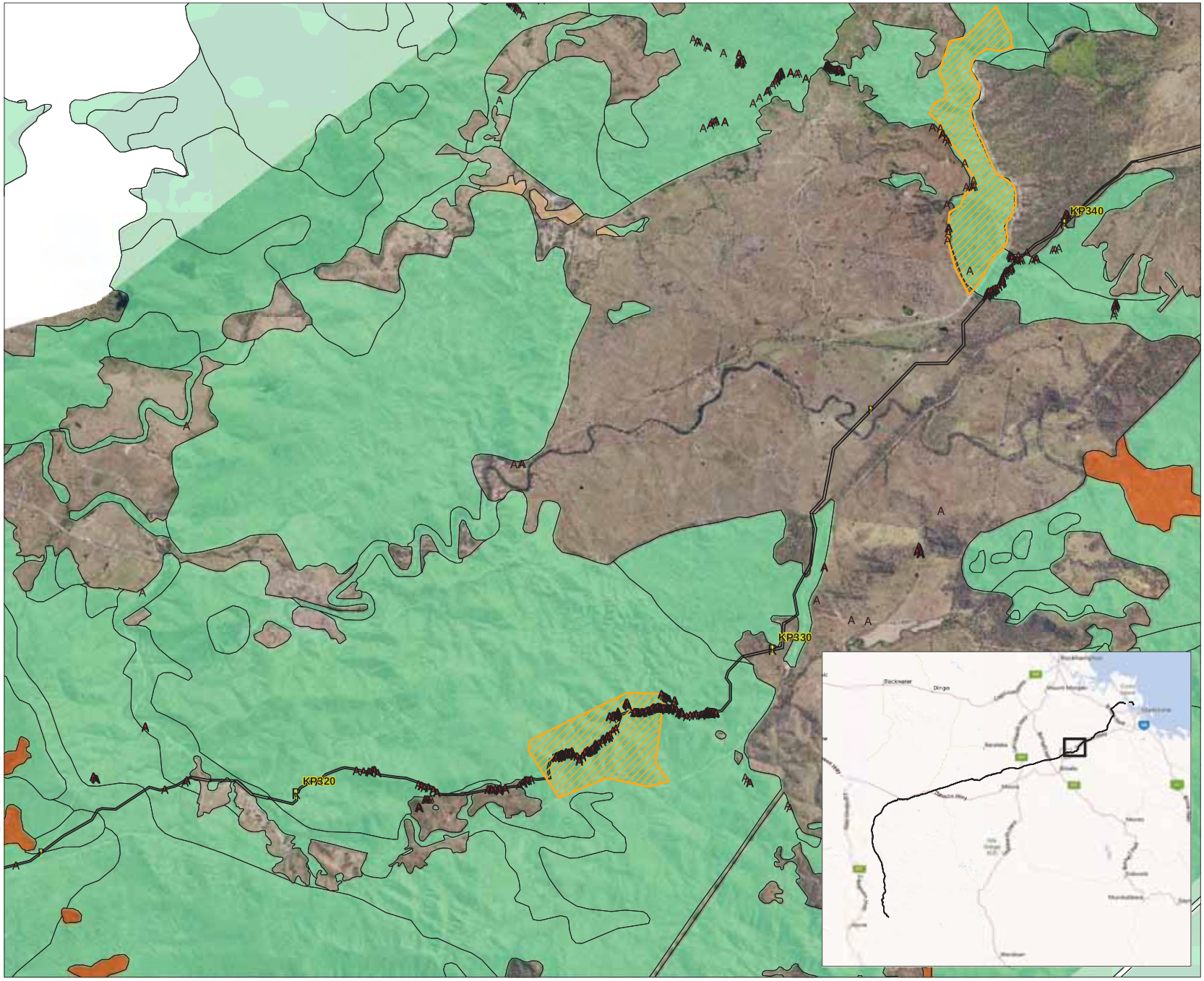
The study area for this assessment is located north-east of Billoela and is located across three separate properties:

- Lot 8 on RN1580
- Lot 11 on SP199386
- Lot 170 on FTY1847

A total of 18 sites were assessed within these properties, identified as:

- Impact assessment sites (Site 1 to Site 9)
- Recipient assessment sites (Rec 1 to Rec 9)

In addition, a number of sites were assessed to provide 'benchmarks' of Regional Ecosystems (REs) for use in the Ecological Equivalence Methodology, where published benchmarks were not available:



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GLNG Gas Transmission Pipeline Corridor

Kilometre Post Distance Marker (km)

- P 5km
- R 10km
- GLNG GTP ROW
- A Cycas Megacarpa
- Proposed Recipient Sites

Regional Ecosystem

- Endangered - Dominant
- Endangered - Sub-dominant
- Of Concern - Dominant
- Of Concern - Sub-dominant
- Least Concern

Source:
Gas Transmission Pipeline (GTP): Santos, Apr 2012.
Aerial: BING, Feb 2011.
Regional Ecosystems: Version 6.1, The State of Queensland (Department of Environment and Resource Management), Sept 2011.

Location of Proposed Recipient Sites, Proposed GTP Pipeline and Identified Cycas Megacarpa
Figure 1.1

Date: 26/09/2012 Version: a

Map by: RB P:\GIS\Projects\214208_Santos_EMP\SEMP_239.mxd 26/09/2012 09:45

A1 scale: 1:35,000

0 1 2 3km

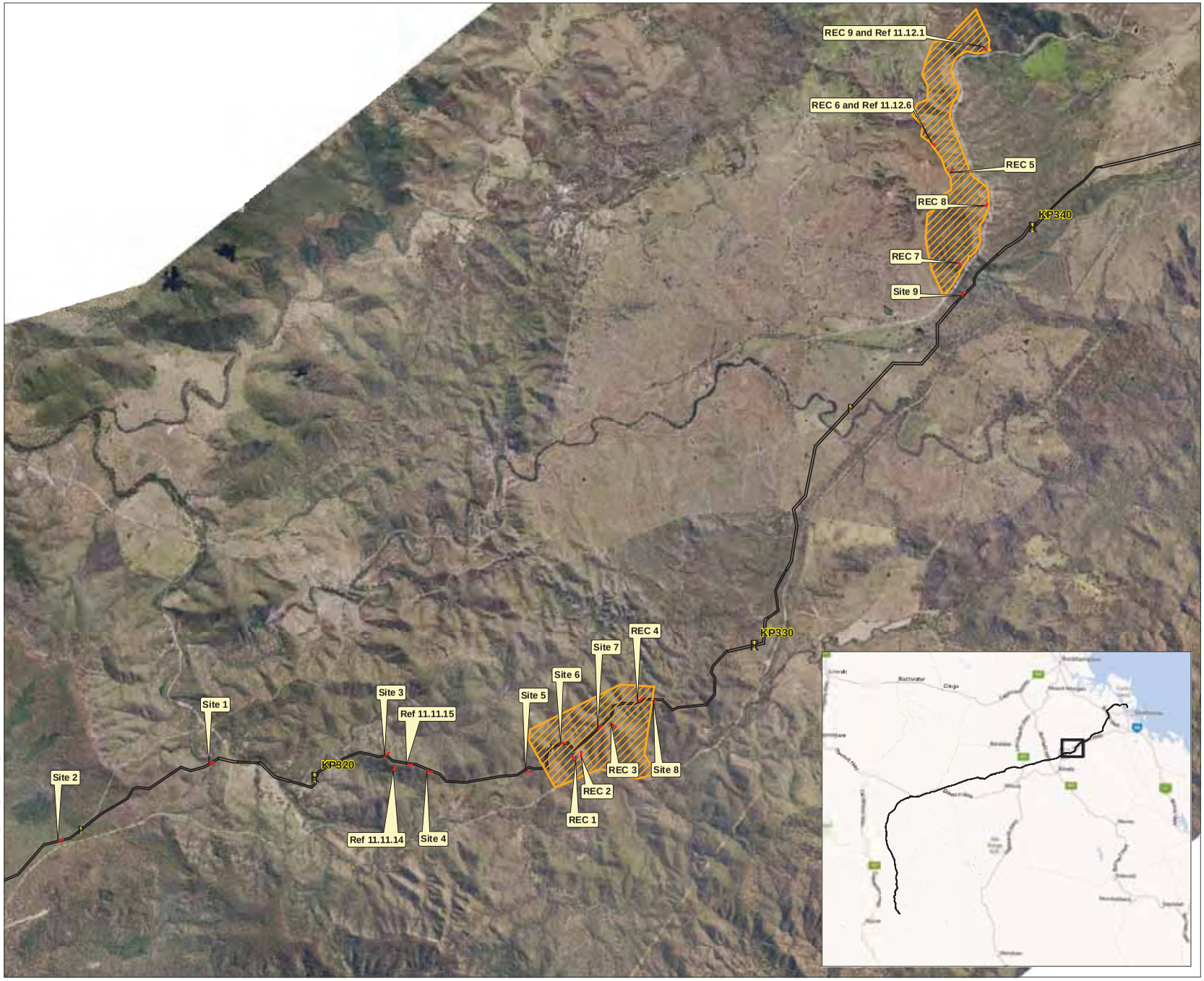
GLNG No: 232072-001-01

Coordinate system: GCS_GDA_1994

- Reference assessment sites (Ref 11.11.4, Ref 11.11.15, Ref 11.12.1, and Ref 11.12.6)

The location of these sites are provided in Figure 1.2 in relation to the GTP alignment and proposed recipient sites.

All assessment sites were located within ‘remnant vegetation’ as mapped under the provisions of the Queensland *Vegetation Management Act 1999* (VM Act). Assessments sites were located within a rural setting, and demonstrate varying levels of disturbance. A more detail description of these sites is provided in Section 2.



Map by: RB

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A1 scale: 1:35,000

0 1 2 3km

GLNG No: 232072-001-01

Coordinate system: GCS_GDA_1994

Santos GLNG Project

GLNG Gas Transmission Pipeline Corridor

Kilometre Post Distance Marker (km)

- P 5km
- R 10km
- GLNG GTP ROW
- Cycas megacarpa Biocondition Transects
- Proposed Recipient Sites

Source:
Gas Transmission Pipeline (GTP): Santos, Apr 2012.
Aerial: BING, Feb 2011.

Location of Survey Locations, Reference Sites, Proposed GTP Pipeline and Proposed Recipient Sites
Figure 1.2

Date: 26/09/2012

Version: a

2 Ecological Equivalence assessment

2.1 Introduction

Ecological Equivalence is an assessment of an area proposed to be cleared or impacted by development (the impact area) and an area being offered in exchange for the potential impact (the offset area) in order to allow comparison of the ecological attributes.

Areas are considered to be ecologically equivalent when the cumulative ecological values of the areas, in terms of their ecological condition and presence of special features, are determined to be comparable (ie within similar ranges).

The Ecological Equivalence Methodology (EEM) has been developed by the Department of Environment and Heritage Protection (DEHP) to provide a framework within which to undertake this assessment. EEM involves assessing both the impact area and the proposed offset area against two criteria:

- Ecological condition
- Special features

The indicators used to calculate Ecological Equivalence are provided in Table 2.1.

Table 2.1 Attributes used in the calculation of Ecological Equivalence

Ecological condition attributes	Special features attributes (identified from DEHP's Queensland Biodiversity and vegetation offsets special features map layer)
Recruitment of woody perennial species	Centres of endemism
Native plant species richness	Wildlife refugia
Tree canopy height	Disjunct populations
Tree canopy cover	Taxa at limits of geographic range
Shrub canopy cover	High species richness
Native perennial grass cover	Relictual populations
Organic litter	Regional ecosystems with distinct variation in species associated with geomorphic and other environmental variables
Large trees	Artificial water body of ecological significance
Coarse woody debris	High density hollow-bearing trees
Weed cover	Breeding or roosting areas used by significant numbers of individuals
Size of patch (fragmented landscapes)	Ecological corridor

Ecological condition attributes	Special features attributes (identified from DEHP's Queensland Biodiversity and vegetation offsets special features map layer)
Connectivity (fragmented landscapes)	Priority species within the bioregion
Context (fragmented landscapes)	Significance of patch within one kilometre buffer
Distance from water (intact landscapes) *(not applicable to Bioregion 11)*	Protected area estate buffer

The ecological condition indicators have been adapted from DEHP's *BioCondition: A Condition Assessment Framework for Terrestrial Biodiversity in Queensland Assessment Manual* (Version 2.1) (Eyre *et al.* 2011), which provides the methodology to assess the ecological condition of sites using a defined benchmark.

However, the EEM goes several steps further by incorporating the special features indicator and incorporating the size of the impact site and the recipient site into the overall rating of the assessment.

The special features indicator assessment is a GIS based assessment of the presence or absence of a special feature identified on the '*Queensland Biodiversity and Vegetation Offsets Special Features*' map layer on the impact area, distance of the proposed offset area to a special feature and the percentage of native woody vegetation between the offset area and the special feature.

The Ecological Equivalence is calculated and determined by comparing the overall ecological condition scores and overall special feature scores for the impact area and proposed offset area. In order for a proposed offset area to be considered viable, both its ecological condition and its special feature scores MUST exceed that of the proposed impact area.

2.2 Methodology

2.2.1 General field methodology

Assessment of the study area was led by Dr Chris Schell (Aurecon Senior Ecologist) who was assisted by Victoria O'Rourke (Aurecon Environmental Planner). The field assessment was undertaken over a five day period (10 to 14 April 2012).

Maps identifying environmental constraints (eg RE mapping, ESA mapping, location of identified *Cycas megacarpa*, etc) were taken into the field. In addition, high resolution aerial photography and the area of proposed disturbance were uploaded onto a handheld Garmin GPS unit (GPS map 78s) for navigation during field investigations. It should be noted that while efforts were made to ensure the GPS co-ordinates provided in this report are accurate, a margin of error approximately ±10 m is expected due to the limitations of the devices used and the recording environment.

2.2.2 Assessment site selection

Assessment sites were located to obtain a representative sample of all vegetation types within both the impact area and the proposed recipient area.

2.2.2.1 Impact sites

Nine impact assessment sites were assessed (Site 1 to Site 9), and were located on the following properties:

- Lot 8 on RN1580 (Site 1, Site 3 to Site 9)
- Lot 170 on FTY1847 (Site 2)

All impact assessment sites were located within the proposed GTP alignment and within areas mapped as 'Remnant Vegetation' as defined under the provisions of the *Vegetation Management Act 1999* (Qld) (VM Act). All impact assessment sites contained individual or groups of *Cycas megacarpa*. Photographic documentation of each of the impact assessment sites is located within Appendix A.

2.2.2.2 Recipient sites

The two potential recipient sites currently being assessed to determine their suitability to comply with the relevant approval conditions relating to the management of *Cycas megacarpa* are located within:

- Lot 8 on RN1580 (Inverness) – approximately 285 ha
- Lot 11 on SP199386 (Red Shirt) – approximately 321 ha

A total of four recipient assessment sites (ie Rec 1 to 4) were located within Inverness and five (ie Rec 5 to Rec 9) within Red Shirt. All recipient assessment sites were located within areas mapped as 'Remnant Vegetation' as defined under the provisions of the VM Act. All recipient assessment sites contained individual or groups of *Cycas megacarpa*. Photographic documentation of each of the recipient assessment sites is located within Appendix A.

2.2.2.3 Reference sites

As part of the EEM, impact and offset areas are to be compared to a 'benchmark' of the same RE type. Within the study area (ie impact areas and recipient sites as identified in Figures 1.1 and 1.2), five REs are present:

- RE 11.10.1
- RE 11.11.4
- RE 11.11.15
- RE 11.12.1
- RE 11.12.6

Of these REs, only one has a published 'benchmark' (ie RE 11.10.1). Therefore, in order to obtain the necessary data to perform the Ecological Equivalence assessment, four reference sites were assessed (ie Ref 11.11.4, Ref 11.11.15, Ref 11.12.1 and Ref 11.12.6).

Published 'benchmarks' are based on a combination of qualitative and quantitative information specific to a single RE type. 'Benchmarks' are used to compare site-based data from 'impact sites' or 'recipient sites' to derive a specific site based 'ecological condition' score. The use of benchmarks that are specific to an RE type (specific 'benchmark' will change depending on the RE type of the assessment area) facilitates the comparison of different RE types to assess the 'ecological condition' regardless of RE code. In the absence of published 'benchmarks', it is a requirement that local 'reference sites' are established. These reference sites are specific to a particular RE type, and like published 'benchmarks' are used to derive a site based 'ecological condition' score.

Reference sites for REs 11.11.4 and 11.11.15 were located within Lot 8 on RN1580. Reference sites for REs 11.12.1 and 11.12.6 were located within Lot 11 on SP119386 and also doubled as recipient assessment sites. Although these areas were located within the recipient location, vegetation

contained within these areas displayed structural and biological features that were deemed to be conducive to a local benchmark for the relevant RE (ie. well defined canopy, sub-canopy, shrub and ground stratum with little to no exotic species, displaying a wide range of endemic flora characteristic of the pre-disturbance RE type). Photographic documentation of each of the reference sites is located within Appendix A.

2.2.3 Summary of assessment sites

The current DEHP certified RE mapping for the assessment sites is presented in Figure 1.1. Table 2.2 identifies the location of each assessment site (GPS Coordinate taken at the midpoint of the assessment transect), the relevant RE type and whether a published benchmark/reference site was available.

Table 2.2 Location and RE Map code for each of the equivalence assessment sites

Assessment site	Current RE Mapping (DNRM)	VM Act Management status	Biodiversity status	Published reference site available	GPS coordinate (mid-point, WGS 84)
Site 1	11.11.4	Least Concern	No Concern at Present	No	-24.216746, 150.594803
Site 2	11.10.1	Least Concern	No Concern at Present	Yes	-24.230308, 150.567508
Site 3	11.11.15	Least Concern	No Concern at Present	No	-24.214682, 150.62575
Site 4	11.11.15	Least Concern	No Concern at Present	No	-24.217428, 150.633407
Site 5	11.11.15	Least Concern	No Concern at Present	No	-24.216988, 150.650918
Site 6	11.11.15	Least Concern	No Concern at Present	No	-24.212125, 150.657137
Site 7	11.11.15	Least Concern	No Concern at Present	No	-24.209469, 150.663585
Site 8	11.11.15	Least Concern	No Concern at Present	No	-24.204864, 150.673237
Site 9	11.12.6	Least Concern	No Concern at Present	No	-24.136914, 150.726285
Rec 1	11.11.4	Least Concern	No Concern at Present	No	-24.214524, 150.659072
Rec 2	11.11.15	Least Concern	No Concern at Present	No	-24.213816, 150.660406
Rec 3	11.11.4	Least Concern	No Concern at Present	No	-24.208969, 150.665966
Rec 4	11.11.15	Least Concern	No Concern at Present	No	-24.204794, 150.670664
Rec 5	11.12.1	Least Concern	No Concern at Present	No	-24.116697, 150.723736
Rec 6	11.12.6	Least Concern	No Concern at Present	No	-24.112547, 150.720153
Rec 7	11.12.6	Least Concern	No Concern at Present	No	-24.131905, 150.725471
Rec 8	11.12.6	Least Concern	No Concern at Present	No	-24.122463, 150.729875
Rec 9	11.12.1	Least Concern	No Concern at Present	No	-24.136914, 150.726285
Ref 11.11.4	11.11.4	Least Concern	No Concern at Present	N/A	-24.217108, 150.627049
Ref 11.11.15	11.11.15	Least Concern	No Concern at Present	N/A	-24.216403, 150.629938
Ref 11.12.1	11.12.1	Least Concern	No Concern at Present	N/A	-24.112547, 150.720153
Ref 11.12.6	11.12.6	Least Concern	No Concern at Present	N/A	-24.136914, 150.726285

2.2.4 Ecological condition assessment

Field-based indicators were obtained in accordance with the methodology presented in the *Ecological Equivalence Methodology Guideline* (Version 1) (DERM 2011).

In summary, this consisted of assessing the following components in the field:

- 100 x 50 m area – number of large trees, recruitment of native woody perennial species and an assessment of tree canopy height
- 100 m transect – assessment of tree canopy cover and native shrub canopy cover using the line intercept methodology
- 50 x 10 m sub-plot, centred from the 25 m point to the 75 m point along the transect, and encompassing 5 m either side of the transect – assessment of weed cover and native plant species richness
- 50 x 20 m sub-plot, centred from the 25 m point to the 75 m point along the transect, and encompassing 10 m either side of the transect – assessment of fallen woody material
- Five 1 x 1m sub-plots, starting at the 35 m point and located 10 m apart along the 100 m transect – assessment of native grass cover and organic litter (an average value is derived over the five sub-plots)

A schematic of the sampling design used at each sample plot is provided in Figure 2.1.

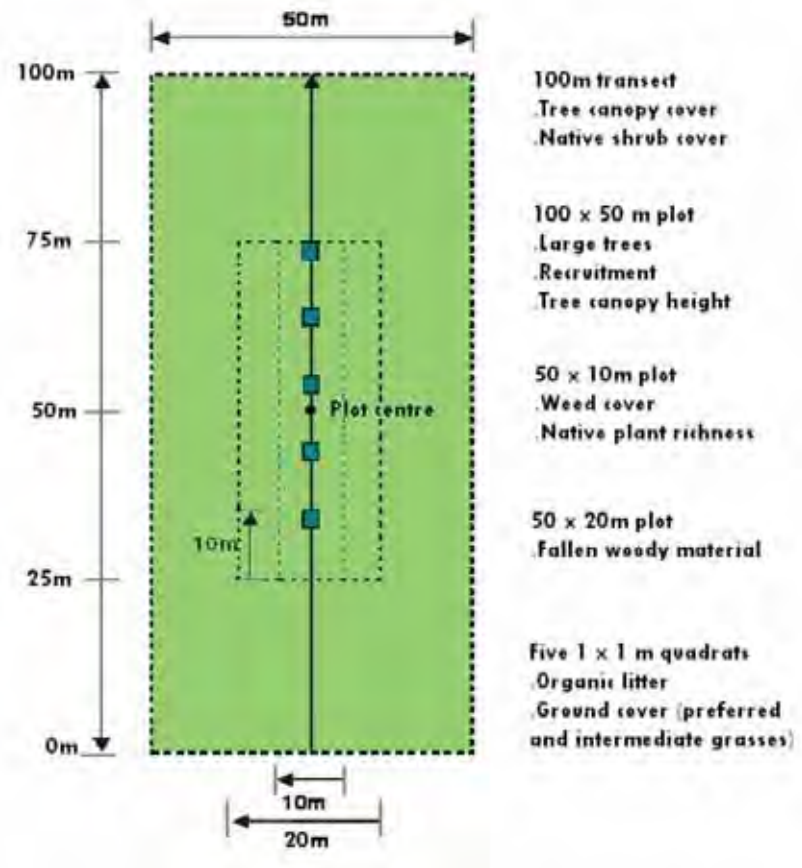

Figure 2.1 **Schematic representation of the sampling design at each sampling location (adapted from Eyre *et al* 2011)**

For REs where published reference sites (benchmarks) were not available (ie RE 11.11.4, RE 11.11.15, RE 11.12.1 and RE 11.11.6), ecological condition assessments were undertaken in specific

areas (ie reference sites) to provide benchmark sites for comparison. Reference sites were chosen based on their RE and condition and provided areas that were typical of the RE type and of exceptional ecological condition.

Ecological condition data from the impact sites (Sites 1 to 9) and recipient sites (Rec 1 to 9) were compared to the relevant published benchmark (RE 11.10.1) or sampled reference site (Ref 11.11.4, Ref 11.11.15, Ref 11.12.1 or Ref 11.12.6) to determine their relative ecological condition (from field based indicators) in accordance with the methodology presented in the *Ecological Equivalence Methodology* (Version 1) (DERM 2011).

GIS desktop analysis was undertaken to quantify the landscape attributes required for the impact areas and proposed offset areas (ie size of patch, connectivity and context). All areas assessed during this study were located in Bioregion 11 which is identified as 'fragmented landscapes'. Therefore, an analysis of the assessment areas' distance from water was not required.

Patch size is a measure of the area of vegetation being assessed and any connecting remnant vegetation or high value regrowth vegetation. Connectivity involves considering the connection of the site to adjacent remnant vegetation or high value regrowth vegetation. Context considers the amount of remnant vegetation and high value regrowth vegetation within a 1 km buffer around the site.

Following analysis of the field based attributes and the landscape attributes, the scores were added for each of the criteria and then multiplied by the physical size of each area. This number was then divided by 100 to yield an 'assessment unit ecological score'.

To calculate the overall ecological score, the scores of each assessment site within each assessment unit were added, that is:

- Impact assessment unit (Site 1 to Site 9)
- Inverness recipient assessment unit (Rec 1 to Rec 4)
- Red Shirt recipient assessment unit (Rec 5 to Rec 9).

2.2.5 Special features assessment

The 'special features' of each area are a measure of significant ecological features important at either a site or landscape level. These areas are generally based on expert opinion informed by a range of ecological datasets, species distribution records and regional ecosystem mapping. The special features indicator assessment is a GIS based assessment of the presence or absence of a special feature identified on the '*Queensland Biodiversity and Vegetation Offsets Special Features*' map layer which was obtained from DEHP.

All areas assessed in this study were located within mapped remnant vegetation and as such, assessment of 'adjacency', as defined by the EMM, was not required.

Assessment of the 14 special features indicators identified in Table 2.1 was undertaken in accordance with the methodology presented in the *Ecological Equivalence Methodology* (Version 1) (DERM 2011).

Following analysis of the special features, the scores for each feature were added for each of the criteria and then multiplied by physical size of each area. This number was then divided by 100 to yield an 'assessment unit special feature score'.

To calculate the overall special feature score, the scores of each assessment site within each assessment unit were added, that is:

- Impact assessment units (Site 1 to Site 9)
- Inverness Recipient units (Rec 1 to Rec 4)
- Red Shirt Recipient units (Rec 5 to Rec 9).

2.2.6 Ecological equivalence

Ecological Equivalence is determined by comparing the scores obtained for each area (ie the impact area and proposed recipient areas) from the ecological condition and special features assessments.

As stated in the EEM, in order for an offset area to be ecologically equivalent to the impact area, the offset area must obtain:

- An overall ecological condition score equal to or greater than the overall ecological condition score for the clearing (ie impact) areas
- An overall special features score equal to or greater than the overall special features score for the clearing (ie impact) areas
- A minimum score for the ecological condition indicators (1) recruitment of woody perennial species and (4) tree canopy cover

2.2.7 Assumptions for calculations

It has been assumed that each of the proposed recipient areas will be approximately 166 ha in size within either Inverness or Red Shirt. It has also been assumed that the impact area is limited to 30 m in width and is located in areas that contain *Cycas megacarpa* within the GLNG pipeline alignment. This area was determined by the direct presence of *Cycas megacarpa* within the pipeline alignment within the vicinity of each of the impact areas site investigations (ie Sites 1 to 9).

3 Results Ecological Equivalence assessment

3.1 General

Site based assessments of the impact areas (Sites 1 to 9) and the two proposed offset areas (Inverness (Rec 1 to Rec 4) and Red Shirt (Rec 5 to Rec 9)) were undertaken. In addition, field data for four reference sites (Ref 11.11.4, Ref 11.11.15, Ref 11.12.1 and Ref 11.12.6) was recorded in the absence of published benchmark information for these REs. All field and desktop assessment data for all impact and recipient assessment sites is provided in Appendix B and reference sites is provided in Appendix C.

3.2 Ecological condition assessment

The Ecological Equivalence field based and landscape attributes score sheets (used to score sites when assessed against the relevant benchmark/reference site) is provided in Appendix D. Cumulative ecological condition scoring sheets (ie used to calculate overall ecological condition for the impact/recipient sites) is provided in Appendix E.

3.3 Special features

The Ecological Equivalence special features indicator score sheets (used to score sites using the *Queensland Biodiversity and Vegetation Offsets Special Features* map layer) is provided in Appendix E.

3.4 Ecological Equivalence scores and calculations

Based on the calculations used to identify the overall ecological condition score and the overall special features score for the impact area and the two proposed recipient sites (Inverness and Red Shirt), a comparison of the Ecological Equivalence of these areas is presented in Table 3.1.

Generally, the proposed offset sites had a higher ecological condition score when compared to impact sites. The proposed recipient site Inverness scored a higher special features score when compared to the impact site, whereas the Red Shirt recipient site scored lower. A discussion of these findings is provided in Section 4.

Table 3.1 **Ecological Equivalence comparison of the clearing area against the proposed offset sites following correction for size**

Criterion	Impact area score	Recipient area score (Inverness)	Recipient area score (Red Shirt)
Ecological condition	8.25	123.05	116.08
Special features[1]	12.47	182.60	0.00

Table Note: Special Features attributes are identified from DEHP's Queensland Biodiversity and Vegetation Offsets Special Features GIS map layer. Refer to Section 4.2 for further discussion.

4 Analysis of findings

This section provides an analysis of the results of the EEC. Specifically, it provides comparison between the impact area associated with habitat for *Cycas megacarpa* and each of the proposed recipient areas (ie Inverness and Red Shirt) and discusses the underlying reasons for the observed EEM scores.

4.1 Criterion 1 – Ecological condition

This criterion measures a combination of indicators for an area and the relationship of those indicators to the surrounding landscape. The ecological condition criteria have been adapted from DEHP's BioCondition Methodology (Eyre *et al*. 2011), which is a condition assessment framework for terrestrial biodiversity in Queensland.

Analysis of data derived from site investigations (corrected using specific benchmarks or reference sites as well as accounting for the offset/impact area), indicates that both of the proposed recipient areas (Inverness and Red Shirt) are of greater ecological condition than the area of impact (refer Table 3.1). There are several factors that have contributed to this result, including:

- Size of the area
- Topographic position in landscape
- Vegetation structure (canopy height and cover)
- Extent of weed invasion

As part of the EEM calculations, the relative size of an area is considered in the determination of the ecological condition score. As the size of the impact area is relatively small when compared to both of the proposed recipient areas, it is understandable that the ecological condition score is greater for both of the proposed recipient areas when compared to area of impact (refer Table 3.1).

The topographic position of the assessment areas within the landscape is also likely to have influenced the ecological scores derived from the EEM. Generally, the GTP ROW (ie impact area) is located along ridgelines. These areas typically have a vegetation structure that generally deviates from the optimum community structure for the specific RE community in terms of height, cover and species diversity. When compared to areas assessed that were outside of the GTP ROW (ie recipient areas), impact areas were typically located at lower elevation than either of the proposed recipient areas before correcting for size (refer Table 4.1). In addition, weed invasion would have also influenced the ecological condition score. It should be noted that although the Red Shirt recipient area scored higher than the impact area, it scored lower than the Inverness recipient area (refer Table 4.1). This is likely to have resulted because of the extensive infestations of *Lantana camara* (Lantana) that grew throughout the Red Shirt recipient area.

Table 4.1 **Ecological condition score comparison of the clearing area against the proposed offset sites before correcting for size**

Site number	Impact area	Recipient area (Inverness)	Recipient area (Red Shirt)
1	67.0	77.5	63.0
2	43.5	75.5	74.0
3	66.0	75.0	71.5
4	66.5	68.5	66.5
5	60.5	-	75.0
6	63.5	-	-
7	69.0	-	-
8	59.0	-	-
9	58.5	-	-
Average	**61.5**	**74.1**	**70.0**

Notwithstanding the prevalence of *Lantana camara*, the ecological condition score of both of the proposed offset areas exceed that of the area of proposed impact.

4.2 Criterion 2 – Special features

The special features criterion identifies areas and values which are considered unique and ecologically significant for each of the State's bioregions. The special features indicators have been adapted from the spatial layers supporting DEHP's Biodiversity Planning Assessment (BPA) which is a GIS-based biodiversity supporting tool.

Analysis of data derived from site investigations which has been corrected for the size of the offset/impact area, indicates that only one of the proposed recipient areas (ie Inverness) has a special features score that is greater than that of the impact area (refer Table 3.1). This trend is also evident before the data is corrected for size (refer Table 4.2).

Table 4.2 **Special features score comparison of the clearing area against the proposed offset sites before correcting for size**

Site number	Impact area	Recipient area (Inverness)	Recipient area (Red Shirt)
1	140	130	0
2	100	130	0
3	130	130	0
4	130	130	0
5	130	-	0
6	130	-	-
7	130	-	-
8	130	-	-
9	0	-	-
Average	**113.3**	**130.0**	**0.0**

The special features score is indicative of an areas strategic position in the landscape as indicated on DEHP's Queensland Biodiversity and Vegetation Offsets Special Features map layer. This component

of the EEM is completely GIS based and the score relies solely upon the accuracy and completeness of the DEHP GIS layer.

The Queensland Biodiversity and Vegetation Offsets Special Features map layer has been derived from the Queensland Biodiversity Planning Assessment (BPA) mapping. Meta-data associated with the BPA indicates that the positional accuracy of the mapping is primarily dependent on the accuracy of the Herbarium RE mapping. As such, polygons have been mapped at a scale of 1:100,000 and therefore inaccuracies of up to 100m are likely.

As indicated by Table 4.2, the proposed Red Shirt recipient area had a special features score of 0. This indicates that the Red Shirt recipient site was not located within any area indicated on the Queensland Biodiversity and Vegetation Offsets Special Features map layer as containing:

- Centres of endemism
- Wildlife refugia
- Disjunct populations
- Taxa at limits of geographic range
- High species richness
- Relictual populations
- Regional ecosystems with distinct variation in species associated with geomorphic and other environmental variables
- Artificial water body of ecological significance
- High density hollow-bearing trees
- Breeding or roosting areas used by significant numbers of individuals
- Ecological corridor
- Priority species within the bioregion
- Significance of patch within one kilometre buffer
- Protected area estate buffer

Alternatively, the proposed GTP ROW impact area, and the proposed Inverness recipient area were located in a position that contained most of the GIS elements as indicated above (refer Table 4.2). This indicates that both the Inverness recipient area and the impact area are located within proximity to areas of greater strategic (in relation to ecological and locational characteristic) value when compared to the Red Shirt recipient area.

4.3 Fauna habitat values of the inverness site

As stated in the Ecological Equivalence Methodology (Version 1) (DERM 2011), in order for a proposed offset area to be considered viable, both its ecological condition and its special features scores must exceed that of the impact area. Accordingly, only the Inverness recipient area is considered to be a viable recipient location for translocation and establishment of *Cycas megacarpa* under the EEM. However, as identified in Section 4.1, site based ecological feature of the Red Shirt Recipient area exceed those of the area of proposed impact, and as such, Red Shirt cannot be ruled out as a potential offset location.

Field investigation validated the DEHP certified RE mapping for the Inverness and Red Shirt recipient locations. Two REs exist within the Inverness area, being RE 11.11.4 and 11.11.15, while two REs exist within the Red Shirt area, being RE 11.12.1 and 11.12.6. These REs have been mapped together as a heterogeneous polygon. In accordance with habitat mapping associated with the GLNG GTP Significant Species Management Plan (SSMP), potential habitat for the following MNES species may be present within the site:

- Fork-tailed Swift (*Apus pacificus*)

- Rainbow Bee-eater *(Merops ornatus*)
- South-eastern Long-eared Bat (*Nyctophilus corbeni*)
- Squatter Pigeon (*Geophaps scripta scripta*)

Site based investigations have confirmed the presence of the following habitat features within the proposed Inverness site:

- Structurally intact vegetation community that would provide sheltering, perching and foraging opportunities for a diverse range of faunal taxa
- Mature trees that are of suitable age to provide hollows that may provide nesting and denning opportunities for hollow nesting birds, bats and arboreal mammals
- Rocky outcrops and ridgelines which have potential to provide habitat for a range of reptile taxa
- Areas containing sandy substrates that have the potential to provide nesting opportunities for reptiles and species of bird that nest within subterranean tunnels (eg Rainbow Bee-eaters, Kingfishers and Pardalots)
- Drainage lines with will formed banks
- Coarse, fallen woody debris that has the potential of provide foraging and sheltering opportunities for small to medium sized mammals and reptiles
- Areas containing dense ground stratum vegetation (ie tussock grass), which may provide shelter and cover for small terrestrial fauna species

5 Conclusions and recommendations

The EEM is a State based methodology produced by DEHP. This methodology provides a means by which to obtain empirical data to assess the Ecological Equivalence between an area of proposed impact and an area being offered in exchange to mitigate the proposed disturbance. The EEM was designed for use in assessing Ecological Equivalence, which is a requirement under the State *Policy for Vegetation Management Offsets* and the *Queensland Biodiversity Offset Policy* in instances where an offset is proposed in exchange for an area of impact. Although specifically designed for State based applications primarily associated with the Queensland *Vegetation Management Act 1999* (VM Act), the EEM may be applied more generally where an area of impact is proposed to be offset by an exchange area.

The proposed clearing of *Cycas megacarpa* and its associated habitat within the GTP ROW presents an opportunity to apply the EEM as there is currently no Commonwealth assessment methodology available to identify the suitability of potential offset/recipient locations. However, it should be noted that the current EPBC Act controlled action approval for the Project includes conditions that are required for the mitigation, management and offsetting impacts to this species, which includes the securing of 166.8 ha of land for the translocation/establishment of *Cycas megacarpa*. As such, the proposed land acquisition is not bound by the limitations of the EEM. Rather, the EEM is used as a guide to provide empirical data to support decisions regarding the acquisition of a potential recipient area for the species.

In relation to the EEM, the Inverness recipient area is the preferred site as it complies with the EEM in terms of its ecological condition and special features scores when assessed against the area of proposed impact. However, given that both the Inverness and Red Shirt sites had greater ecological value scores in relation to site based features when compared to the area of proposed impact, it is concluded that both areas have the ability to function as recipient locations. Both of these areas provide the following features that lend themselves to recipient locations:

- Relatively easy access to the proposed offset area will be facilitated through the construction of the GTP ROW or existing access tracks
- Contains sufficient land to comply with the EPBC Act controlled action condition 23 (a) which requires securing an area of at least 166.8 ha as an offset for receiving no less than 3,990 translocated and propagated individuals
- Extant populations of *Cycas megacarpa* currently exist, indicating that the area can support the growth of translocated and propagated individuals
- *Cycas megacarpa* was observed within and/or adjacent to all areas assessed and it is therefore concluded that the entire site is capable of supporting *Cycas megacarpa*.

The Inverness and Red Shirt sites also contains fauna habitat values which will be used by GLNG Operations to offset fauna habitat impacts of the GTP.

6 References

Eyre, T.J., Kelly, A.L, Neldner, V.J., Wilson, B.A., Ferguson, D.J., Laidlaw, M.J. and Franks, A.J. (2011). *BioCondition: A Condition Assessment Framework for Terrestrial Biodiversity in Queensland. Assessment Manual*. Version 2.1. Department of Environment and Resource Management (DERM), Biodiversity and Ecosystem Sciences, Brisbane.

Department of Environment and Resource Management (2011). Ecological Equivalence Methodology Guideline – Policy for Vegetation Management Offsets. Queensland Biodiversity Offset Policy. Version 1.

Appendices

Appendix A
Site photos

Location	Aspect			
	North	East	South	West
Site 1				
Site 2				
Site 3				

Location	Aspect			
	North	East	South	West
Site 4				
Site 5				
Site 6				

Location	Aspect			
	North	East	South	West
Site 7				
Site 8				
Site 9				

Location	Aspect			
	North	East	South	West
Rec 1				
Rec 2				
Rec 3				

Location	Aspect			
	North	East	South	West
Rec 4				
Rec 5				
Rec 6 / Ref 11.12.6				

Location	Aspect			
	North	East	South	West
Rec 7				
Rec 8				
Rec 9 / Ref 11.12.1				

Location	Aspect			
	North	East	South	West
Ref 11.11.15				
Ref 11.11.4				

Appendix B
Ecological Equivalence field assessment sheets – Impact and recipient sites

Ecological condition field assessment sheet

For assessment of ecological equivalence under the Queensland Biodiversity Offset Policy and the Policy for Vegetation Management Offsets. Version 1.0, 2011. Page 1 of 2.

Project title: GTP Cycas megacarpa DERM reference: N/A.
Lot plan/s: Lot 8 RN1580 Bioregion: 11

Area: Site 1	RE/land type/assessment unit: 11.11.7.	Bioregion: 11.	Property: Lot 8 RN1580
Date:	Photos (optional) N:	S:	E: W:
Landscape photo(s): 701 – 704 (N, E, S, W)		Spot photo (s):	
Datum: WGS84 or GDA94 Zone:	0 m mark AMGE:	AMGN:	
	50 m mark AMGE:	AMGN:	
Transect bearing:	0m: -24.217065 150.594097	100m: -24.216721 150.594495.	
General description: Diebacle of canopy stratum. Exotic species in Ground Stratum.			

100 x 50 m area: * Ecologically dominant layer (EDL); ecological condition indicator (ECI)

Eucalypt large tree DBH (from benchmark doc.): 30cm. Number of large eucalypt trees: 15	Non-Eucalypt large tree DBH (from benchmark doc.): N/A Number of large non-eucalypt trees: 0
Total large trees (ECI 8): 15	
Tree canopy (EDL) height (ECI 3): 18m	
Subcanopy and/or emergent height (where relevant): S: 15m	E: N/A
Proportion of dominant canopy (EDL) species with evidence of recruitment (ECI 1): 100%	
Total tree species richness (ECI 2a) includes all tree (i.e. single stemmed > 2 m height) species in the 100x50m, not just EDL species: E. Crebra	5 (5)

50 x 10 m area: *list species if known or count if unknown

Shrub species richness (ECI 2b) (defined as single stemmed below 2 m or multi-stemmed from base or below 20 cm) *:	5
Grass species richness (ECI 2c):	5
Forbs and others (non-grass ground) species richness (ECI 2d):	5
Non-native plant (weed) cover (ECI 10):	60%

50 x 20 m area: Coarse woody debris (ECI 9) CWD; >10 cm, >0.5 m, measured to the plot boundary:

CWD length:		CWD length:		CWD length:		CWD length:		CWD length:		CWD length:	
1	2m	8	3.5m	15		22		29		36	
2	1m	9	1.2m	16		23		30		37	
3	3m	10	1.5m	17		24		31		38	
4	5m	11		18		25		32		39	
5	2.5m	12		19		26		33		40	
6	3.5m	13		20		27		34		41	
7	1.2m	14		21		28		35		Total:	24.4m

Site 1

Five 1x1 m plots * attributes used in scoring

Ground cover:	1	2	3	4	5	Mean
Native perennial grass cover (ECI 6)*	5	5	5	10	10	7
Organic litter cover (ECI 7) *	5	5	5	5	5	5.
Forbs and other (incl. rock)	90 (70)	90 (70)	90 (70)	85 (70)	85 (70)	88
Total	=100%	=100%	=100%	=100%	=100%	

100 m transect

Tree canopy cover (ECI 4): Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that these layers should be present; otherwise Canopy (C) *trees in the same layer and continuous along the transect can be grouped

Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total
C	11.5-13	1.5									
C	14.3-21.8	7.5									
C	23-38.3	15.3									
S	40-45.2	5.2									
C	51.4-57.5	6.1									
C	60-64.2	4.2									
C	78-95.8	17.8									
										Total C: 52.4m Total S: 5.2m Total E: 0m	

Shrub canopy cover (ECI 5): *denote as native or exotic. Only native shrub cover used in scoring

Shrubs*	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total
	34.5-35.3	0.8												
	40.2-41	0.8												
	73.8-75.5	1.7												
													Total native:	3.3m
													Total exotic:	0m

Ecological condition field assessment sheet

For assessment of ecological equivalence under the Queensland Biodiversity Offset Policy and the Policy for Vegetation Management Offsets. Version 1.0, 2011. Page 1 of 2.

Project title: Cycas megacarpa GTP. DERM reference: N/A
Lot plan/s: Lot 170 FTY1847. Bioregion: 11

Area: Site 2.	RE/land type/assessment unit: Mapped as 11.10.1	Bioregion: 11	Property: Lot 170 FTY1847.
Date:	Photos (optional) N:	S:	E: W:
Landscape photo(s): 709-712 (NESH)		Spot photo (s):	
Datum: WGS84 or GDA94 Zone:	0 m mark AMGE:	AMGN:	
	50 m mark AMGE:	AMGN:	
Transect bearing: E → W	0: -24.230308 150.567508	100: -24.229976, 150.568919.	
General description: Highly disturbed, extensive weeds			

100 x 50 m area: * Ecologically dominant layer (EDL); ecological condition indicator (ECI)

Eucalypt large tree DBH (from benchmark doc.): 60cm Number of large eucalypt trees: 0	Non-Eucalypt large tree DBH (from benchmark doc.): N/A. Number of large non-eucalypt trees: 0
Total large trees (ECI 8): 0	
Tree canopy (EDL) height (ECI 3): 18m Subcanopy and/or emergent height (where relevant): S: 9m E: N/A	
Proportion of dominant canopy (EDL) species with evidence of recruitment (ECI 1): 50%	
Total tree species richness (ECI 2a) includes all tree (i.e. single stemmed > 2 m height) species in the 100x50m, not just EDL species: 6	

50 x 10 m area: *list species if known or count if unknown

Shrub species richness (ECI 2b) (defined as single stemmed below 2 m or multi-stemmed from base or below 20 cm) *: 8
Grass species richness (ECI 2c): 6 (60%)
Forbs and others (non-grass ground) species richness (ECI 2d): 9 (5%)
Non-native plant (weed) cover (ECI 10): 90%

50 x 20 m area: Coarse woody debris (ECI 9) CWD; >10 cm, >0.5 m, measured to the plot boundary

CWD length:		CWD length:		CWD length:		CWD length:		CWD length:		CWD length:	
1	5m	8	2m	15		22		29		36	
2	1m	9	2m	16		23		30		37	
3	2m	10	4m	17		24		31		38	
4	2m	11	3m	18		25		32		39	
5	3m	12		19		26		33		40	
6	2.5m	13		20		27		34		41	
7	2.5m	14		21		28		35		Total:	29 m

Site 2

Five 1x1 m plots * attributes used in scoring

Ground cover:	1	2	3	4	5	Mean
Native perennial grass cover (ECI 6)*	2	0	0	5	0	1.4
Organic litter cover (ECI 7) *	10	40	10	30	20	22
Forbs and other (native)	88 (10%)	60	90	65	80	76.6
Total	=100%	=100%	=100%	=100%	=100%	

100 m transect

Tree canopy cover (ECI 4): Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that these layers should be present; otherwise Canopy (C) *trees in the same layer and continuous along the transect can be grouped

Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total
C	100-99	1									
C/S	96.6-81.6	15									
C	76-65	11									
C	62.3-57.4	4.9									
C	52.4-33.2	19.2									
C/S	29.6-20.9	8.7									
C	20-15	5									
C	13.4-10.7	2.7									
S	3.6-0	3.6									
										Total C: 67.5 m Total S: 27.3 Total E: 0 m	

Shrub canopy cover (ECI 5): *denote as native or exotic. Only native shrub cover used in scoring

Shrubs*	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total
	76.5-74.8	1.7												
	54.2-53	1.2												
	8.3-7.3	1												
												Total native: 0 m		
												Total exotic: 3.9 m		

Ecological condition field assessment sheet

For assessment of ecological equivalence under the Queensland Biodiversity Offset Policy and the Policy for Vegetation Management Offsets. Version 1.0, 2011. Page 1 of 2.

Project title: GTP Cycas megacarpa DERM reference: N/A.
Lot plan/s: Lot 8 RN1580 Bioregion: 11

Area: Site 3	RE/land type/assessment unit: 11.11.15	Bioregion: 11	Property: Lot 8 RN1580
Date: 11/9/12	Photos (optional) N:	S:	E: W:
Landscape photo(s): 714-717 (N,E,S,W)		Spot photo (s):	
Datum: WGS84 or GDA94 Zone:	0 m mark AMGE:	AMGN:	
	50 m mark AMGE:	AMGN:	
Transect bearing:	0m: -24.21497, 150.62535	100m: -24.21491, 150.626201	
General description: very low weed diversity/Abundance. Typical of RE 11.11.15.			

100 x 50 m area: * Ecologically dominant layer (EDL); ecological condition indicator (ECI)

Eucalypt large tree DBH (from benchmark doc.): 30-40cm Number of large eucalypt trees: 7	Non-Eucalypt large tree DBH (from benchmark doc.): N/A. Number of large non-eucalypt trees: 0
Total large trees (ECI 8): 7	
Tree canopy (EDL) height (ECI 3): 15m Subcanopy and/or emergent height (where relevant): S: 12m E: N/A	
Proportion of dominant canopy (EDL) species with evidence of recruitment (ECI 1): 100%	
Total tree species richness (ECI 2a) includes all tree (i.e. single stemmed > 2 m height) species in the 100x50m, not just EDL species: 3	

50 x 10 m area: *list species if known or count if unknown

Shrub species richness (ECI 2b) (defined as single stemmed below 2 m or multi-stemmed from base or below 20 cm) *: 9
Grass species richness (ECI 2c): 5
Forbs and others (non-grass ground) species richness (ECI 2d): 4
Non-native plant (weed) cover (ECI 10): 10%

50 x 20 m area: Coarse woody debris (ECI 9) CWD: >10 cm, >0.5 m, measured to the plot boundary:

CWD length:		CWD length:		CWD length:		CWD length:		CWD length:		CWD length:	
1	5m	8	2.5m	15		22		29		36	
2	10m	9		16		23		30		37	
3	2m	10		17		24		31		38	
4	4m	11		18		25		32		39	
5	3m	12		19		26		33		40	
6	1.5m	13		20		27		34		41	
7	3m	14		21		28		35		Total:	31m.

Site 3

Five 1x1 m plots * attributes used in scoring

Ground cover:	1	2	3	4	5	Mean
Native perennial grass cover (ECI 6)*	70	70	60	50	0	50
Organic litter cover (ECI 7) *	10	10	20	10	30	16
Forbs and other	20	20	20	40	70	34.
Total	=100%	=100%	=100%	=100%	=100%	

100 m transect

Tree canopy cover (ECI 4): Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that these layers should be present; otherwise Canopy (C) *trees in the same layer and continuous along the transect can be grouped

Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total
S	90-89	1.0									
C	84.4-80	4.4									
C	60-56.5	3.5									
S	48.4-46.4	2.0									
C	46.2-42	4.2									
S	27-24.4	2.6									
C	17-11.2	5.8									
S	6-4.5	1.5									
C	4-0	4.0									
										Total C: 59.7m Total S: 7.1m Total E: 0m.	

Shrub canopy cover (ECI 5): *denote as native or exotic. Only native shrub cover used in scoring

Shrubs*	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total
	96.4-94.9	1.5		13.6-12.7	0.9									
	91.6-90.7	0.9												
	74-72.7	1.3												
	61-60.3	0.7												
	56.6-55.9	0.7												
	49.3-48.6	0.7											Total native: 7.8m	
	36.9-34.3	2.6											Total exotic: 1.5m	

Ecological condition field assessment sheet

For assessment of ecological equivalence under the Queensland Biodiversity Offset Policy and the Policy for Vegetation Management Offsets. Version 1.0, 2011. Page 1 of 2.

Project title: GTP Cyos megacarpa DERM reference: N/A
Lot plan/s: Lot 2 RN1580. Bioregion: 11.

Area: Site 4	RE/land type/assessment unit: 11.11.15	Bioregion: 11	Property: Lot 2 RN1580
Date: 11/9/12	Photos (optional) N:	S:	E: W:
Landscape photo(s): 730-727		Spot photo (s):	
Datum: WGS84 or GDA94 Zone:	0 m mark AMGE: 50 m mark AMGE:	AMGN: AMGN:	
Transect bearing: E→W	0: -24.217505, 150.633859	100m: -24.21724, 150.632959.	
General description: On ridgeline			

100 x 50 m area: * Ecologically dominant layer (EDL); ecological condition indicator (ECI)

Eucalypt large tree DBH (from benchmark doc.): 30cm Number of large eucalypt trees: 16	Non-Eucalypt large tree DBH (from benchmark doc.): N/A Number of large non-eucalypt trees: 0
Total large trees (ECI 8): 16	
Tree canopy (EDL) height (ECI 3): 14m Subcanopy and/or emergent height (where relevant): S: 10m E: N/A	
Proportion of dominant canopy (EDL) species with evidence of recruitment (ECI 1): 100%	
Total tree species richness (ECI 2a) includes all tree (i.e. single stemmed > 2 m height) species in the 100x50m, not just EDL species: 2	

50 x 10 m area: *list species if known or count if unknown

Shrub species richness (ECI 2b) (defined as single stemmed below 2 m or multi-stemmed from base or below 20 cm) *: 4
Grass species richness (ECI 2c): 3
Forbs and others (non-grass ground) species richness (ECI 2d): 5
Non-native plant (weed) cover (ECI 10): 40%

50 x 20 m area: Coarse woody debris (ECI 9) CWD; >10 cm, >0.5 m, measured to the plot boundary:

CWD length:		CWD length:		CWD length:		CWD length:		CWD length:		CWD length:	
1	1m	8		15		22		29		36	
2	3m	9		16		23		30		37	
3	2m	10		17		24		31		38	
4	3m	11		18		25		32		39	
5	1m	12		19		26		33		40	
6		13		20		27		34		41	
7		14		21		28		35		Total:	10m

Site 4

Five 1x1 m plots * attributes used in scoring

Ground cover:	1	2	3	4	5	Mean
Native perennial grass cover (ECI 6)*	5	20	80	30	40	35
Organic litter cover (ECI 7) *	5	40	20	30	30	25
Forbs and other	90	40	0	40	30	40
Total	=100%	=100%	=100%	=100%	=100%	

100 m transect

Tree canopy cover (ECI 4): Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that these layers should be present; otherwise Canopy (C) *trees in the same layer and continuous along the transect can be grouped

Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total
C	100-94	6.0									
C	90-88	2.0									
C	85.4-79.2	6.2									
C	66.7-57.1	9.6									
C	43.7-38.4	5.3									
C	30-21.3	8.7									
S	10-8.3	1.7									
S	3-1	3.0									
										Total C:	37.6m
										Total S:	4.7m
										Total E:	0m

Shrub canopy cover (ECI 5): *denote as native or exotic. Only native shrub cover used in scoring

Shrubs*	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total
	62.3-60.9	1.4												
	53-51.7	1.3												
													Total native:	2.7m
													Total exotic:	0m

Ecological condition field assessment sheet

For assessment of ecological equivalence under the Queensland Biodiversity Offset Policy and the Policy for Vegetation Management Offsets. Version 1.0, 2011. Page 1 of 2.

Project title: GTP Cyst megacarpa — DERM reference: N/A.
Lot plan/s: Lot 8 RN1580 — Bioregion: 11

Area: Site 5	RE/land type/assessment unit: 11.11.15	Bioregion: 11	Property: Lot 8 RN1580
Date: 11/9/12	Photos (optional) N:	S:	E: W:
Landscape photo(s): 434-437 (N, E, S, W)		Spot photo (s):	
Datum: WGS84 or GDA94 Zone:	0 m mark AMGE:	AMGN:	
	50 m mark AMGE:	AMGN:	
Transect bearing:	0m: -24.21702, 150.651451	100m: -24.216975, 150.650537.	
General description: Area typical of RE 11.11.15.			

100 x 50 m area: * Ecologically dominant layer (EDL); ecological condition indicator (ECI)

Eucalypt large tree DBH (from benchmark doc.): 30cm Number of large eucalypt trees: 5	Non-Eucalypt large tree DBH (from benchmark doc.): N/A Number of large non-eucalypt trees: 0
Total large trees (ECI 8): 5	
Tree canopy (EDL) height (ECI 3): 12m Subcanopy and/or emergent height (where relevant): S: 6m E: 14m	
Proportion of dominant canopy (EDL) species with evidence of recruitment (ECI 1): 100%	
Total tree species richness (ECI 2a) includes all tree (i.e. single stemmed > 2 m height) species in the 100x50m, not just EDL species: 4	

50 x 10 m area: *list species if known or count if unknown

Shrub species richness (ECI 2b) (defined as single stemmed below 2 m or multi-stemmed from base or below 20 cm) *: 3
Grass species richness (ECI 2c): 7
Forbs and others (non-grass ground) species richness (ECI 2d): 7
Non-native plant (weed) cover (ECI 10): 10%

50 x 20 m area: Coarse woody debris (ECI 9) CWD; >10 cm, >0.5 m, measured to the plot boundary:

CWD length:		CWD length:		CWD length:		CWD length:		CWD length:		CWD length:	
1	2m	8	2m	15		22		29		36	
2	4m	9		16		23		30		37	
3	2m	10		17		24		31		38	
4	1m	11		18		25		32		39	
5	3m	12		19		26		33		40	
6	1m	13		20		27		34		41	
7	8m	14		21		28		35		Total:	23m.

Site 5

Five 1x1 m plots * attributes used in scoring

Ground cover:	1	2	3	4	5	Mean
Native perennial grass cover (ECI 6)*	70	30	70	5	5	36
Organic litter cover (ECI 7) *	10	15	10	20	20	15
Forbs and other	20	65	20	75	75	51
Total	=100%	=100%	=100%	=100%	=100%	

100 m transect

Tree canopy cover (ECI 4): Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that these layers should be present: otherwise Canopy (C) *trees in the same layer and continuous along the transect can be grouped

Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total
C	100-98	2.0									
S	90.7-88.3	2.4									
C	89.9-84.3	5.6									
C	82.9-80.4	2.5									
C	78.5-76.6	1.9									
C	73-65.4	7.6									
C	61.5-57.6	3.9									
C	29.2-26.6	2.6									
C	10.3-8.0	2.3									
										Total C: 28.4m Total S: 2.4m Total E: 0m	

Shrub canopy cover (ECI 5): *denote as native or exotic. Only native shrub cover used in scoring

Shrubs*	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total
	38.8-37.9	0.9												
												Total native: 0.9m		
												Total exotic: 0m		

Ecological condition field assessment sheet

For assessment of ecological equivalence under the Queensland Biodiversity Offset Policy and the Policy for Vegetation Management Offsets. Version 1.0, 2011. Page 1 of 2.

Project title: CTP Cycas megacarpa. DERM reference: N/A.
Lot plan/s: Lot 8 RN1580 Bioregion: 11.

Area: Site 6	RE/land type/assessment unit: 11.11.15	Bioregion:	Property: Lot 8 RN1580
Date: 12/9/12	Photos (optional) N:	S:	E: W:
Landscape photo(s): 737-746 (N,E,S,W)		Spot photo (s):	
Datum: WGS84 or GDA94 Zone:	0 m mark AMGE:	AMGN:	
	50 m mark AMGE:	AMGN:	
Transect bearing:	0m: -24.212111, 150.657655	100m: -24.212207, 150.656673.	
General description: Ridgetop ROW Area typical of 11.11.15.			

100 x 50 m area: *Ecologically dominant layer (EDL); ecological condition indicator (ECI)

Eucalypt large tree DBH (from benchmark doc.): 30cm Number of large eucalypt trees: 24	Non-Eucalypt large tree DBH (from benchmark doc.): N/A Number of large non-eucalypt trees:
Total large trees (ECI 8): 24	
Tree canopy (EDL) height (ECI 3): 15m Subcanopy and/or emergent height (where relevant): S: 7m	E: N/A
Proportion of dominant canopy (EDL) species with evidence of recruitment (ECI 1): 100%	
Total tree species richness (ECI 2a) includes all tree (i.e. single stemmed > 2 m height) species in the 100x50m, not just EDL species: 4	

50 x 10 m area: *list species if known or count if unknown

Shrub species richness (ECI 2b) (defined as single stemmed below 2 m or multi-stemmed from base or below 20 cm) *: 5 55%
Grass species richness (ECI 2c): 15 100%
Forbs and others (non-grass ground) species richness (ECI 2d): 9 100%
Non-native plant (weed) cover (ECI 10): 60%

50 x 20 m area: Coarse woody debris (ECI 9) CWD; >10 cm, >0.5 m, measured to the plot boundary:

CWD length:		CWD length:		CWD length:		CWD length:		CWD length:		CWD length:	
1	3m	8		15		22		29		36	
2	3m	9		16		23		30		37	
3	4m	10		17		24		31		38	
4	8m	11		18		25		32		39	
5		12		19		26		33		40	
6		13		20		27		34		41	
7		14		21		28		35		Total:	15m.

Site 6

Five 1x1 m plots * attributes used in scoring

Ground cover:	1	2	3	4	5	Mean
Native perennial grass cover (ECI 6)*	10	5	90	5	0	22.
Organic litter cover (ECI 7) *	10	10	5	20	30	15
Forbs and other	80	85	5	75	70	63
Total	=100%	=100%	=100%	=100%	=100%	

100 m transect

Tree canopy cover (ECI 4): Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that these layers should be present; otherwise Canopy (C) *trees in the same layer and continuous along the transect can be grouped

Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total
C	100-95.6	4.4	S	33.7-32	1.7						
C	93.1-86.2	6.9	C	30.6-24.8	6.8						
S	93.1-91.5	1.6	C	22.0-19.4	2.6						
C	83.2-79.5	3.7	S	22.0-19.4	2.6						
S	68.9-67.5	1.4	C	12.9-7.0	5.9						
C	67.5-61.6	5.9									
S	60.7-58.3	2.4									
S	56.3-52.7	3.6									
C	54.8-43.8	1.0									
S	43.8-38.4	5.4									
										Total C: 37.2m Total S: 18.7m Total E: 0m	

Shrub canopy cover (ECI 5): *denote as native or exotic. Only native shrub cover used in scoring

Shrubs*	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total
	90.5-98.1	7.6												
	40.1-39.5	0.6												
	9.2-8.3	0.9												
	1.0-0.0	1.0												
												Total native: 10.1m		
												Total exotic: 0m		

Ecological condition field assessment sheet

For assessment of ecological equivalence under the Queensland Biodiversity Offset Policy and the Policy for Vegetation Management Offsets. Version 1.0, 2011. Page 1 of 2.

Project title: GTP Cycas megacarpa. DERM reference: N/A.
Lot plan/s: Lot 8 RN 1580 Bioregion: 11.

Area: Site 7.	RE/land type/assessment unit: 11.11.15	Bioregion:	Property: Lot 8 RN 1580.
Date:	Photos (optional) N:	S:	E: W:
Landscape photo(s): 749 - 752 (W, E, S, W)		Spot photo (s):	
Datum: WGS84 or GDA94 Zone:	0 m mark AMGE:	AMGN:	
	50 m mark AMGE:	AMGN:	
Transect bearing:	0m: -24.20967, 150.663233	100m: -24.209155, 150.663969.	
General description: Slope. Area Typical of RE 11.11.15. Open forest / woodland.			

100 x 50 m area: * Ecologically dominant layer (EDL); ecological condition indicator (ECI)

Eucalypt large tree DBH (from benchmark doc.): 30cm. Number of large eucalypt trees: 19.	Non-Eucalypt large tree DBH (from benchmark doc.): N/A. Number of large non-eucalypt trees: 0.
Total large trees (ECI 8): 19.	
Tree canopy (EDL) height (ECI 3): 13m	
Subcanopy and/or emergent height (where relevant): S: 8m	E: N/A.
Proportion of dominant canopy (EDL) species with evidence of recruitment (ECI 1): 100%	
Total tree species richness (ECI 2a) includes all tree (i.e. single stemmed > 2 m height) species in the 100x50m, not just EDL species: 3.	

50 x 10 m area: *list species if known or count if unknown

Shrub species richness (ECI 2b) (defined as single stemmed below 2 m or multi-stemmed from base or below 20 cm) *: 6
Grass species richness (ECI 2c): 6
Forbs and others (non-grass ground) species richness (ECI 2d): 9
Non-native plant (weed) cover (ECI 10): 30%

50 x 20 m area: Coarse woody debris (ECI 9) CWD; >10 cm, >0.5 m, measured to the plot boundary

CWD length:		CWD length:		CWD length:		CWD length:		CWD length:		CWD length:	
1	2m	8	2m	15		22		29		36	
2	2m	9	2m	16		23		30		37	
3	9m	10		17		24		31		38	
4	3m	11		18		25		32		39	
5	1.5m	12		19		26		33		40	
6	1.5m	13		20		27		34		41	
7	5m	14		21		28		35		Total:	23m

Site 7

Five 1x1 m plots * attributes used in scoring

Ground cover:	1	2	3	4	5	Mean
Native perennial grass cover (ECI 6)*	30	20	70	10	30	32.
Organic litter cover (ECI 7) *	60	40	25	40	60	45
Forbs and other	10	40	5	50	10	23
Total	=100%	=100%	=100%	=100%	=100%	

100 m transect

Tree canopy cover (ECI 4): Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that these layers should be present; otherwise Canopy (C) *trees in the same layer and continuous along the transect can be grouped

Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total
C	100 - 98.5	1.5									
C	96.2 - 94.4	1.8									
C	92.4 - 84.0	8.4									
C	81.1 - 69.3	11.8									
C	64.9 - 57.7	7.2									
S	57.7 - 52.9	5.8									
S	37.2 - 34.3	2.9									
S	31.7 - 25.0	6.7									
S	20.1 - 18.2	1.9									
C	17.7 - 6.8	10.9									
										Total C: 30.7m. Total S: 28.2m Total E:	

Shrub canopy cover (ECI 5): *denote as native or exotic. Only native shrub cover used in scoring

Shrubs*	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total
	61.9 - 60.3	1.0												
	35.8 - 35.0	0.8												
	28.8 - 28.0	0.8												
	6.8 - 5.8	1.0												
												Total native:	3.6m	
												Total exotic:	0.0m	

Ecological condition field assessment sheet

For assessment of ecological equivalence under the Queensland Biodiversity Offset Policy and the Policy for Vegetation Management Offsets. Version 1.0, 2011. Page 1 of 2.

Project title: GTP Cycas megacarpa DERM reference: N/A.
Lot plan/s: Lot 8 RN1580 Bioregion: 11

Area: Site 8.	RE/land type/assessment unit: 11.11.15.	Bioregion: 11.	Property: Lot 8 RN1580.
Date:	Photos (optional) N:	S:	E: W:
Landscape photo(s): 762-765 (N,E,S,W).		Spot photo (s):	
Datum: WGS84 or GDA94 Zone:	0 m mark AMGE:	AMGN:	
	50 m mark AMGE:	AMGN:	
Transect bearing:	0m: -24.204792, 150.673014	100m: -24.204857, 150.673413.	
General description:			

100 x 50 m area: * Ecologically dominant layer (EDL); ecological condition indicator (ECI)

Eucalypt large tree DBH (from benchmark doc.): 30cm Number of large eucalypt trees: 20	Non-Eucalypt large tree DBH (from benchmark doc.): N/A Number of large non-eucalypt trees: 0
Total large trees (ECI 8): 20	
Tree canopy (EDL) height (ECI 3): 18m Subcanopy and/or emergent height (where relevant): S: 14m E: N/A.	
Proportion of dominant canopy (EDL) species with evidence of recruitment (ECI 1): 100%.	
Total tree species richness (ECI 2a) includes all tree (i.e. single stemmed > 2 m height) species in the 100x50m, not just EDL species: 3 wt	

50 x 10 m area: *list species if known or count if unknown

Shrub species richness (ECI 2b) (defined as single stemmed below 2 m or multi-stemmed from base or below 20 cm) *: 8
Grass species richness (ECI 2c): 8
Forbs and others (non-grass ground) species richness (ECI 2d): 6
Non-native plant (weed) cover (ECI 10): 60%

50 x 20 m area: Coarse woody debris (ECI 9) CWD: >10 cm, >0.5 m, measured to the plot boundary:

CWD length:		CWD length:		CWD length:		CWD length:		CWD length:		CWD length:	
1	7m	8		15		22		29		36	
2	2m	9		16		23		30		37	
3	4m	10		17		24		31		38	
4		11		18		25		32		39	
5		12		19		26		33		40	
6		13		20		27		34		41	
7		14		21		28		35		Total:	8m

Five 1x1 m plots * attributes used in scoring

Ground cover:	1	2	3	4	5	Mean
Native perennial grass cover (ECI 6)*	5	15	10	5	5	7
Organic litter cover (ECI 7) *	10	20	10	5	10	11
Forbs and other	85	65	80	90	85	81
Total	=100%	=100%	=100%	=100%	=100%	

50 **100 m transect**

Tree canopy cover (ECI 4): Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that these layers should be present; otherwise Canopy (C) *trees in the same layer and continuous along the transect can be grouped

Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total
C	50-48	2									
C	32.2-18.0	14.2									
S	29.8-27.7	2.1									
									Per 100 m →	Total C: 28.8 m Total S: 4.2 m Total E: 0 m	

Per 50 m

Shrub canopy cover (ECI 5): *denote as native or exotic. Only native shrub cover used in scoring

Shrubs*	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total
*	43.2-40.8	2.4												
	20.7-19.2	1.5												
	15.4-13.3	2.1												
*	12.0-9.0	3												
										Per 100 m →			Total native: 7.2 m	
													Total exotic: 10.8 m	

Per 50 m

Ecological condition field assessment sheet

For assessment of ecological equivalence under the Queensland Biodiversity Offset Policy and the Policy for Vegetation Management Offsets. Version 1.0, 2011. Page 1 of 2.

Project title: GTP Cycas megacarpa. DERM reference: N/A.
Lot plan/s: Lot 11 SP199386 Bioregion: 11.

Area: Site 9.	RE/land type/assessment unit: 11.12.6	Bioregion: 11	Property: Lot 11 SP199386.
Date:	Photos (optional) N:	S:	E: W:
Landscape photo(s): 791-794 (N,E,S,W).		Spot photo (s):	
Datum: WGS84 or GDA94 Zone:	0 m mark AMGE:	AMGN:	
	50 m mark AMGE:	AMGN:	
Transect bearing:	0m: -24.136648, 150.726681	100m: -24.137236, 150.726096.	
General description: Open forest with long weed understorey			

100 x 50 m area: * Ecologically dominant layer (EDL); ecological condition indicator (ECI)

Eucalypt large tree DBH (from benchmark doc.): 30cm. Number of large eucalypt trees: 17	Non-Eucalypt large tree DBH (from benchmark doc.): N/A. Number of large non-eucalypt trees: 0
Total large trees (ECI 8): 17	
Tree canopy (EDL) height (ECI 3): 19m	
Subcanopy and/or emergent height (where relevant): S: 12m	E: N/A.
Proportion of dominant canopy (EDL) species with evidence of recruitment (ECI 1): 50%.	
Total tree species richness (ECI 2a) includes all tree (i.e. single stemmed > 2 m height) species in the 100x50m, not just EDL species: 2	

50 x 10 m area: *list species if known or count if unknown

Shrub species richness (ECI 2b) (defined as single stemmed below 2 m or multi-stemmed from base or below 20 cm) *:	4
Grass species richness (ECI 2c):	4
Forbs and others (non-grass ground) species richness (ECI 2d):	4
Non-native plant (weed) cover (ECI 10):	80%

50 x 20 m area: Coarse woody debris (ECI 9) CWD; >10 cm, >0.5 m, measured to the plot boundary:

CWD length:		CWD length:		CWD length:		CWD length:		CWD length:		CWD length:	
1	10 m	8		15		22		29		36	
2	1m	9		16		23		30		37	
3	7m	10		17		24		31		38	
4	2m	11		18		25		32		39	
5	3.5m	12		19		26		33		40	
6		13		20		27		34		41	
7		14		21		28		35		Total:	23.5m.

Five 1x1 m plots * attributes used in scoring

Ground cover:	1	2	3	4	5	Mean
Native perennial grass cover (ECI 6)*	50	10	10	0	20	18
Organic litter cover (ECI 7) *	50	40	30	30	60	42
Forbs and other	0	50	60	70	20	40
Total	=100%	=100%	=100%	=100%	=100%	

100 m transect

Tree canopy cover (ECI 4): Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that these layers should be present; otherwise Canopy (C) *trees in the same layer and continuous along the transect can be grouped

Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total
C	100-95.2	4.8	S	4.4-0.0.	4.4						
S	100-96.9	3.1									
S	91-87	4									
S	84.4-78	6.4									
C	79.3-72.3	7									
S	72.3-68.7	7.6									
C	68.7-46.5	18.2									
S	87.5-23.0	34.5									
C	30-19.9	10.1									
C	16-0	16									
S	12-10.4	1.6								Total C: 56.1m. Total S: 61.6m. Total E: 0m	

Shrub canopy cover (ECI 5): *denote as native or exotic. Only native shrub cover used in scoring

Shrubs*	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total
*	99-98	1	*	13.5-10.4.	3.1									
*	95-91	4												
*	81.6-78	3.6												
*	75-53.8	21.2												
*	50-48	2												
*	41-38.4	2.6										Total native: 0m		
*	34.8-23.0	11.8										Total exotic: 49.3m		

Ecological condition field assessment sheet

For assessment of ecological equivalence under the Queensland Biodiversity Offset Policy and the Policy for Vegetation Management Offsets. Version 1.0, 2011. Page 1 of 2.

Project title: GTP Cycas megacarpa DERM reference: N/A.
Lot plan/s: Lot 8 RN1580 Bioregion: 11

Area: Rec 1	RE/land type/assessment unit: 11.11.4	Bioregion:	Property: Lot 8 RN1580.
Date: 12/9/12	Photos (optional) N: 741 S: 743 E: 742 W: 744		
Landscape photo(s):		Spot photo (s):	
Datum: WGS84 or GDA94 Zone:	0 m mark AMGE: 50 m mark AMGE:	AMGN: AMGN:	
Transect bearing:	0m: -24.214835, 150.659422	100m: -24.213418, 150.660359.	
General description: Area on SE Slope.			

100 x 50 m area: * Ecologically dominant layer (EDL); ecological condition indicator (ECI)

Eucalypt large tree DBH (from benchmark doc.): 30cm Number of large eucalypt trees: 17	Non-Eucalypt large tree DBH (from benchmark doc.): N/A Number of large non-eucalypt trees:
Total large trees (ECI 8): 17	
Tree canopy (EDL) height (ECI 3): 18m Subcanopy and/or emergent height (where relevant): S: 12m E: N/A	
Proportion of dominant canopy (EDL) species with evidence of recruitment (ECI 1): 100%	
Total tree species richness (ECI 2a) includes all tree (i.e. single stemmed > 2 m height) species in the 100x50m, not just EDL species: 3	

50 x 10 m area: *list species if known or count if unknown

Shrub species richness (ECI 2b) (defined as single stemmed below 2 m or multi-stemmed from base or below 20 cm) *: 5
Grass species richness (ECI 2c): 5
Forbs and others (non-grass ground) species richness (ECI 2d): 5
Non-native plant (weed) cover (ECI 10): 10%

50 x 20 m area: Coarse woody debris (ECI 9) CWD; >10 cm, >0.5 m, measured to the plot boundary:

CWD length:		CWD length:		CWD length:		CWD length:		CWD length:		CWD length:	
1	6m	8		15		22		29		36	
2	1.5m	9		16		23		30		37	
3	2m	10		17		24		31		38	
4	3m	11		18		25		32		39	
5	6.5m	12		19		26		33		40	
6	6m	13		20		27		34		41	
7		14		21		28		35		Total:	25m

Five 1x1 m plots * attributes used in scoring

Ground cover:	1	2	3	4	5	Mean
Native perennial grass cover (ECI 6)*	40	40	10	30	60	36
Organic litter cover (ECI 7) *	10	5	70	40	30	31
Forbs and other	50	55	20	30	10	33
Total	=100%	=100%	=100%	=100%	=100%	

100 m transect

Tree canopy cover (ECI 4): Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that these layers should be present; otherwise Canopy (C) *trees in the same layer and continuous along the transect can be grouped

Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total
C	100-92	8.0									
C	88.4-71.5	16.9									
C	68.2-60	8.2									
C	54.5-44.6	9.9									
S	54.5-44.6	9.9									
S	42-39	3.0									
S	31-26	5.0									
C	32.0-24	6.0									
S	11.0-7.6	3.4									
S	1.4-0.0	1.4									
										Total C: 49.0m. Total S: 22.7m Total E: 0m.	

Shrub canopy cover (ECI 5): *denote as native or exotic. Only native shrub cover used in scoring

Shrubs*	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total
	74.7-71.5	3.2		13.3-12.0	1.3									
	68.2-66.7	1.5		7.6-6.4	1.2									
	44-39	5.0		3.0-1.4	1.6									
	37.6-36	1.6												
	31.0-29.2	1.8												
	27.8-21.0	6.8										Total native: 25.2m		
	17.7-16.5	1.2										Total exotic: 0m		

Ecological condition field assessment sheet

For assessment of ecological equivalence under the Queensland Biodiversity Offset Policy and the Policy for Vegetation Management Offsets. Version 1.0, 2011. Page 1 of 2.

Project title: GTP Cyrtostachys megacarpa DERM reference: N/A
Lot plan/s: Lot 8 RN1580 Bioregion: 11.

Area: Rec 2.	RE/land type/assessment unit: 11.11.15	Bioregion: 11.	Property: Lot 8 RN1580.
Date:	Photos (optional) N:	S:	E: W:
Landscape photo(s): 748-745 (N,E,S,W).		Spot photo (s):	
Datum: WGS84 or GDA94 Zone:	0 m mark AMGE:	AMGN:	
	50 m mark AMGE:	AMGN:	
Transect bearing:	0m: -24.213418, 150.660359	100m: -24.214263, 150.660394.	
General description: Upper North-east Slope. Typical of RE 11.11.15.			

100 x 50 m area: * Ecologically dominant layer (EDL); ecological condition indicator (ECI)

Eucalypt large tree DBH (from benchmark doc.): 30cm. Number of large eucalypt trees: 28	Non-Eucalypt large tree DBH (from benchmark doc.): N/A. Number of large non-eucalypt trees: 0
Total large trees (ECI 8): 28	
Tree canopy (EDL) height (ECI 3): 14m	
Subcanopy and/or emergent height (where relevant): S: 8m	E: N/A.
Proportion of dominant canopy (EDL) species with evidence of recruitment (ECI 1): 100%	
Total tree species richness (ECI 2a) includes all tree (i.e. single stemmed > 2 m height) species in the 100x50m, not just EDL species: 2	

50 x 10 m area: *list species if known or count if unknown

Shrub species richness (ECI 2b) (defined as single stemmed below 2 m or multi-stemmed from base or below 20 cm) *: 2
Grass species richness (ECI 2c): 6
Forbs and others (non-grass ground) species richness (ECI 2d): 6
Non-native plant (weed) cover (ECI 10): 20%.

50 x 20 m area: Coarse woody debris (ECI 9) CWD; >10 cm, >0.5 m, measured to the plot boundary:

CWD length:		CWD length:		CWD length:		CWD length:		CWD length:		CWD length:	
1	3m	8	7m	15		22		29		36	
2	1.5m	9	3m.	16		23		30		37	
3	2m	10		17		24		31		38	
4	4m	11		18		25		32		39	
5	2.5m	12		19		26		33		40	
6	3m	13		20		27		34		41	
7	6m	14		21		28		35		Total:	32m.

Rec 2

Five 1x1 m plots * attributes used in scoring

Ground cover:	1	2	3	4	5	Mean
Native perennial grass cover (ECI 6)*	15	50	30	40	15	30
Organic litter cover (ECI 7) *	20	15	40	10	10	19.
Forbs and other	65	35	30	50	75	51.
Total	=100%	=100%	=100%	=100%	=100%	XXXX

100 m transect

Tree canopy cover (ECI 4): Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that these layers should be present; otherwise Canopy (C) *trees in the same layer and continuous along the transect can be grouped

Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total
S	99.6-97.6	2									
C	84.2-78.6	5.6									
C	68.0-62.9	5.1									
S	68.0-65.2	2.8									
C	57.5-43.8	13.7									
C	32.5-28.0	4.5									
C	24.7-10.4	14.3									
										Total C: 43.2m Total S: 4.8m Total E: 0m.	

Shrub canopy cover (ECI 5): *denote as native or exotic. Only native shrub cover used in scoring

Shrubs*	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total
	97.0-96.1	0.9		5.8-4.4.	1.4									
	91.7-91.2	0.5		3.1-2.3	0.8									
	76.8-72.3	4.5												
	[illegible]	[illegible]												
	58.5-57.5	1.0												
	26.0-25.5	0.5										**Total native:** 10.5m		
	10.7-9.8	0.9										**Total exotic:** 0m		

Ecological condition field assessment sheet

For assessment of ecological equivalence under the Queensland Biodiversity Offset Policy and the Policy for Vegetation Management Offsets. Version 1.0, 2011. Page 1 of 2.

Project title: LTP Cycas megacarpa DERM reference: N/A.
Lot plan/s: Lot 8 RN1580 Bioregion: 11

Area: Rec 3.	RE/land type/assessment unit: 11.11.4.	Bioregion: 11.	Property: Lot 8 RN1580
Date:	Photos (optional) N:	S:	E: W:
Landscape photo(s): 753 - 756 (N,E,S,W)		Spot photo (s):	
Datum: WGS84 or GDA94 Zone:	0 m mark AMGE:	AMGN:	
	50 m mark AMGE:	AMGN:	
Transect bearing: 0m: -24.209232, 150.666415		100m: -24.208735, 150.665616.	
General description: Eucalypt Open Forest on South-west Slope Cycas megacarpa present.			

100 x 50 m area: * Ecologically dominant layer (EDL); ecological condition indicator (ECI)

Eucalypt large tree DBH (from benchmark doc.): 30cm. Number of large eucalypt trees: 14	Non-Eucalypt large tree DBH (from benchmark doc.): N/A. Number of large non-eucalypt trees: 0
Total large trees (ECI 8): 14	
Tree canopy (EDL) height (ECI 3): 14m	
Subcanopy and/or emergent height (where relevant): S: 10m	E: N/A.
Proportion of dominant canopy (EDL) species with evidence of recruitment (ECI 1): 100%	
Total tree species richness (ECI 2a) includes all tree (i.e. single stemmed > 2 m height) species in the 100x50m, not just EDL species: 3.	

50 x 10 m area: *list species if known or count if unknown

Shrub species richness (ECI 2b) (defined as single stemmed below 2 m or multi-stemmed from base or below 20 cm) *: 8
Grass species richness (ECI 2c): 7
Forbs and others (non-grass ground) species richness (ECI 2d): 13
Non-native plant (weed) cover (ECI 10): 15%.

50 x 20 m area: Coarse woody debris (ECI 9) CWD; >10 cm, >0.5 m, measured to the plot boundary:

CWD length:		CWD length:		CWD length:		CWD length:		CWD length:		CWD length:	
1	2m	8		15		22		29		36	
2	1m	9		16		23		30		37	
3	3m	10		17		24		31		38	
4	5m	11		18		25		32		39	
5	2m	12		19		26		33		40	
6		13		20		27		34		41	
7		14		21		28		35		Total:	13m.

Five 1x1 m plots * attributes used in scoring

Ground cover:	1	2	3	4	5	Mean
Native perennial grass cover (ECI 6)*	80	30	60	50	70	58
Organic litter cover (ECI 7) *	20	20	30	10	10	18
Forbs and other	0	50	10	40	20	24
Total	=100%	=100%	=100%	=100%	=100%	

100 m transect

Tree canopy cover (ECI 4): Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that these layers should be present; otherwise Canopy (C) *trees in the same layer and continuous along the transect can be grouped

Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total
C	0-1.1	1.1									
C	7.5-6.5	1.2									
S	11.1-12.2	1.1									
S	13.5-16.3	2.8									
C	27.0-30.4	3.4									
C	33.3-41.3	8									
S	48-50	2									
C	55.7-74.2	18.5									
C	77-82	5									
C	85.6-94.2	8.6									
C	95-100	2								Total C: 47.8m Total S: 5.9m Total E: 0m	

Shrub canopy cover (ECI 5): *denote as native or exotic. Only native shrub cover used in scoring

Shrubs*	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total
	1.8-2.6	0.8		48-50	2									
	3.6-4.4	0.8		54-55	1									
	6.4-7.5	1.1		57.8-62.8	5									
	27.0-30.0	3		74.2-75.2	1									
	31.4-32.5	1.1		91.2-94.2	3									
	35.3-37.8	2.5										Total native:	22.8m	
	94.0-95.5	1.5										Total exotic:	0m	

Ecological condition field assessment sheet

For assessment of ecological equivalence under the Queensland Biodiversity Offset Policy and the Policy for Vegetation Management Offsets. Version 1.0, 2011. Page 1 of 2.

Project title: GTP Cycas megacarpa. DERM reference: N/A.
Lot plan/s: Lot 8 RN 1580 Bioregion: 11

Area: Rec 4	RE/land type/assessment unit: 11.11.15.	Bioregion: 11	Property: Lot 8 RN 1580.
Date:	Photos (optional) N:	S:	E: W:
Landscape photo(s): 758-761. (N.E.S.W)		Spot photo (s):	
Datum: WGS84 or GDA94 Zone:	0 m mark AMGE:	AMGN:	
	50 m mark AMGE:	AMGN:	
Transect bearing: 0m: -24.209534, 150.670983 100m: -24.209911, 150.670185			
General description: Open forest typical of 11.11.15.			

100 x 50 m area: * Ecologically dominant layer (EDL); ecological condition indicator (ECI)

Eucalypt large tree DBH (from benchmark doc.): 30cm Number of large eucalypt trees: 18	Non-Eucalypt large tree DBH (from benchmark doc.): N/A. Number of large non-eucalypt trees: 0
Total large trees (ECI 8): 18	
Tree canopy (EDL) height (ECI 3): 16m	
Subcanopy and/or emergent height (where relevant): S: 10m E: N/A.	
Proportion of dominant canopy (EDL) species with evidence of recruitment (ECI 1): 100%.	
Total tree species richness (ECI 2a) includes all tree (i.e. single stemmed > 2 m height) species in the 100x50m, not just EDL species: 4. 100%.	

50 x 10 m area: *list species if known or count if unknown

Shrub species richness (ECI 2b) (defined as single stemmed below 2 m or multi-stemmed from base or below 20 cm) *: 5. 55%
Grass species richness (ECI 2c): 6. 100%
Forbs and others (non-grass ground) species richness (ECI 2d): 6. 75%.
Non-native plant (weed) cover (ECI 10): 20%.

50 x 20 m area: Coarse woody debris (ECI 9) CWD; >10 cm, >0.5 m, measured to the plot boundary:

CWD length:		CWD length:		CWD length:		CWD length:		CWD length:		CWD length:	
1	3m	8		15		22		29		36	
2	3m	9		16		23		30		37	
3	2m	10		17		24		31		38	
4	2m	11		18		25		32		39	
5	8m	12		19		26		33		40	
6		13		20		27		34		41	
7		14		21		28		35		Total:	18m.

Rec 4

Five 1x1 m plots * attributes used in scoring

Ground cover:	1	2	3	4	5	Mean
Native perennial grass cover (ECI 6)*	100	40	50	50	15	51
Organic litter cover (ECI 7) *	0	30	10	30	30	20
Forbs and other	0	30	40	20	55.	29
Total	=100%	=100%	=100%	=100%	=100%	

100 m transect

Tree canopy cover (ECI 4): Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that these layers should be present; otherwise Canopy (C) *trees in the same layer and continuous along the transect can be grouped

Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total
S	97.5-90.7	6.8									
C	85.7-72.4	13.3									
C	64.3-55.2	9.1									
S	52.2-49.1	3.1									
C	43.3-37.3	6									
C	29.8-22.9	6.9									
C	15.0-12.6	2.4									
S	12.6-8.2	4.4									
										Total C: 37.7m Total S: 14.3m Total E: 0m	

Shrub canopy cover (ECI 5): *denote as native or exotic. Only native shrub cover used in scoring

Shrubs*	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total
	84.3-82.6	1.7												
	77.8-76.9	0.9												
	19.5-17.7	1.8												
												Total native: 4.4m		
												Total exotic: 0m		

Ecological condition field assessment sheet

For assessment of ecological equivalence under the Queensland Biodiversity Offset Policy and the Policy for Vegetation Management Offsets. Version 1.0, 2011. Page 1 of 2.

Project title: GTP Cycas megacarpa — DERM reference: N/A
Lot plan/s: Lot 11 SP199386 — Bioregion: 11.

Area: Rec 5.	RE/land type/assessment unit: 11.12.1.	Bioregion: 11.	Property: Lot 11 SP199386
Date:	Photos (optional) N:	S:	E: W:
Landscape photo(s): 767 - 770 (N, E, S, W).		Spot photo (s):	
Datum: WGS84 or GDA94 Zone:	0 m mark AMGE:	AMGN:	
	50 m mark AMGE:	AMGN:	
Transect bearing: 0m: -24.116545, 150.723927	100m: -24.117154	150.723429.	
General description: On ridgeline on North-east/South west slopes. Cycas megacarpa present.			

100 x 50 m area: * Ecologically dominant layer (EDL); ecological condition indicator (ECI)

Eucalypt large tree DBH (from benchmark doc.): 30cm Number of large eucalypt trees: 20	Non-Eucalypt large tree DBH (from benchmark doc.): N/A. Number of large non-eucalypt trees: 0
Total large trees (ECI 8): 20	
Tree canopy (EDL) height (ECI 3): 14m Subcanopy and/or emergent height (where relevant): S: 7m E: N/A	
Proportion of dominant canopy (EDL) species with evidence of recruitment (ECI 1): 100%.	
Total tree species richness (ECI 2a) includes all tree (i.e. single stemmed > 2 m height) species in the 100x50m, not just EDL species: 4 100%	

50 x 10 m area: *list species if known or count if unknown

Shrub species richness (ECI 2b) (defined as single stemmed below 2 m or multi-stemmed from base or below 20 cm) *: 9 100%
Grass species richness (ECI 2c): 9 + 100%
Forbs and others (non-grass ground) species richness (ECI 2d): 10 > 90%
Non-native plant (weed) cover (ECI 10): 5%.

50 x 20 m area: Coarse woody debris (ECI 9) CWD; >10 cm, >0.5 m, measured to the plot boundary.

	CWD length:		CWD length:		CWD length:		CWD length:		CWD length:		CWD length:	
1	1m	8	5m	15		22		29		36		
2	1.5m	9	2m	16		23		30		37		
3	4m	10	7m	17		24		31		38		
4	4m	11	5m	18		25		32		39		
5	3m	12	2.5m	19		26		33		40		
6	0.5m	13		20		27		34		41		
7	3m	14		21		28		35		Total:	38.5m	

Rec 5.

Five 1x1 m plots * attributes used in scoring

Ground cover:	1	2	3	4	5	Mean
Native perennial grass cover (ECI 6)*	40	5	40	40	90	43
Organic litter cover (ECI 7) *	60	40	20	30	10	32.
Forbs and other	0	55	40	30	0	25.
Total	=100%	=100%	=100%	=100%	=100%	

100 m transect

Tree canopy cover (ECI 4): Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that these layers should be present; otherwise Canopy (C) *trees in the same layer and continuous along the transect can be grouped

Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total
S	100 - 97.4	2.6									
S	92.7 - 60.5	32.2									
C	91 - 77.6	13.4									
C	59.7 - 49.0	10.7									
S	56.5 - 47.0	9.5									
S	92.0 - 53.0	9									
C	35.4 - 33.0	2.4									
C	28.0 - 22.4	5.6									
S	20 - 16	4									
S	10.5 - 4.5	6									
S	2.4 - 0	2.4								Total C: 32.1m Total S: 65.7m Total E: 0m	

Shrub canopy cover (ECI 5): *denote as native or exotic. Only native shrub cover used in scoring

Shrubs*	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total
*	94 - 91.	3		7.0 - 0	7									
*	96.3 - 78.0	8.3												
	74.7 - 73.3	1.4												
	67.6 - 65.0	2.6												
*	52.4 - 30.4	22												
	25.0 - 22.0	3										Total native: 16.2m		
	20.0 - 17.8	2.2										Total exotic: 33.3m		

Ecological condition field assessment sheet

For assessment of ecological equivalence under the Queensland Biodiversity Offset Policy and the Policy for Vegetation Management Offsets. Version 1.0, 2011. Page 1 of 2.

Project title: CTP Eucs mugga corpo. DERM reference: N/A.
Lot plan/s: Lot 11 SP 199386 Bioregion: 11

Area: Rec 6.	RE/land type/assessment unit: 11.12.6	Bioregion: 11	Property: Lot 11 SP199386.
Date:	Photos (optional) N:	S:	E: W:
Landscape photo(s): 774-777 (N, E, S, W).		Spot photo (s):	
Datum: WGS84 or GDA94 Zone:	0 m mark AMGE: 50 m mark AMGE:	AMGN: AMGN:	
Transect bearing: 0m: -24.112221, 150-719867		100m: -24.112708, 150-720483.	
General description: Open forest typical of RE 11.12.6.			

100 x 50 m area: * Ecologically dominant layer (EDL); ecological condition indicator (ECI)

Eucalypt large tree DBH (from benchmark doc.): 30cm. Number of large eucalypt trees: 16	Non-Eucalypt large tree DBH (from benchmark doc.): N/A. Number of large non-eucalypt trees: 0
Total large trees (ECI 8): 16	
Tree canopy (EDL) height (ECI 3): 23m	
Subcanopy and/or emergent height (where relevant): S: 16m	E: N/A.
Proportion of dominant canopy (EDL) species with evidence of recruitment (ECI 1): 75%.	
Total tree species richness (ECI 2a) includes all tree (i.e. single stemmed > 2 m height) species in the 100x50m, not just EDL species: 8 100%	

50 x 10 m area: *list species if known or count if unknown

Shrub species richness (ECI 2b) (defined as single stemmed below 2 m or multi-stemmed from base or below 20 cm) *: 8 100%
Grass species richness (ECI 2c): 7 100%
Forbs and others (non-grass ground) species richness (ECI 2d): 8 100%
Non-native plant (weed) cover (ECI 10): 5%

50 x 20 m area: Coarse woody debris (ECI 9) CWD; >10 cm, >0.5 m, measured to the plot boundary:

CWD length:		CWD length:		CWD length:		CWD length:		CWD length:		CWD length:	
1	8m	8		15		22		29		36	
2	8.5m	9		16		23		30		37	
3	12m	10		17		24		31		38	
4	2m	11		18		25		32		39	
5	1.5m	12		19		26		33		40	
6		13		20		27		34		41	
7		14		21		28		35		Total:	32.0m

Rec 6

Five 1x1 m plots * attributes used in scoring

Ground cover:	1	2	3	4	5	Mean
Native perennial grass cover (ECI 6)*	100	100	80	80	90	90
Organic litter cover (ECI 7) *	0	0	20	20	10	10
Forbs and other	0	0	0	0	0	0
Total	=100%	=100%	=100%	=100%	=100%	

100 m transect

Tree canopy cover (ECI 4): Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that these layers should be present; otherwise Canopy (C) *trees in the same layer and continuous along the transect can be grouped

Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total
S	100-98.8	1.2									
C	98-90.2	7.8									
C	84-51.6	32.4									
S	84-73.4	10.6									
S	68.9-65.1	3.8									
S	43.4-33.0	10.4									
C	36.5-33.0	3.5									
S	28.1-25.0	3.1									
C	25.0-13.9	11.1									
S	13.3-11.2	2.1									
C	8.2-0	8.2								Total C: 63.0m Total S: 31.2m Total E: 0m.	

Shrub canopy cover (ECI 5): *denote as native or exotic. Only native shrub cover used in scoring

Shrubs*	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total
	77-75	2		27.6-26.2	1.4									
	72.5-71.5	1		9.5-8.2	1.3									
	68.9-66.5	2.4												
	62.3-60.6	1.7												
	58.1-54.7	3.4												
	40.3-38.0	2.3										Total native: 16.7m		
	31.8-30.6	1.2										Total exotic: 0m		

Ecological condition field assessment sheet

For assessment of ecological equivalence under the Queensland Biodiversity Offset Policy and the Policy for Vegetation Management Offsets. Version 1.0, 2011. Page 1 of 2.

Project title: CTP Cyperus regeneration DERM reference: N/A.
Lot plan/s: Lot 11 SP199386 Bioregion: 11.

Area: Rec 7.	RE/land type/assessment unit: 11.12.6	Bioregion: 11	Property: Lot 11 SP199386.
Date:	Photos (optional) N:	S:	E: W:
Landscape photo(s): 778-781. (N, E, S, N).		Spot photo (s):	
Datum: WGS84 or GDA94 Zone:	0 m mark AMGE:	AMGN:	
	50 m mark AMGE:	AMGN:	
Transect bearing: 0m: -24.131892, 150.725017		100m: -24.132233, 150.725677	
General description: Open Forest / woodland Cyperus regeneration patches			

100 x 50 m area: * Ecologically dominant layer (EDL); ecological condition indicator (ECI)

Eucalypt large tree DBH (from benchmark doc.): 30cm Number of large eucalypt trees: 34	Non-Eucalypt large tree DBH (from benchmark doc.): N/A. Number of large non-eucalypt trees: 0
Total large trees (ECI 8): 34.	
Tree canopy (EDL) height (ECI 3): 23m Subcanopy and/or emergent height (where relevant): S: 16m E: N/A.	
Proportion of dominant canopy (EDL) species with evidence of recruitment (ECI 1): 100%	
Total tree species richness (ECI 2a) includes all tree (i.e. single stemmed > 2 m height) species in the 100x50m, not just EDL species: 2 25%	

50 x 10 m area: *list species if known or count if unknown

Shrub species richness (ECI 2b) (defined as single stemmed below 2 m or multi-stemmed from base or below 20 cm) *: 8 18%
Grass species richness (ECI 2c): 8 >100%
Forbs and others (non-grass ground) species richness (ECI 2d): 12 >100%
Non-native plant (weed) cover (ECI 10): 5%

50 x 20 m area: Coarse woody debris (ECI 9) CWD; >10 cm, >0.5 m, measured to the plot boundary:

CWD length:		CWD length:		CWD length:		CWD length:		CWD length:		CWD length:	
1	2.5m.	8		15		22		29		36	
2	1.5m.	9		16		23		30		37	
3	4m.	10		17		24		31		38	
4	3m	11		18		25		32		39	
5	5m	12		19		26		33		40	
6		13		20		27		34		41	
7		14		21		28		35		Total:	16m.

Rec. 7

Five 1x1 m plots * attributes used in scoring

Ground cover:	1	2	3	4	5	Mean
Native perennial grass cover (ECI 6)*	20	20	5	75	70	38
Organic litter cover (ECI 7) *	75	50	75	20	20	48
Forbs and other	5	30	20	5	10	14
Total	=100%	=100%	=100%	=100%	=100%	

100 m transect

Tree canopy cover (ECI 4): Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that these layers should be present; otherwise Canopy (C) *trees in the same layer and continuous along the transect can be grouped

Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total
C	100-76.2	23.8	S	2.0-0.	2						
S	96.9-93.0	3.9									
C	71.0-56.1	14.9									
S	68.9-66.5	2.4									
S	54.3-52.0	2.3									
C	45.6-37.8	5.8									
C	32.6-15.0	17.6									
S	27.3-23.2	4.1									
S	20.2-17.4	2.8									
C	11.1-3.8	7.3									
S	8.3-6.5	1.8								Total C: 69.4m Total S: 19.3m. Total E: 0m	

Shrub canopy cover (ECI 5): *denote as native or exotic. Only native shrub cover used in scoring

Shrubs*	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total
	83.7-65.0	18.7												
	38.2-36.6	1.6												
*	11.1-9.6	1.5												
												Total native: 20.3m		
												Total exotic: 1.5m		

Ecological condition field assessment sheet

For assessment of ecological equivalence under the Queensland Biodiversity Offset Policy and the Policy for Vegetation Management Offsets. Version 1.0, 2011. Page 1 of 2.

Project title: GTP Cycas megacarpa. DERM reference: N/A
Lot plan/s: Lot 11 SP199386 Bioregion: 11.

Area: Rec 8	RE/land type/assessment unit: 11.12.6	Bioregion: 11.	Property: Lot 11 SP199386.
Date:	Photos (optional) N:	S:	E: W:
Landscape photo(s): 782 → 785 (N,E,S,W).		Spot photo (s):	
Datum: WGS84 or GDA94 Zone:	0 m mark AMGE:	AMGN:	
	50 m mark AMGE:	AMGN:	
Transect bearing: 0m: -24.122972, 150.729558	100m: -24.122116, 150.730196.		
General description: Open forest. Cycas megacarpa present			

100 x 50 m area: * Ecologically dominant layer (EDL); ecological condition indicator (ECI)

Eucalypt large tree DBH (from benchmark doc.): 30cm. Number of large eucalypt trees: 23	Non-Eucalypt large tree DBH (from benchmark doc.): N/A Number of large non-eucalypt trees: 0
Total large trees (ECI 8): 23	
Tree canopy (EDL) height (ECI 3): 18m Subcanopy and/or emergent height (where relevant): S: 15m	E: N/A.
Proportion of dominant canopy (EDL) species with evidence of recruitment (ECI 1): 100%	
Total tree species richness (ECI 2a) includes all tree (i.e. single stemmed > 2 m height) species in the 100x50m, not just EDL species: 3. 37.5%	

50 x 10 m area: *list species if known or count if unknown

Shrub species richness (ECI 2b) (defined as single stemmed below 2 m or multi-stemmed from base or below 20 cm) *: 4. 50%
Grass species richness (ECI 2c): 6. 85.7%
Forbs and others (non-grass ground) species richness (ECI 2d): 5. 62.5%
Non-native plant (weed) cover (ECI 10): 30%

50 x 20 m area: Coarse woody debris (ECI 9) CWD; >10 cm, >0.5 m, measured to the plot boundary.

CWD length:		CWD length:		CWD length:		CWD length:		CWD length:		CWD length:	
1	1.5m	8		15		22		29		36	
2	1m.	9		16		23		30		37	
3	1.5m	10		17		24		31		38	
4	1m	11		18		25		32		39	
5	2m	12		19		26		33		40	
6		13		20		27		34		41	
7		14		21		28		35		Total:	7m

Rec 8

Five 1x1 m plots * attributes used in scoring

Ground cover:	1	2	3	4	5	Mean
Native perennial grass cover (ECI 6)*	90	50	15	50	60	53
Organic litter cover (ECI 7) *	10	30	30	20	40	26
Forbs and other	0	20	55	30	0	21.
Total	=100%	=100%	=100%	=100%	=100%	

100 m transect

Tree canopy cover (ECI 4): Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that these layers should be present; otherwise Canopy (C) *trees in the same layer and continuous along the transect can be grouped

Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total
C	100-89.4	10.6									
C	87.2-66.3	20.9									
C	56-41	15									
C	33.7-26.7	7									
C	20.5-0.	20.5									
										Total C: 74 m Total S: 0 m Total E: 0 m.	

Shrub canopy cover (ECI 5): *denote as native or exotic. Only native shrub cover used in scoring

Shrubs*	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total
	86.6-82.0	4.6												
*	75.4-72.3	3.1												
	69.4-63.6	5.8												
	1.0-0.	1.												
													Total native: 6.9m	
													Total exotic: 3.1m	

Ecological condition field assessment sheet

For assessment of ecological equivalence under the Queensland Biodiversity Offset Policy and the Policy for Vegetation Management Offsets. Version 1.0, 2011. Page 1 of 2.

Project title: GTP Cyclone regeneration	DERM reference: N/A.
Lot plan/s: Lot 11 SP199386	Bioregion: 11

Area: Rec 9.	**RE/land type/assessment unit:** 11.12.1.	**Bioregion:**	**Property:** Lot 11 SP199386.
Date:	**Photos** (optional) **N:**	**S:**	**E:** **W:**
Landscape photo(s): 786 - 789 (N, E, S, W).		**Spot photo (s):**	
Datum: WGS84 or GDA94 **Zone:**	**0 m mark AMGE:**		**AMGN:**
	50 m mark AMGE:		**AMGN:**
Transect bearing: 0m: -24.096456, 150.728891		100m: -24.097069, 150.72931.	
General description: Typical of RE 11.12.1			

100 x 50 m area: * Ecologically dominant layer (EDL); ecological condition indicator (ECI)

Eucalypt large tree DBH (from benchmark doc.): 30cm Number of large eucalypt trees: 20	Non-Eucalypt large tree DBH (from benchmark doc.): N/A Number of large non-eucalypt trees: 0
Total large trees (ECI 8): 20	
Tree canopy (EDL) height (ECI 3): 15m Subcanopy and/or emergent height (where relevant): S: 13m E:	
Proportion of dominant canopy (EDL) species with evidence of recruitment (ECI 1): 100%	
Total tree species richness (ECI 2a) includes all tree (i.e. single stemmed > 2 m height) species in the 100x50m, not just EDL species: 4 100%	

50 x 10 m area: *list species if known or count if unknown

Shrub species richness (ECI 2b) (defined as single stemmed below 2 m or multi-stemmed from base or below 20 cm) *: 100%	9
Grass species richness (ECI 2c): 100%	6
Forbs and others (non-grass ground) species richness (ECI 2d): 100%	9
Non-native plant (weed) cover (ECI 10):	10%

50 x 20 m area: Coarse woody debris (ECI 9) CWD; >10 cm, >0.5 m, measured to the plot boundary:

	CWD length:		CWD length:		CWD length:		CWD length:		CWD length:		CWD length:	
1	19 m	8	3m	15		22		29		36		
2	15m	9	2m	16		23		30		37		
3	3m	10	5m	17		24		31		38		
4	5m	11	1m	18		25		32		39		
5	2m	12		19		26		33		40		
6	1m	13		20		27		34		41		
7	5m	14		21		28		35		Total:	56 m	

Rec 9.

Five 1x1 m plots * attributes used in scoring

Ground cover:	1	2	3	4	5	Mean
Native perennial grass cover (ECI 6)*	80	100	100	90	80	90
Organic litter cover (ECI 7) *	20	0	0	10	20	10
Forbs and other	0	0	0	0	0	0
Total	=100%	=100%	=100%	=100%	=100%	

~~100~~ m transect 50m

Tree canopy cover (ECI 4): Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that these layers should be present; otherwise Canopy (C) *trees in the same layer and continuous along the transect can be grouped

Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total	Tree or group* (C or S or E)	Distance (m)	Total
S	50-48.1	1.9									
S	45.9-37	6.9									
C	39-31.0	8									
C	28.7-0	28.7									
S	21-16.7	4.3									
S	16-4.	12									
									100m transect	Total C: 73.4m Total S: 49.2m Total E: 0m.	

50m Trnst

Shrub canopy cover (ECI 5): *denote as native or exotic. Only native shrub cover used in scoring

Shrubs*	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total	Shrubs	Distance (m)	Total
	47.6-46.6	1												
	45.4-39.	6.4												
	37.4-35.2	2.2												
*	33.8-31.7	2.1												
	22.6-16.7	5.9												
	4.0-0.0.	4										Total native: 39		
												Total exotic: 2.2m		

50m transect

100m transect

Appendix C
BioCondition reference datasheets – reference sites

BIOCONDITION REFERENCE DATASHEET

OFFICE USE ONLY
Entered:
Corrected:

Site ID: Ref 11.11.4
DATE: 11/09/2012.
OBSERVERS: Chris Schell & Victoria O'Rourke.

Queensland Government
Environmental Protection Agency

☑ Full reference Site? ☐ Partial reference Site? (tick attributes below to indicate those completed)

- ☐ Native plant spp richness
- ☐ Tree Canopy height
- ☐ Tree Canopy cover
- ☐ Shrub layer cover
- ☐ Fallen Woody Material
- ☐ Native perennial grass cover
- ☐ Native perennial forb and non-grass cover
- ☐ Native annual grass, herb and forb cover
- ☐ Litter Cover
- ☐ Large Trees

SITE INFORMATION

LOCATION (GPS reference)

Datum: ☐ AGD84 ☑ GDA94 (WGS84) OTHER:_____ Location derivation:_____

Road: zone: __ easting: _____ northing:_____ Plot Centre Direction: _____m at _____degrees

Plot Centre zone: __ easting: _____ northing:_____ Accuracy: _____

Plot bearing: _____ Plot alignment description:

Locality description:

Tenure: Reserve or Property Name: Cat 8 RN1580 Reserve number: Bioregion: 11

REGIONAL ECOSYSTEM

Habitat Description: Open forest / woodland.

Regional Ecosystem: 11.11.4 Median Tree Canopy height: 21. m

Code	Description	Code	Description
C	Crest	M	Mid-Slope
D	Closed Depression	P	Plateau
F	Flat	R	Ridge
G	Gully	U	Upper Slope
H	Hillock	V	Open Depression
L	Lower Slope	W	Wetland

LANDFORM:

Slope Position: L Slope Degree: 15/. Slope Aspect: South.

SITE PHOTOS

Site photos taken? (YES) NO

Photo Numbers: North | South | East | West | Other: 719 - 722 (N, E, S, W)

DISTURBANCE:

Disturbance Type	Mean fire scar ht(m)	Severity 0-3 (0=nil, 3=severe)	Time since last event (A:<1yrs, B: 1-5yrs, C: 5-10yrs, D: 10-20yrs, E: >20yrs)	Observation type (1=visual, 2=records, 3=informant, 4=imagery/mapped)
Wildfire				
Prescribed Burn				
Logging				
Treatment				
Grazing				
Weeds				
Erosion				
Regeneration				
Storm				
Other (specify)				

Fallen Woody Material:

(num of fallen woody logs >10cm diam and >0.5m - Plot: 50 x 10m)

Count (tally):

1m 1.5m
2m 2m.
2m
2m
1m
5m
3m
2m
1.5m
8m

TOTAL (12) 31m

Native Plant Species Richness: (Plot: 50 x 10m)

		Total
Tree spp. richness:	3.	
Shrub spp. richness:	5.	
Grass spp. richness:	5.	
Herbs & Forbs spp. richness:	9.	
Other spp. richness:	3.	

Ref 11.11.4

BIOCONDITION REFERENCE cont....

Ground Cover: (five 1 x 1m plots)

Ground Cover type	1	2	3	4	5	Mean
Native perennial grass	40	30	50	20	15	31
Native perennial herbs & forbs (non-grass)	10	2	0	0	5	3.4
Native annual grass, herbs & forbs	0	0	0	0	0	0
Native shrubs (<1m in height)	0	0	0	0	0	0
Non-native grass	0	0	0	0	0	0
Non-native herbs & shrubs	10	5	5	10	5	5
Litter	33	30	10	40	30	28.6
Rock	5	10	10	5	30	12
Bare ground	2	28	25	25	15	19
Cryptograms	0	0	0	0	0	0
Total	100%	100%	100%	100%	100%	XXXXXX

Large Trees: (Eucalypts >30cm dbh and Non-eucalypts >20cm) Plot size: ☑ 100 x 50m ☐ 100 x 20m ☐ 100 x 10m

Species	Tally of DBH size classes (cm) 20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	>60 (record actual dbh)
Eucalyptus crebra.	9	7	3	2	2		1		
Corymbia citriodora.	5	2	1	1	2			1	
Total	14	9	4	3	4		1	1	

Eucalypts: Average DBH (threshold)= 30.3 cm
Number of trees >= benchmark: 13

Non-eucalypts: Average DBH (threshold)= N/A cm
Number of trees >= benchmark: N/A.

30.3cm

Tree and Shrub Canopy Cover: (100m line intercept - T/S = tree or shrub)

	T/S	Distance		T/S	Distance		T/S	Distance		T/S	Distance		T/S	Distance		T/S	Distance		T/S	Distance
1	S	1.5	13	S	1.5	25	S	7.9	37			49			61			73		
2	T_2	2	14	T_2	3.2.	26	T_2	3.7.	38			50			62			74		
3	T_1	6.1	15	T_1	1.0	27			39			51			63			75		
4	S	0.6	16	S	1.1.	28			40			52			64			76		
5	T_1	5.8	17	T_1	8.9.	29			41			53			65			77		
6	S	0.8	18	S	0.8	30			42			54			66			78		
7	S	0.6	19	S	1.3.	31			43			55			67			79		
8	S	0.7	20	T_1	6.2.	32			44			56			68			80		
9	S	1.9.	21	S	2.3	33			45			57			69			81		
10	T_1	8.3.	22	T_1	7.3	34			46			58			70			82		
11	S	1.8	23	T_2	1.2	35			47			59			71			Shrub total: 19.3m		
12	T_2	3	24	S	1.5	36			48			60			72			Tree total: 52.6		

T_1

Site visit comments:

BIOCONDITION REFERENCE DATASHEET

OFFICE USE ONLY
Entered:
Corrected:

Site ID: Ref 11.11.15
DATE: 11/09/2012
OBSERVERS: Chris Sokell & Victoria O'Rourke

Queensland Government
Environmental Protection Agency

☑ Full reference Site? ☐ Partial reference Site? (tick attributes below to indicate those completed)

- ☐ Native plant spp richness
- ☐ Tree Canopy height
- ☐ Tree Canopy cover
- ☐ Shrub layer cover
- ☐ Fallen Woody Material
- ☐ Native perennial grass cover
- ☐ Native perennial forb and non-grass cover
- ☐ Native annual grass, herb and forb cover
- ☐ Litter Cover
- ☐ Large Trees

SITE INFORMATION

LOCATION (GPS reference)

Datum: ☐ AGD84 ☑ GDA94 (WGS84) OTHER:_____ Location derivation:_____

Road: zone: __ easting: _____ northing:_____ Plot Centre Direction: _____m at _____degrees

Plot Centre zone: __ easting: _____ northing:_____ Accuracy: _____

Plot bearing: _____ Plot alignment description:

Locality description:

Tenure: Reserve or Property Name: Lot 8 RN1580 Reserve number: Bioregion: 11

REGIONAL ECOSYSTEM

Habitat Description: woodland / open woodland

Regional Ecosystem: 11.11.15 Median Tree Canopy height: 23 m

Code	Description	Code	Description
C	Crest	M	Mid-Slope
D	Closed Depression	P	Plateau
F	Flat	R	Ridge
G	Gully	U	Upper-Slope
H	Hillock	V	Open Depression
L	Lower-Slope	W	Wetland

LANDFORM: Slope Position: U Slope Degree: 20° Slope Aspect: S

SITE PHOTOS Photo Numbers: North _____ South _____ East _____ West _____

Site photos taken? (YES) NO Other: 723 - 726 (N, E, S, W).

DISTURBANCE:

Disturbance Type	Mean fire scar ht(m)	Severity 0-3 (0=nil, 3=severe)	Time since last event (A:<1yrs, B: 1-5yrs, C: 5-10yrs, D: 10-20yrs, E: >20yrs)	Observation type (1=visual, 2=records, 3=informant, 4=imagery/mapped)
Wildfire				
Prescribed Burn				
Logging				
Treatment				
Grazing				
Weeds				
Erosion				
Regeneration				
Storm				
Other (specify):				

Fallen Woody Material:

(num of fallen woody logs >10cm diam and >0.5m - Plot: 50 x 10m)

Count (tally):

1m
1.5m.
2m.
1.5m
1m
3m
5m
3m
2m.

TOTAL (9) 20m.

Native Plant Species Richness: (Plot: 50 x 10m)

		Total
Tree spp. richness:	3.	
Shrub spp. richness:	9	
Grass spp. richness:	6	
Herbs & Forbs spp. richness:	8	
Other spp. richness:	7.	

Ref 11-11-15

BIOCONDITION REFERENCE cont....

Ground Cover: (five 1 x 1m plots)

Ground Cover type	1	2	3	4	5	Mean
Native perennial grass	70	0	30	15	20	27.
Native perennial herbs & forbs (non-grass)	0	5	15	5	5	6
Native annual grass, herbs & forbs	10	10	0	0	0	4
Native shrubs (<1m in height)	5	10	5	5	5	6
Non-native grass	0	0	0	0	0	0
Non-native herbs & shrubs	0	0	0	0	5	1
Litter	7	60	40	5	10	24.4
Rock	5	5	0	10	5	5
Bare ground	3	10	10	60	50	26.6.
Cryptograms	0	0	0	0	0	0
Total	100%	100%	100%	100%	100%	XXXXXX

Large Trees: (Eucalypts >30cm dbh and Non-eucalypts >20cm) Plot size: ☑ 100 x 50m ☐ 100 x 20m ☐ 100 x 10m

Species	Tally of DBH size classes (cm) 20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	>60 (record actual dbh)
Eucalyptus crebra	11	12	12	6	5	3			

Eucalypts:	Average DBH (threshold)= 31.7 cm	31.7cm
	Number of trees >= benchmark: 26	
Non-eucalypts:	Average DBH (threshold)= N/A cm	
	Number of trees >= benchmark: N/A	

Tree and Shrub Canopy Cover: (100m line intercept - T/S = tree or shrub)

	T/S	Distance		T/S	Distance		T/S	Distance		T/S	Distance		T/S	Distance		T/S	Distance		T/S	Distance
1	T_1	9.0	13	S	1.1.	25	S	1.4	37			49			61			73		
2	S	2.0	14	T_2	3.1	26	T_1	9.4	38			50			62			74		
3	T_2	2.0	15	T_1	12.8	27			39			51			63			75		
4	S	2.0	16	S	2.4	28			40			52			64			76		
5	T_1	3.5	17	S	1.8	29			41			53			65			77		
6	T_1	3.9.	18	T_2	3.4	30			42			54			66			78		
7	S	1.3	19	S	1.3	31			43			55			67			79		
8	S	1.6	20	S	1.4	32			44			56			68			80		
9	S	5.4	21	T_1	3.3	33			45			57			69			81		
10	T_1	3.6	22	S	2.	34			46			58			70			82		
11	S	1.5	23	T_1	9.5.	35			47			59			71			Shrub total: 28.1 m.		
12	S	2.7	24	T_2	2.9.	36			48			60			72		T_1	Tree total: 44.8 m.		

Site visit comments:

BIOCONDITION REFERENCE DATASHEET

OFFICE USE ONLY
Entered:............
Corrected:..........

Site ID: Ref. Site 11.12.1.

DATE: ....../....../......

OBSERVERS: Chris Schell & Victoria O'Rourke.

Queensland Government
Environmental Protection Agency

✓ Full reference Site? ☐ Partial reference Site? (tick attributes below to indicate those completed)

☐ Native plant spp richness ☐ Native perennial grass cover
☐ Tree Canopy height ☐ Native perennial forb and non-grass cover
☐ Tree Canopy cover ☐ Native annual grass, herb and forb cover
☐ Shrub layer cover ☐ Litter Cover
☐ Fallen Woody Material ☐ Large Trees

SITE INFORMATION

LOCATION (GPS reference)

Datum: ☐ AGD84 ✓ GDA94 (WGS84) OTHER:______ Location derivation:__________

Road: zone: __ easting: ______ northing:_______ Plot Centre Direction: ______ m at ______ degrees

Plot Centre zone: __ easting: ______ northing:_______ Accuracy: ______

Plot bearing: _____ Plot alignment description: 0m: -29.096456, 150.728891 100m: -29.097069, 150.72931

Locality description: ....

Tenure:............Reserve or Property Name: Lot 11 SP199386 ....Reserve number: ....Bioregion:...........

REGIONAL ECOSYSTEM

Habitat Description: ....

Regional Ecosystem: 11.12.1. Median Tree Canopy height: 15m m

LANDFORM: Slope Position: U Slope Degree: 30° Slope Aspect: SE.

Code	Description	Code	Description
C	Crest	M	Mid-Slope
D	Closed Depression	P	Plateau
F	Flat	R	Ridge
G	Gully	U	Upper-Slope
H	Hillock	V	Open Depression
L	Lower-Slope	W	Wetland

SITE PHOTOS Photo Numbers: North ____ South ____ East ____ West ____ Other: 786-789 (N,E,S,W).

Site photos taken? (YES) NO

DISTURBANCE:

Disturbance Type	Mean fire scar ht(m)	Severity 0-3 (0=nil, 3=severe)	Time since last event (A:<1yrs, B: 1-5yrs, C: 5-10yrs, D: 10-20yrs, E: >20yrs)	Observation type (1=visual, 2=records, 3=informant, 4=imagery/mapped)
Wildfire				
Prescribed Burn				
Logging				
Treatment				
Grazing				
Weeds				
Erosion				
Regeneration				
Storm				
Other (specify):				

Fallen Woody Material:

(num of fallen woody logs >10cm diam and >0.5m - Plot: 50 x 10m)

Count (tally): 14m, 14, 3m, 5m, 2m, 1m, 5m, 1m, 4m, 5m, 1m; 4m, 5m, 1m; (7)

TOTAL (7) 38m

Native Plant Species Richness: (Plot 50 x 10m)

		Total
Tree spp. richness:	4	
Shrub spp. richness:	9	
Grass spp. richness:	6	
Herbs & Forbs spp. richness:	9	
Other spp. richness:	4	

Ref Site 11-12-1

BIOCONDITION REFERENCE cont....

Ground Cover: (five 1 x 1m plots)

Ground Cover type	1	2	3	4	5	Mean
Native perennial grass	80	100	100	90	80	90
Native perennial herbs & forbs (non-grass)	0	0	0	0	0	0
Native annual grass, herbs & forbs	0	0	0	0	0	0
Native shrubs (<1m in height)	0	0	0	0	0	0
Non-native grass	0	0	0	0	0	0
Non-native herbs & shrubs	0	0	0	0	0	0
Litter	20	0	0	10	20	10
Rock	0	0	0	0	0	0
Bare ground	0	0	0	0	0	0
Cryptograms	0	0	0	0	0	0
Total	100%	100%	100%	100%	100%	

Large Trees: (Eucalypts >30cm dbh and Non-eucalypts >20cm) Plot size ☑ 100 x 50m ☐ 100 x 20m ☐ 100 x 10m

	Tally of DBH size classes (cm)								
Species	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	>60 (record actual dbh)
Corymbia eglandulosa	4	2	4				2		
Eucalyptus crebra	10	4	6	4	2	2			
Total	14	6	10	4	2	2	2		

Eucalypts: Average DBH (threshold)= 30. cm
Number of trees >= benchmark: 20

Non-eucalypts: Average DBH (threshold)= N/A cm
Number of trees >= benchmark: —

30cm

Tree and Shrub Canopy Cover: (100m line intercept - T/S = tree or shrub)

	T/S	Distance		T/S	Distance		T/S	Distance		T/S	Distance		T/S	Distance		T/S	Distance		T/S	Distance
1	T	8	13			25			37			49			61			73		
2	T	28.7	14			26			38			50			62			74		
3	T	8	15			27			39			51			63			75		
4	T	28.7	16			28			40			52			64			76		
5	S	2	17			29			41			53			65			77		
6	S	12.8	18			30			42			54			66			78		
7	S	4.9	19			31			43			55			67			79		
8	S	10.8	20			32			44			56			68			80		
9	S	8	21			33			45			57			69			81		
10			22			34			46			58			70			82		
11			23			35			47			59			71			Shrub total: 38m		
12			24			36			48			60			72			Tree total: 73.4m		

Site visit comments:

BIOCONDITION REFERENCE DATASHEET

OFFICE USE ONLY
Entered:
Corrected:

Site ID: Ref Site 11.12.6.
DATE: / /
OBSERVERS: Chris Schell & Victoria O'Rourke.

Queensland Government
Environmental Protection Agency

☑ Full reference Site? ☐ Partial reference Site? (tick attributes below to indicate those completed)

- ☐ Native plant spp richness
- ☐ Tree Canopy height
- ☐ Tree Canopy cover
- ☐ Shrub layer cover
- ☐ Fallen Woody Material
- ☐ Native perennial grass cover
- ☐ Native perennial forb and non-grass cover
- ☐ Native annual grass, herb and forb cover
- ☐ Litter Cover
- ☐ Large Trees

SITE INFORMATION

LOCATION (GPS reference)

Datum: ☐ AGD84 ☑ GDA94 (WGS84) OTHER:_____ Location derivation:_____

Road: zone: __ easting: _____ northing: _____ Plot Centre Direction: _____ m at _____ degrees

Plot Centre zone: __ easting: _____ northing: _____ Accuracy: _____

Plot bearing: _____ Plot alignment description: 0m: -29.112221, 150.719867 100m: -29.112788, 150.720453

Locality description:

Tenure: Reserve or Property Name: Lot 11 SP199386 Reserve number: Bioregion: 11

REGIONAL ECOSYSTEM

Habitat Description: Open Forest.

Regional Ecosystem: 11.12.6. Median Tree Canopy height: 23m. m

Code	Description	Code	Description
C	Crest	M	Mid-Slope
D	Closed Depression	P	Plateau
F	Flat	R	Ridge
G	Gully	U	Upper-Slope
H	Hillock	V	Open Depression
L	Lower-Slope	W	Wetland

LANDFORM: Slope Position: P Slope Degree: Fl Slope Aspect: NW,

SITE PHOTOS

Site photos taken? (YES) NO

Photo Numbers: North | South | East | West | Other: 776-777 (W, E, S, W).

DISTURBANCE:

Disturbance Type	Mean fire scar ht(m)	Severity 0-3 (0=nil, 3=severe)	Time since last event (A:<1yrs, B: 1-5yrs, C: 5-10yrs, D: 10-20yrs, E: >20yrs)	Observation type (1=visual, 2=records, 3=informant, 4=imagery/mapped)
Wildfire				
Prescribed Burn				
Logging				
Treatment				
Grazing				
Weeds				
Erosion				
Regeneration				
Storm				
Other (specify):				

Fallen Woody Material:

(num of fallen woody logs >10cm diam and >0.5m - Plot: 50 x 10m)

Count (tally):

8m
8.5m
12m
2m
1.5m
- (5)

TOTAL (5) 32m.

Native Plant Species Richness: (Plot: 50 x 10m)

		Total
Tree spp. richness:	8	
Shrub spp. richness:	8	
Grass spp. richness:	7	
Herbs & Forbs spp. richness:	8	
Other spp. richness:	3	

Ref Site 11-12-6

BIOCONDITION REFERENCE cont....

Ground Cover: (five 1 x 1m plots)

Ground Cover type	1	2	3	4	5	Mean
Native perennial grass	100	100	80	80	90	90
Native perennial herbs & forbs (non-grass)	0	0	0	0	0	0
Native annual grass, herbs & forbs	0	0	0	0	0	0
Native shrubs (<1m in height)	0	0	0	0	0	0
Non-native grass	0	0	0	0	0	0
Non-native herbs & shrubs	0	0	0	0	0	0
Litter	0	0	20	20	10	10
Rock	0	0	0	0	0	0
Bare ground	0	0	0	0	0	0
Cryptograms	0	0	0	0	0	0
Total	100%	100%	100%	100%	100%	

Large Trees: (Eucalypts >30cm dbh and Non-eucalypts >20cm) Plot size: ☐ 100 x 50m ☐ 100 x 20m ☐ 100 x 10m

	Tally of DBH size classes (cm)								
Species	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	>60 (record actual dbh)
Corymbia kesselotii	3	2	3		1				
Corymbia clarksoniana	2						1		
Eucalyptus tereticornis	1	1			1				
Corymbia citriodora	1	1	4	1				1	63cm.
Angophora leiocarpa							1		
Eucalyptus cloeziana	1	2	1		1				
Totals	8	6	8	1	3	0	2	1	1

Eucalypts:	Average DBH (threshold)= 30 cm	Benchmark = 30cm
	Number of trees >= benchmark: 16	
Non-eucalypts:	Average DBH (threshold)= N/A cm	
	Number of trees >= benchmark: N/A	

Tree and Shrub Canopy Cover: (100m line intercept - T/S = tree or shrub)

	T/S	Distance		T/S	Distance		T/S	Distance		T/S	Distance		T/S	Distance		T/S	Distance		T/S	Distance
1	~~T~~	~~103.76~~	13	S	2	25			37			49			61			73		
2	T	1.2	14	S	1	26			38			50			62			74		
3	T	7.8	15	S	2.4	27			39			51			63			75		
4	T	32.4	16	S	1.7	28			40			52			64			76		
5	~~T~~	~~28.6~~	17	S	3.4	29			41			53			65			77		
6	T	3.8	18	S	2.3	30			42			54			66			78		
7	T	10.9	19	S	1.2	31			43			55			67			79		
8	~~T~~	~~3.7~~	20	S	1.4	32			44			56			68			80		
9	T	3.1	21	S	1.3	33			45			57			69			81		
10	T	11.1	22			34			46			58			70			82		
11	T	2.1	23			35			47			59			71			Shrub total: 16.7m		
12	T	8.2	24			36			48			60			72			Tree total: ~~94.2~~		

Site visit comments: 80:1

Includes T1 + T2.

Appendix D
Ecological Equivalence field-based indicators score sheets

Site 1

Table 2 – Field-based indicator scores

Field-based indicators		
Indicator	**Description**	**Score**
1. Recruitment of woody perennial species	< 20% of overstorey species present as regeneration	0
	≥ 20 – 75% of overstorey species present as regeneration **Minimum score for offset area	3
	≥ 75% of overstorey species present as regeneration	(5)
2. Native plant species richness (trees, shrubs, grasses, forbs)	< 25% of benchmark number of species within each life-form	0
	≥ 25% to 90% of benchmark number of species within each life-form	2.5
	> 90% of benchmark number of species within each life-form	(5)
3. Tree canopy height	< 25% of benchmark height	0
	≥ 25% to 70% of benchmark height	3
	≥ 70% of benchmark height	(5)
4. Tree Canopy Cover	< 10 % of benchmark	0
	≥ 10% and < 50 % of benchmark ** Minimum score for offset area	2
	≥ 50% to ≤ 200% of benchmark	(5)
	> 200% of benchmark	3
5. Shrub canopy cover	< 10 % of benchmark shrub cover	0
	< 50% or >200% of benchmark shrub cover	(3)
	≥ 50% to ≤ 200% of benchmark shrub cover	5
6. Native perennial grass cover	< 10% of benchmark perennial grass cover	0
	≥ 10 to 50% of benchmark perennial grass cover	(1)
	> 50 to 90% of benchmark perennial grass cover	3
	> 90% of benchmark perennial grass cover	5
7. Organic litter cover	< 10 % of benchmark organic litter	0
	< 50% or >200% of benchmark organic litter	(3)
	≥ 50% to ≤ 200% of benchmark organic litter	5
8. Large trees	No large trees present	0
	0 to 50% of benchmark of large trees	5
	>50% to 100% of benchmark number of large trees	10
	>benchmark number of large trees	(15)
9. Coarse woody debris	< 10 % of benchmark number or total length of CWD	0
	< 50% or >200% of benchmark number or total length of CWD	2
	≥ 50% or ≤ 200% of benchmark number or total length of CWD	(5)
10. Weed cover	> 50 % weed cover	(0)
	>25 to 50% weed cover	3
	≥5 to 25% weed cover	5
	< 5 % weed cover	10

Total: 47/65.

Step 3 – Context ***(only measured for fragmented landscapes)***
Assessment involves measuring the amount of remnant vegetation and high value regrowth vegetation within a one kilometre buffer around the site. This indicator can be measured using GIS.

To calculate the context score:
1. Create a one kilometre buffer around the edge of the site.
2. Measure the percentage of remnant and high value regrowth vegetation within the buffer zone.
3. Determine the score for this indicator from Table 4.

Step 4 – Permanent water ***(only measured for intact landscapes)***
This indicator can be measured through satellite imagery or air photo interpretation. It can also be measured by on-ground verification of the location of watering points. Permanent water points include dams, earth tanks, raised ring-tanks, troughs on pipelines and natural permanent water supplies (rivers and waterholes).

To calculate the permanent water score:
1. Measure the distance to the nearest water source from the site within a five kilometre radius.
2. Determine the score for this indicator from Table 4.

Site 1

Table 4 – GIS-based ecological condition indicator scores

GIS-based ecological condition indicators		
Indicator	**Description**	**Score**
11. Size of patch *(measured only in fragmented landscapes)*	< 5 ha	**0**
	5–25 ha	**2**
	26–100 ha	**5**
	101–200 ha	**7**
	> 200 ha	**10**
12. Connectivity *(measured only in fragmented landscapes)*	The assessment unit is not connected using any of the below descriptions	**0**
	The assessment unit adjoins with adjacent remnant vegetation along ≥10 per cent to <50 per cent of its perimeter; or adjoins with adjacent remnant vegetation along <10 per cent of its perimeter AND adjoins with adjacent non-remnant native vegetation > 25 per cent of its perimeter	**2**
	The assessment unit adjoins with adjacent remnant vegetation along 50 per cent to 75 per cent of its perimeter	**4**
	The assessment unit adjoins with adjacent remnant vegetation along > 75 per cent of its perimeter; or includes > 500 ha remnant vegetation	**5**
13. Context *(measured only in fragmented landscapes)*	< 10 per cent remnant vegetation AND < 30 per cent native non-remnant vegetation (regrowth)	**0**
	≥ 10 per cent to 30 per cent remnant vegetation AND < 30 per cent high value regrowth; or < 10 per cent remnant vegetation AND ≥ 30 per cent high value regrowth	**2**
	≥ 30 per cent to 75 per cent remnant vegetation; OR ≥ 10 per cent to 30 per cent remnant vegetation AND ≥ 50 per cent high value regrowth	**4**
	> 75 per cent remnant vegetation	**5**
14. Distance from permanent water *(measured only in intact landscapes)*	0–500 m from water point	**0**
	500 m to 1 km from water point	**2**
	1–3 km from water point	**5**
	3–5 km from water point	**10**
	>5 km from water point	**20**

20/20

Site 2

Table 2 – Field-based indicator scores

Field-based indicators		
Indicator	**Description**	**Score**
1. Recruitment of woody perennial species	< 20% of overstorey species present as regeneration	0
	≥ 20 – 75% of overstorey species present as regeneration **Minimum score for offset area	3
	≥ 75% of overstorey species present as regeneration	5
2. Native plant species richness (trees, shrubs, grasses, forbs)	< 25% of benchmark number of species within each life-form	0
	≥ 25% to 90% of benchmark number of species within each life-form	2.5
	> 90% of benchmark number of species within each life-form	5
3. Tree canopy height	< 25% of benchmark height	0
	≥ 25% to 70% of benchmark height	3
	≥ 70% of benchmark height	5
4. Tree Canopy Cover	< 10 % of benchmark	0
	≥ 10% and < 50 % of benchmark ** Minimum score for offset area	2
	≥ 50% to ≤ 200% of benchmark	5
	> 200% of benchmark	3
5. Shrub canopy cover	< 10 % of benchmark shrub cover	0
	< 50% or >200% of benchmark shrub cover	3
	≥ 50% to ≤ 200% of benchmark shrub cover	5
6. Native perennial grass cover	< 10% of benchmark perennial grass cover	0
	≥ 10 to 50% of benchmark perennial grass cover	1
	> 50 to 90% of benchmark perennial grass cover	3
	> 90% of benchmark perennial grass cover	5
7. Organic litter cover	< 10 % of benchmark organic litter	0
	< 50% or >200% of benchmark organic litter	3
	≥ 50% to ≤ 200% of benchmark organic litter	5
8. Large trees	No large trees present	0
	0 to 50% of benchmark of large trees	5
	>50% to 100% of benchmark number of large trees	10
	>benchmark number of large trees	15
9. Coarse woody debris	< 10 % of benchmark number or total length of CWD	0
	< 50% or >200% of benchmark number or total length of CWD	2
	≥ 50% or ≤ 200% of benchmark number or total length of CWD	5
10. Weed cover	> 50 % weed cover	0
	>25 to 50% weed cover	3
	≥5 to 25% weed cover	5
	< 5 % weed cover	10

Total 23.5/65

Step 3 – Context ***(only measured for fragmented landscapes)***
Assessment involves measuring the amount of remnant vegetation and high value regrowth vegetation within a one kilometre buffer around the site. This indicator can be measured using GIS.

To calculate the context score:
1. Create a one kilometre buffer around the edge of the site.
2. Measure the percentage of remnant and high value regrowth vegetation within the buffer zone.
3. Determine the score for this indicator from Table 4.

Step 4 – Permanent water ***(only measured for intact landscapes)***
This indicator can be measured through satellite imagery or air photo interpretation. It can also be measured by on-ground verification of the location of watering points. Permanent water points include dams, earth tanks, raised ring-tanks, troughs on pipelines and natural permanent water supplies (rivers and waterholes).

To calculate the permanent water score:
1. Measure the distance to the nearest water source from the site within a five kilometre radius.
2. Determine the score for this indicator from Table 4.

Table 4 – GIS-based ecological condition indicator scores

GIS-based ecological condition indicators		
Indicator	**Description**	**Score**
11. Size of patch *(measured only in fragmented landscapes)*	< 5 ha	**0**
	5–25 ha	**2**
	26–100 ha	**5**
	101–200 ha	**7**
	> 200 ha	**10**
12. Connectivity *(measured only in fragmented landscapes)*	The assessment unit is not connected using any of the below descriptions	**0**
	The assessment unit adjoins with adjacent remnant vegetation along ≥10 per cent to <50 per cent of its perimeter; or adjoins with adjacent remnant vegetation along <10 per cent of its perimeter AND adjoins with adjacent non-remnant native vegetation > 25 per cent of its perimeter	**2**
	The assessment unit adjoins with adjacent remnant vegetation along 50 per cent to 75 per cent of its perimeter	**4**
	The assessment unit adjoins with adjacent remnant vegetation along > 75 per cent of its perimeter; or includes > 500 ha remnant vegetation	**5**
13. Context *(measured only in fragmented landscapes)*	< 10 per cent remnant vegetation AND < 30 per cent native non-remnant vegetation (regrowth)	**0**
	≥ 10 per cent to 30 per cent remnant vegetation AND < 30 per cent high value regrowth; or < 10 per cent remnant vegetation AND ≥ 30 per cent high value regrowth	**2**
	≥ 30 per cent to 75 per cent remnant vegetation; OR ≥ 10 per cent to 30 per cent remnant vegetation AND ≥ 50 per cent high value regrowth	**4**
	> 75 per cent remnant vegetation	**5**
14. Distance from permanent water *(measured only in intact landscapes)*	0–500 m from water point	**0**
	500 m to 1 km from water point	**2**
	1–3 km from water point	**5**
	3–5 km from water point	**10**
	>5 km from water point	**20**

20/20

Site 3

Table 2 – Field-based indicator scores

Field-based indicators		
Indicator	**Description**	**Score**
1. Recruitment of woody perennial species	< 20% of overstorey species present as regeneration	0
	≥ 20 – 75% of overstorey species present as regeneration **Minimum score for offset area	3
	≥ 75% of overstorey species present as regeneration	5
2. Native plant species richness (trees, shrubs, grasses, forbs)	< 25% of benchmark number of species within each life-form	0
	≥ 25% to 90% of benchmark number of species within each life-form	2.5
	> 90% of benchmark number of species within each life-form	5
3. Tree canopy height	< 25% of benchmark height	0
	≥ 25% to 70% of benchmark height	3
	≥ 70% of benchmark height	5
4. Tree Canopy Cover	< 10 % of benchmark	0
	≥ 10% and < 50 % of benchmark ** Minimum score for offset area	2
	≥ 50% to ≤ 200% of benchmark	5
	> 200% of benchmark	3
5. Shrub canopy cover	< 10 % of benchmark shrub cover	0
	< 50% or >200% of benchmark shrub cover	3
	≥ 50% to ≤ 200% of benchmark shrub cover	5
6. Native perennial grass cover	< 10% of benchmark perennial grass cover	0
	≥ 10 to 50% of benchmark perennial grass cover	1
	> 50 to 90% of benchmark perennial grass cover	3
	> 90% of benchmark perennial grass cover	5
7. Organic litter cover	< 10 % of benchmark organic litter	0
	< 50% or >200% of benchmark organic litter	3
	≥ 50% to ≤ 200% of benchmark organic litter	5
8. Large trees	No large trees present	0
	0 to 50% of benchmark of large trees	5
	>50% to 100% of benchmark number of large trees	10
	>benchmark number of large trees	15
9. Coarse woody debris	< 10 % of benchmark number or total length of CWD	0
	< 50% or >200% of benchmark number or total length of CWD	2
	≥ 50% or ≤ 200% of benchmark number or total length of CWD	5
10. Weed cover	> 50 % weed cover	0
	>25 to 50% weed cover	3
	≥5 to 25% weed cover	5
	< 5 % weed cover	10

Total 46/65

Step 3 – Context ***(only measured for fragmented landscapes)***
Assessment involves measuring the amount of remnant vegetation and high value regrowth vegetation within a one kilometre buffer around the site. This indicator can be measured using GIS.

To calculate the context score:
1. Create a one kilometre buffer around the edge of the site.
2. Measure the percentage of remnant and high value regrowth vegetation within the buffer zone.
3. Determine the score for this indicator from Table 4.

Step 4 – Permanent water ***(only measured for intact landscapes)***
This indicator can be measured through satellite imagery or air photo interpretation. It can also be measured by on-ground verification of the location of watering points. Permanent water points include dams, earth tanks, raised ring-tanks, troughs on pipelines and natural permanent water supplies (rivers and waterholes).

To calculate the permanent water score:
1. Measure the distance to the nearest water source from the site within a five kilometre radius.
2. Determine the score for this indicator from Table 4.

Table 4 – GIS-based ecological condition indicator scores

GIS-based ecological condition indicators		
Indicator	**Description**	**Score**
11. Size of patch *(measured only in fragmented landscapes)*	< 5 ha	**0**
	5–25 ha	**2**
	26–100 ha	**5**
	101–200 ha	**7**
	> 200 ha	**10**
12. Connectivity *(measured only in fragmented landscapes)*	The assessment unit is not connected using any of the below descriptions	**0**
	The assessment unit adjoins with adjacent remnant vegetation along ≥10 per cent to <50 per cent of its perimeter; or adjoins with adjacent remnant vegetation along <10 per cent of its perimeter AND adjoins with adjacent non-remnant native vegetation > 25 per cent of its perimeter	**2**
	The assessment unit adjoins with adjacent remnant vegetation along 50 per cent to 75 per cent of its perimeter	**4**
	The assessment unit adjoins with adjacent remnant vegetation along > 75 per cent of its perimeter; or includes > 500 ha remnant vegetation	**5**
13. Context *(measured only in fragmented landscapes)*	< 10 per cent remnant vegetation AND < 30 per cent native non-remnant vegetation (regrowth)	**0**
	≥ 10 per cent to 30 per cent remnant vegetation AND < 30 per cent high value regrowth; or < 10 per cent remnant vegetation AND ≥ 30 per cent high value regrowth	**2**
	≥ 30 per cent to 75 per cent remnant vegetation; OR ≥ 10 per cent to 30 per cent remnant vegetation AND ≥ 50 per cent high value regrowth	**4**
	> 75 per cent remnant vegetation	**5**
14. Distance from permanent water *(measured only in intact landscapes)*	0–500 m from water point	**0**
	500 m to 1 km from water point	**2**
	1–3 km from water point	**5**
	3–5 km from water point	**10**
	>5 km from water point	**20**

20/20.

Site 4

Table 2 – Field-based indicator scores

Field-based indicators		
Indicator	**Description**	**Score**
1. Recruitment of woody perennial species	< 20% of overstorey species present as regeneration	0
	≥ 20 – 75% of overstorey species present as regeneration **Minimum score for offset area	3
	≥ 75% of overstorey species present as regeneration	5
2. Native plant species richness (trees, shrubs, grasses, forbs)	< 25% of benchmark number of species within each life-form	0
	≥ 25% to 90% of benchmark number of species within each life-form	2.5
	> 90% of benchmark number of species within each life-form	5
3. Tree canopy height	< 25% of benchmark height	0
	≥ 25% to 70% of benchmark height	3
	≥ 70% of benchmark height	5
4. Tree Canopy Cover	< 10 % of benchmark	0
	≥ 10% and < 50 % of benchmark ** Minimum score for offset area	2
	≥ 50% to ≤ 200% of benchmark	5
	> 200% of benchmark	3
5. Shrub canopy cover	< 10 % of benchmark shrub cover	0
	< 50% or >200% of benchmark shrub cover	3
	≥ 50% to ≤ 200% of benchmark shrub cover	5
6. Native perennial grass cover	< 10% of benchmark perennial grass cover	0
	≥ 10 to 50% of benchmark perennial grass cover	1
	> 50 to 90% of benchmark perennial grass cover	3
	> 90% of benchmark perennial grass cover	5
7. Organic litter cover	< 10 % of benchmark organic litter	0
	< 50% or >200% of benchmark organic litter	3
	≥ 50% to ≤ 200% of benchmark organic litter	5
8. Large trees	No large trees present	0
	0 to 50% of benchmark of large trees	5
	>50% to 100% of benchmark number of large trees	10
	>benchmark number of large trees	15
9. Coarse woody debris	< 10 % of benchmark number or total length of CWD	0
	< 50% or >200% of benchmark number or total length of CWD	2
	≥ 50% or ≤ 200% of benchmark number or total length of CWD	5
10. Weed cover	> 50 % weed cover	0
	>25 to 50% weed cover	3
	≥5 to 25% weed cover	5
	< 5 % weed cover	10

Total 45/65

Step 3 – Context ***(only measured for fragmented landscapes)***
Assessment involves measuring the amount of remnant vegetation and high value regrowth vegetation within a one kilometre buffer around the site. This indicator can be measured using GIS.

To calculate the context score:
1. Create a one kilometre buffer around the edge of the site.
2. Measure the percentage of remnant and high value regrowth vegetation within the buffer zone.
3. Determine the score for this indicator from Table 4.

Step 4 – Permanent water ***(only measured for intact landscapes)***
This indicator can be measured through satellite imagery or air photo interpretation. It can also be measured by on-ground verification of the location of watering points. Permanent water points include dams, earth tanks, raised ring-tanks, troughs on pipelines and natural permanent water supplies (rivers and waterholes).

To calculate the permanent water score:
1. Measure the distance to the nearest water source from the site within a five kilometre radius.
2. Determine the score for this indicator from Table 4.

Site 4

Table 4 – GIS-based ecological condition indicator scores

GIS-based ecological condition indicators		
Indicator	**Description**	**Score**
11. Size of patch *(measured only in fragmented landscapes)*	< 5 ha	**0**
	5–25 ha	**2**
	26–100 ha	**5**
	101–200 ha	**7**
	> 200 ha	**10**
12. Connectivity *(measured only in fragmented landscapes)*	The assessment unit is not connected using any of the below descriptions	**0**
	The assessment unit adjoins with adjacent remnant vegetation along ≥10 per cent to <50 per cent of its perimeter; or adjoins with adjacent remnant vegetation along <10 per cent of its perimeter AND adjoins with adjacent non-remnant native vegetation > 25 per cent of its perimeter	**2**
	The assessment unit adjoins with adjacent remnant vegetation along 50 per cent to 75 per cent of its perimeter	**4**
	The assessment unit adjoins with adjacent remnant vegetation along > 75 per cent of its perimeter; or includes > 500 ha remnant vegetation	**5**
13. Context *(measured only in fragmented landscapes)*	< 10 per cent remnant vegetation AND < 30 per cent native non-remnant vegetation (regrowth)	**0**
	≥ 10 per cent to 30 per cent remnant vegetation AND < 30 per cent high value regrowth; or < 10 per cent remnant vegetation AND ≥ 30 per cent high value regrowth	**2**
	≥ 30 per cent to 75 per cent remnant vegetation; OR ≥ 10 per cent to 30 per cent remnant vegetation AND ≥ 50 per cent high value regrowth	**4**
	> 75 per cent remnant vegetation	**5**
14. Distance from permanent water *(measured only in intact landscapes)*	0–500 m from water point	**0**
	500 m to 1 km from water point	**2**
	1–3 km from water point	**5**
	3–5 km from water point	**10**
	>5 km from water point	**20**

20/20.

Site 5

Table 2 – Field-based indicator scores

Field-based indicators		
Indicator	**Description**	**Score**
1. Recruitment of woody perennial species	< 20% of overstorey species present as regeneration	**0**
	≥ 20 – 75% of overstorey species present as regeneration **Minimum score for offset area	**3**
	≥ 75% of overstorey species present as regeneration	5
2. Native plant species richness (trees, shrubs, grasses, forbs)	< 25% of benchmark number of species within each life-form	**0**
	≥ 25% to 90% of benchmark number of species within each life-form	2.5
	> 90% of benchmark number of species within each life-form	**5**
3. Tree canopy height	< 25% of benchmark height	**0**
	≥ 25% to 70% of benchmark height	3
	≥ 70% of benchmark height	**5**
4. Tree Canopy Cover	< 10 % of benchmark	**0**
	≥ 10% and < 50 % of benchmark ** Minimum score for offset area	**2**
	≥ 50% to ≤ 200% of benchmark	5
	> 200% of benchmark	**3**
5. Shrub canopy cover	< 10 % of benchmark shrub cover	0
	< 50% or >200% of benchmark shrub cover	**3**
	≥ 50% to ≤ 200% of benchmark shrub cover	**5**
6. Native perennial grass cover	< 10% of benchmark perennial grass cover	**0**
	≥ 10 to 50% of benchmark perennial grass cover	**1**
	> 50 to 90% of benchmark perennial grass cover	**3**
	> 90% of benchmark perennial grass cover	5
7. Organic litter cover	< 10 % of benchmark organic litter	0
	< 50% or >200% of benchmark organic litter	3
	≥ 50% to ≤ 200% of benchmark organic litter	5
8. Large trees	No large trees present	0
	0 to 50% of benchmark of large trees	5
	>50% to 100% of benchmark number of large trees	**10**
	>benchmark number of large trees	**15**
9. Coarse woody debris	< 10 % of benchmark number or total length of CWD	**0**
	< 50% or >200% of benchmark number or total length of CWD	**2**
	≥ 50% or ≤ 200% of benchmark number or total length of CWD	5
10. Weed cover	> 50 % weed cover	**0**
	>25 to 50% weed cover	**3**
	≥5 to 25% weed cover	5
	< 5 % weed cover	**10**

Total 40.5/65

Step 3 – Context ***(only measured for fragmented landscapes)***
Assessment involves measuring the amount of remnant vegetation and high value regrowth vegetation within a one kilometre buffer around the site. This indicator can be measured using GIS.

To calculate the context score:
1. Create a one kilometre buffer around the edge of the site.
2. Measure the percentage of remnant and high value regrowth vegetation within the buffer zone.
3. Determine the score for this indicator from Table 4.

Step 4 – Permanent water ***(only measured for intact landscapes)***
This indicator can be measured through satellite imagery or air photo interpretation. It can also be measured by on-ground verification of the location of watering points. Permanent water points include dams, earth tanks, raised ring-tanks, troughs on pipelines and natural permanent water supplies (rivers and waterholes).

To calculate the permanent water score:
1. Measure the distance to the nearest water source from the site within a five kilometre radius.
2. Determine the score for this indicator from Table 4.

Table 4 – GIS-based ecological condition indicator scores

GIS-based ecological condition indicators		
Indicator	**Description**	**Score**
11. Size of patch *(measured only in fragmented landscapes)*	< 5 ha	**0**
	5–25 ha	**2**
	26–100 ha	**5**
	101–200 ha	**7**
	> 200 ha	**10**
12. Connectivity *(measured only in fragmented landscapes)*	The assessment unit is not connected using any of the below descriptions	**0**
	The assessment unit adjoins with adjacent remnant vegetation along ≥10 per cent to <50 per cent of its perimeter; or adjoins with adjacent remnant vegetation along <10 per cent of its perimeter AND adjoins with adjacent non-remnant native vegetation > 25 per cent of its perimeter	**2**
	The assessment unit adjoins with adjacent remnant vegetation along 50 per cent to 75 per cent of its perimeter	**4**
	The assessment unit adjoins with adjacent remnant vegetation along > 75 per cent of its perimeter; or includes > 500 ha remnant vegetation	**5**
13. Context *(measured only in fragmented landscapes)*	< 10 per cent remnant vegetation AND < 30 per cent native non-remnant vegetation (regrowth)	**0**
	≥ 10 per cent to 30 per cent remnant vegetation AND < 30 per cent high value regrowth; or < 10 per cent remnant vegetation AND ≥ 30 per cent high value regrowth	**2**
	≥ 30 per cent to 75 per cent remnant vegetation; OR ≥ 10 per cent to 30 per cent remnant vegetation AND ≥ 50 per cent high value regrowth	**4**
	> 75 per cent remnant vegetation	**5**
14. Distance from permanent water *(measured only in intact landscapes)*	0–500 m from water point	**0**
	500 m to 1 km from water point	**2**
	1–3 km from water point	**5**
	3–5 km from water point	**10**
	>5 km from water point	**20**

Site 6

Table 2 – Field-based indicator scores

Field-based indicators		
Indicator	**Description**	**Score**
1. Recruitment of woody perennial species	< 20% of overstorey species present as regeneration	0
	≥ 20 – 75% of overstorey species present as regeneration **Minimum score for offset area	3
	≥ 75% of overstorey species present as regeneration	5
2. Native plant species richness (trees, shrubs, grasses, forbs)	< 25% of benchmark number of species within each life-form	0
	≥ 25% to 90% of benchmark number of species within each life-form	2.5
	> 90% of benchmark number of species within each life-form	5
3. Tree canopy height	< 25% of benchmark height	0
	≥ 25% to 70% of benchmark height	3
	≥ 70% of benchmark height	5
4. Tree Canopy Cover	< 10 % of benchmark	0
	≥ 10% and < 50 % of benchmark ** Minimum score for offset area	2
	≥ 50% to ≤ 200% of benchmark	5
	> 200% of benchmark	3
5. Shrub canopy cover	< 10 % of benchmark shrub cover	0
	< 50% or >200% of benchmark shrub cover	3
	≥ 50% to ≤ 200% of benchmark shrub cover	5
6. Native perennial grass cover	< 10% of benchmark perennial grass cover	0
	≥ 10 to 50% of benchmark perennial grass cover	1
	> 50 to 90% of benchmark perennial grass cover	3
	> 90% of benchmark perennial grass cover	5
7. Organic litter cover	< 10 % of benchmark organic litter	0
	< 50% or >200% of benchmark organic litter	3
	≥ 50% to ≤ 200% of benchmark organic litter	5
8. Large trees	No large trees present	0
	0 to 50% of benchmark of large trees	5
	>50% to 100% of benchmark number of large trees	10
	>benchmark number of large trees	15
9. Coarse woody debris	< 10 % of benchmark number or total length of CWD	0
	< 50% or >200% of benchmark number or total length of CWD	2
	≥ 50% or ≤ 200% of benchmark number or total length of CWD	5
10. Weed cover	> 50 % weed cover	0
	>25 to 50% weed cover	3
	≥5 to 25% weed cover	5
	< 5 % weed cover	10

Total 43.5/65

Step 3 – Context ***(only measured for fragmented landscapes)***
Assessment involves measuring the amount of remnant vegetation and high value regrowth vegetation within a one kilometre buffer around the site. This indicator can be measured using GIS.

To calculate the context score:
1. Create a one kilometre buffer around the edge of the site.
2. Measure the percentage of remnant and high value regrowth vegetation within the buffer zone.
3. Determine the score for this indicator from Table 4.

Step 4 – Permanent water ***(only measured for intact landscapes)***
This indicator can be measured through satellite imagery or air photo interpretation. It can also be measured by on-ground verification of the location of watering points. Permanent water points include dams, earth tanks, raised ring-tanks, troughs on pipelines and natural permanent water supplies (rivers and waterholes).

To calculate the permanent water score:
1. Measure the distance to the nearest water source from the site within a five kilometre radius.
2. Determine the score for this indicator from Table 4.

Site 6

Table 4 – GIS-based ecological condition indicator scores

GIS-based ecological condition indicators		
Indicator	**Description**	**Score**
11. Size of patch *(measured only in fragmented landscapes)*	< 5 ha	**0**
	5–25 ha	**2**
	26–100 ha	**5**
	101–200 ha	**7**
	> 200 ha	**10**
12. Connectivity *(measured only in fragmented landscapes)*	The assessment unit is not connected using any of the below descriptions	**0**
	The assessment unit adjoins with adjacent remnant vegetation along ≥10 per cent to <50 per cent of its perimeter; or adjoins with adjacent remnant vegetation along <10 per cent of its perimeter AND adjoins with adjacent non-remnant native vegetation > 25 per cent of its perimeter	**2**
	The assessment unit adjoins with adjacent remnant vegetation along 50 per cent to 75 per cent of its perimeter	**4**
	The assessment unit adjoins with adjacent remnant vegetation along > 75 per cent of its perimeter; or includes > 500 ha remnant vegetation	**5**
13. Context *(measured only in fragmented landscapes)*	< 10 per cent remnant vegetation AND < 30 per cent native non-remnant vegetation (regrowth)	**0**
	≥ 10 per cent to 30 per cent remnant vegetation AND < 30 per cent high value regrowth; or < 10 per cent remnant vegetation AND ≥ 30 per cent high value regrowth	**2**
	≥ 30 per cent to 75 per cent remnant vegetation; OR ≥ 10 per cent to 30 per cent remnant vegetation AND ≥ 50 per cent high value regrowth	**4**
	> 75 per cent remnant vegetation	**5**
14. Distance from permanent water *(measured only in intact landscapes)*	0–500 m from water point	**0**
	500 m to 1 km from water point	**2**
	1–3 km from water point	**5**
	3–5 km from water point	**10**
	>5 km from water point	**20**

Site 7

Table 2 – Field-based indicator scores

Field-based indicators		
Indicator	**Description**	**Score**
1. Recruitment of woody perennial species	< 20% of overstorey species present as regeneration	0
	≥ 20 – 75% of overstorey species present as regeneration **Minimum score for offset area	3
	≥ 75% of overstorey species present as regeneration	(5)
2. Native plant species richness (trees, shrubs, grasses, forbs)	< 25% of benchmark number of species within each life-form	0
	≥ 25% to 90% of benchmark number of species within each life-form	2.5
	> 90% of benchmark number of species within each life-form	(5)
3. Tree canopy height	< 25% of benchmark height	0
	≥ 25% to 70% of benchmark height	(3)
	≥ 70% of benchmark height	5
4. Tree Canopy Cover	< 10 % of benchmark	0
	≥ 10% and < 50 % of benchmark ** Minimum score for offset area	2
	≥ 50% to ≤ 200% of benchmark	(5)
	> 200% of benchmark	3
5. Shrub canopy cover	< 10 % of benchmark shrub cover	0
	< 50% or >200% of benchmark shrub cover	(3)
	≥ 50% to ≤ 200% of benchmark shrub cover	5
6. Native perennial grass cover	< 10% of benchmark perennial grass cover	0
	≥ 10 to 50% of benchmark perennial grass cover	1
	> 50 to 90% of benchmark perennial grass cover	3
	> 90% of benchmark perennial grass cover	(5)
7. Organic litter cover	< 10 % of benchmark organic litter	0
	< 50% or >200% of benchmark organic litter	3
	≥ 50% to ≤ 200% of benchmark organic litter	(5)
8. Large trees	No large trees present	0
	0 to 50% of benchmark of large trees	5
	>50% to 100% of benchmark number of large trees	(10)
	>benchmark number of large trees	15
9. Coarse woody debris	< 10 % of benchmark number or total length of CWD	0
	< 50% or >200% of benchmark number or total length of CWD	2
	≥ 50% or ≤ 200% of benchmark number or total length of CWD	(5)
10. Weed cover	> 50 % weed cover	0
	>25 to 50% weed cover	(3)
	≥5 to 25% weed cover	5
	< 5 % weed cover	10

Total 49/65

Step 3 – Context ***(only measured for fragmented landscapes)***
Assessment involves measuring the amount of remnant vegetation and high value regrowth vegetation within a one kilometre buffer around the site. This indicator can be measured using GIS.

To calculate the context score:
1. Create a one kilometre buffer around the edge of the site.
2. Measure the percentage of remnant and high value regrowth vegetation within the buffer zone.
3. Determine the score for this indicator from Table 4.

Step 4 – Permanent water ***(only measured for intact landscapes)***
This indicator can be measured through satellite imagery or air photo interpretation. It can also be measured by on-ground verification of the location of watering points. Permanent water points include dams, earth tanks, raised ring-tanks, troughs on pipelines and natural permanent water supplies (rivers and waterholes).

To calculate the permanent water score:
1. Measure the distance to the nearest water source from the site within a five kilometre radius.
2. Determine the score for this indicator from Table 4.

Table 4 – GIS-based ecological condition indicator scores

GIS-based ecological condition indicators		
Indicator	**Description**	**Score**
11. Size of patch *(measured only in fragmented landscapes)*	< 5 ha	**0**
	5–25 ha	**2**
	26–100 ha	**5**
	101–200 ha	**7**
	> 200 ha	**10**
12. Connectivity *(measured only in fragmented landscapes)*	The assessment unit is not connected using any of the below descriptions	**0**
	The assessment unit adjoins with adjacent remnant vegetation along ≥10 per cent to <50 per cent of its perimeter; or adjoins with adjacent remnant vegetation along <10 per cent of its perimeter AND adjoins with adjacent non-remnant native vegetation > 25 per cent of its perimeter	**2**
	The assessment unit adjoins with adjacent remnant vegetation along 50 per cent to 75 per cent of its perimeter	**4**
	The assessment unit adjoins with adjacent remnant vegetation along > 75 per cent of its perimeter; or includes > 500 ha remnant vegetation	**5**
13. Context *(measured only in fragmented landscapes)*	< 10 per cent remnant vegetation AND < 30 per cent native non-remnant vegetation (regrowth)	**0**
	≥ 10 per cent to 30 per cent remnant vegetation AND < 30 per cent high value regrowth; or < 10 per cent remnant vegetation AND ≥ 30 per cent high value regrowth	**2**
	≥ 30 per cent to 75 per cent remnant vegetation; OR ≥ 10 per cent to 30 per cent remnant vegetation AND ≥ 50 per cent high value regrowth	**4**
	> 75 per cent remnant vegetation	**5**
14. Distance from permanent water *(measured only in intact landscapes)*	0–500 m from water point	**0**
	500 m to 1 km from water point	**2**
	1–3 km from water point	**5**
	3–5 km from water point	**10**
	>5 km from water point	**20**

Ste 8

Table 2 – Field-based indicator scores

Field-based indicators		
Indicator	**Description**	**Score**
1. Recruitment of woody perennial species	< 20% of overstorey species present as regeneration	0
	≥ 20 – 75% of overstorey species present as regeneration **Minimum score for offset area	3
	≥ 75% of overstorey species present as regeneration	5
2. Native plant species richness (trees, shrubs, grasses, forbs)	< 25% of benchmark number of species within each life-form	0
	≥ 25% to 90% of benchmark number of species within each life-form	2.5
	> 90% of benchmark number of species within each life-form	5
3. Tree canopy height	< 25% of benchmark height	0
	≥ 25% to 70% of benchmark height	3
	≥ 70% of benchmark height	5
4. Tree Canopy Cover	< 10 % of benchmark	0
	≥ 10% and < 50 % of benchmark ** Minimum score for offset area	2
	≥ 50% to ≤ 200% of benchmark	5
	> 200% of benchmark	3
5. Shrub canopy cover	< 10 % of benchmark shrub cover	0
	< 50% or >200% of benchmark shrub cover	3
	≥ 50% to ≤ 200% of benchmark shrub cover	5
6. Native perennial grass cover	< 10% of benchmark perennial grass cover	0
	≥ 10 to 50% of benchmark perennial grass cover	1
	> 50 to 90% of benchmark perennial grass cover	3
	> 90% of benchmark perennial grass cover	5
7. Organic litter cover	< 10 % of benchmark organic litter	0
	< 50% or >200% of benchmark organic litter	3
	≥ 50% to ≤ 200% of benchmark organic litter	5
8. Large trees	No large trees present	0
	0 to 50% of benchmark of large trees	5
	>50% to 100% of benchmark number of large trees	10
	>benchmark number of large trees	15
9. Coarse woody debris	< 10 % of benchmark number or total length of CWD	0
	< 50% or >200% of benchmark number or total length of CWD	2
	≥ 50% or ≤ 200% of benchmark number or total length of CWD	5
10. Weed cover	> 50 % weed cover	0
	>25 to 50% weed cover	3
	≥5 to 25% weed cover	5
	< 5 % weed cover	10

Total 39./65

Step 3 – Context ***(only measured for fragmented landscapes)***
Assessment involves measuring the amount of remnant vegetation and high value regrowth vegetation within a one kilometre buffer around the site. This indicator can be measured using GIS.

To calculate the context score:
1. Create a one kilometre buffer around the edge of the site.
2. Measure the percentage of remnant and high value regrowth vegetation within the buffer zone.
3. Determine the score for this indicator from Table 4.

Step 4 – Permanent water ***(only measured for intact landscapes)***
This indicator can be measured through satellite imagery or air photo interpretation. It can also be measured by on-ground verification of the location of watering points. Permanent water points include dams, earth tanks, raised ring-tanks, troughs on pipelines and natural permanent water supplies (rivers and waterholes).

To calculate the permanent water score:
1. Measure the distance to the nearest water source from the site within a five kilometre radius.
2. Determine the score for this indicator from Table 4.

Site 8

Table 4 – GIS-based ecological condition indicator scores

GIS-based ecological condition indicators		
Indicator	**Description**	**Score**
11. Size of patch *(measured only in fragmented landscapes)*	< 5 ha	**0**
	5–25 ha	**2**
	26–100 ha	**5**
	101–200 ha	**7**
	> 200 ha	**10**
12. Connectivity *(measured only in fragmented landscapes)*	The assessment unit is not connected using any of the below descriptions	**0**
	The assessment unit adjoins with adjacent remnant vegetation along ≥10 per cent to <50 per cent of its perimeter; or adjoins with adjacent remnant vegetation along <10 per cent of its perimeter AND adjoins with adjacent non-remnant native vegetation > 25 per cent of its perimeter	**2**
	The assessment unit adjoins with adjacent remnant vegetation along 50 per cent to 75 per cent of its perimeter	**4**
	The assessment unit adjoins with adjacent remnant vegetation along > 75 per cent of its perimeter; or includes > 500 ha remnant vegetation	**5**
13. Context *(measured only in fragmented landscapes)*	< 10 per cent remnant vegetation AND < 30 per cent native non-remnant vegetation (regrowth)	**0**
	≥ 10 per cent to 30 per cent remnant vegetation AND < 30 per cent high value regrowth; or < 10 per cent remnant vegetation AND ≥ 30 per cent high value regrowth	**2**
	≥ 30 per cent to 75 per cent remnant vegetation; OR ≥ 10 per cent to 30 per cent remnant vegetation AND ≥ 50 per cent high value regrowth	**4**
	> 75 per cent remnant vegetation	**5**
14. Distance from permanent water *(measured only in intact landscapes)*	0–500 m from water point	**0**
	500 m to 1 km from water point	**2**
	1–3 km from water point	**5**
	3–5 km from water point	**10**
	>5 km from water point	**20**

20/20

Site 9.

Table 2 – Field-based indicator scores

Field-based indicators		
Indicator	**Description**	**Score**
1. Recruitment of woody perennial species	< 20% of overstorey species present as regeneration	0
	≥ 20 – 75% of overstorey species present as regeneration **Minimum score for offset area	3
	≥ 75% of overstorey species present as regeneration	5
2. Native plant species richness (trees, shrubs, grasses, forbs)	< 25% of benchmark number of species within each life-form	0
	≥ 25% to 90% of benchmark number of species within each life-form	2.5
	> 90% of benchmark number of species within each life-form	5
3. Tree canopy height	< 25% of benchmark height	0
	≥ 25% to 70% of benchmark height	3
	≥ 70% of benchmark height	5
4. Tree Canopy Cover	< 10 % of benchmark	0
	≥ 10% and < 50 % of benchmark ** Minimum score for offset area	2
	≥ 50% to ≤ 200% of benchmark	5
	> 200% of benchmark	3
5. Shrub canopy cover	< 10 % of benchmark shrub cover	0
	< 50% or >200% of benchmark shrub cover	3
	≥ 50% to ≤ 200% of benchmark shrub cover	5
6. Native perennial grass cover	< 10% of benchmark perennial grass cover	0
	≥ 10 to 50% of benchmark perennial grass cover	1
	> 50 to 90% of benchmark perennial grass cover	3
	> 90% of benchmark perennial grass cover	5
7. Organic litter cover	< 10 % of benchmark organic litter	0
	< 50% or >200% of benchmark organic litter	3
	≥ 50% to ≤ 200% of benchmark organic litter	5
8. Large trees	No large trees present	0
	0 to 50% of benchmark of large trees	5
	>50% to 100% of benchmark number of large trees	10
	>benchmark number of large trees	15
9. Coarse woody debris	< 10 % of benchmark number or total length of CWD	0
	< 50% or >200% of benchmark number or total length of CWD	2
	≥ 50% or ≤ 200% of benchmark number or total length of CWD	5
10. Weed cover	> 50 % weed cover	0
	>25 to 50% weed cover	3
	≥5 to 25% weed cover	5
	< 5 % weed cover	10

Total 39.5/65

Step 3 – Context ***(only measured for fragmented landscapes)***
Assessment involves measuring the amount of remnant vegetation and high value regrowth vegetation within a one kilometre buffer around the site. This indicator can be measured using GIS.

To calculate the context score:
1. Create a one kilometre buffer around the edge of the site.
2. Measure the percentage of remnant and high value regrowth vegetation within the buffer zone.
3. Determine the score for this indicator from Table 4.

Step 4 – Permanent water ***(only measured for intact landscapes)***
This indicator can be measured through satellite imagery or air photo interpretation. It can also be measured by on-ground verification of the location of watering points. Permanent water points include dams, earth tanks, raised ring-tanks, troughs on pipelines and natural permanent water supplies (rivers and waterholes).

To calculate the permanent water score:
1. Measure the distance to the nearest water source from the site within a five kilometre radius.
2. Determine the score for this indicator from Table 4.

Table 4 – GIS-based ecological condition indicator scores

GIS-based ecological condition indicators		
Indicator	**Description**	**Score**
11. Size of patch *(measured only in fragmented landscapes)*	< 5 ha	**0**
	5–25 ha	**2**
	26–100 ha	**5**
	101–200 ha	**7**
	> 200 ha	**10**
12. Connectivity *(measured only in fragmented landscapes)*	The assessment unit is not connected using any of the below descriptions	**0**
	The assessment unit adjoins with adjacent remnant vegetation along ≥10 per cent to <50 per cent of its perimeter; or adjoins with adjacent remnant vegetation along <10 per cent of its perimeter AND adjoins with adjacent non-remnant native vegetation > 25 per cent of its perimeter	**2**
	The assessment unit adjoins with adjacent remnant vegetation along 50 per cent to 75 per cent of its perimeter	**4**
	The assessment unit adjoins with adjacent remnant vegetation along > 75 per cent of its perimeter; or includes > 500 ha remnant vegetation	**5**
13. Context *(measured only in fragmented landscapes)*	< 10 per cent remnant vegetation AND < 30 per cent native non-remnant vegetation (regrowth)	**0**
	≥ 10 per cent to 30 per cent remnant vegetation AND < 30 per cent high value regrowth; or < 10 per cent remnant vegetation AND ≥ 30 per cent high value regrowth	**2**
	≥ 30 per cent to 75 per cent remnant vegetation; OR ≥ 10 per cent to 30 per cent remnant vegetation AND ≥ 50 per cent high value regrowth	**4**
	> 75 per cent remnant vegetation	**5**
14. Distance from permanent water *(measured only in intact landscapes)*	0–500 m from water point	**0**
	500 m to 1 km from water point	**2**
	1–3 km from water point	**5**
	3–5 km from water point	**10**
	>5 km from water point	**20**

Rec 1.

Table 2 – Field-based indicator scores

Field-based indicators		
Indicator	**Description**	**Score**
1. Recruitment of woody perennial species	< 20% of overstorey species present as regeneration	**0**
	≥ 20 – 75% of overstorey species present as regeneration **Minimum score for offset area	**3**
	≥ 75% of overstorey species present as regeneration	**5**
2. Native plant species richness (trees, shrubs, grasses, forbs)	< 25% of benchmark number of species within each life-form	**0**
	≥ 25% to 90% of benchmark number of species within each life-form	**2.5**
	> 90% of benchmark number of species within each life-form	**5**
3. Tree canopy height	< 25% of benchmark height	**0**
	≥ 25% to 70% of benchmark height	**3**
	≥ 70% of benchmark height	**5**
4. Tree Canopy Cover	< 10 % of benchmark	**0**
	≥ 10% and < 50 % of benchmark ** Minimum score for offset area	**2**
	≥ 50% to ≤ 200% of benchmark	**5**
	> 200% of benchmark	**3**
5. Shrub canopy cover	< 10 % of benchmark shrub cover	**0**
	< 50% or >200% of benchmark shrub cover	**3**
	≥ 50% to ≤ 200% of benchmark shrub cover	**5**
6. Native perennial grass cover	< 10% of benchmark perennial grass cover	**0**
	≥ 10 to 50% of benchmark perennial grass cover	**1**
	> 50 to 90% of benchmark perennial grass cover	**3**
	> 90% of benchmark perennial grass cover	**5**
7. Organic litter cover	< 10 % of benchmark organic litter	**0**
	< 50% or >200% of benchmark organic litter	**3**
	≥ 50% to ≤ 200% of benchmark organic litter	**5**
8. Large trees	No large trees present	**0**
	0 to 50% of benchmark of large trees	**5**
	>50% to 100% of benchmark number of large trees	**10**
	>benchmark number of large trees	**15**
9. Coarse woody debris	< 10 % of benchmark number or total length of CWD	**0**
	< 50% or >200% of benchmark number or total length of CWD	**2**
	≥ 50% or ≤ 200% of benchmark number or total length of CWD	**5**
10. Weed cover	> 50 % weed cover	**0**
	>25 to 50% weed cover	**3**
	≥5 to 25% weed cover	**5**
	< 5 % weed cover	**10**

Total 57.5/65

Step 3 – Context ***(only measured for fragmented landscapes)***
Assessment involves measuring the amount of remnant vegetation and high value regrowth vegetation within a one kilometre buffer around the site. This indicator can be measured using GIS.

To calculate the context score:
1. Create a one kilometre buffer around the edge of the site.
2. Measure the percentage of remnant and high value regrowth vegetation within the buffer zone.
3. Determine the score for this indicator from Table 4.

Step 4 – Permanent water ***(only measured for intact landscapes)***
This indicator can be measured through satellite imagery or air photo interpretation. It can also be measured by on-ground verification of the location of watering points. Permanent water points include dams, earth tanks, raised ring-tanks, troughs on pipelines and natural permanent water supplies (rivers and waterholes).

To calculate the permanent water score:
1. Measure the distance to the nearest water source from the site within a five kilometre radius.
2. Determine the score for this indicator from Table 4.

Table 4 – GIS-based ecological condition indicator scores

GIS-based ecological condition indicators		
Indicator	**Description**	**Score**
11. Size of patch *(measured only in fragmented landscapes)*	< 5 ha	**0**
	5–25 ha	**2**
	26–100 ha	**5**
	101–200 ha	**7**
	> 200 ha	**10**
12. Connectivity *(measured only in fragmented landscapes)*	The assessment unit is not connected using any of the below descriptions	**0**
	The assessment unit adjoins with adjacent remnant vegetation along ≥10 per cent to <50 per cent of its perimeter; or adjoins with adjacent remnant vegetation along <10 per cent of its perimeter AND adjoins with adjacent non-remnant native vegetation > 25 per cent of its perimeter	**2**
	The assessment unit adjoins with adjacent remnant vegetation along 50 per cent to 75 per cent of its perimeter	**4**
	The assessment unit adjoins with adjacent remnant vegetation along > 75 per cent of its perimeter; or includes > 500 ha remnant vegetation	**5**
13. Context *(measured only in fragmented landscapes)*	< 10 per cent remnant vegetation AND < 30 per cent native non-remnant vegetation (regrowth)	**0**
	≥ 10 per cent to 30 per cent remnant vegetation AND < 30 per cent high value regrowth; or < 10 per cent remnant vegetation AND ≥ 30 per cent high value regrowth	**2**
	≥ 30 per cent to 75 per cent remnant vegetation; OR ≥ 10 per cent to 30 per cent remnant vegetation AND ≥ 50 per cent high value regrowth	**4**
	> 75 per cent remnant vegetation	**5**
14. Distance from permanent water *(measured only in intact landscapes)*	0–500 m from water point	**0**
	500 m to 1 km from water point	**2**
	1–3 km from water point	**5**
	3–5 km from water point	**10**
	>5 km from water point	**20**

Rec 2.

Table 2 – Field-based indicator scores

Field-based indicators		
Indicator	**Description**	**Score**
1. Recruitment of woody perennial species	< 20% of overstorey species present as regeneration	0
	≥ 20 – 75% of overstorey species present as regeneration **Minimum score for offset area	3
	≥ 75% of overstorey species present as regeneration	5
2. Native plant species richness (trees, shrubs, grasses, forbs)	< 25% of benchmark number of species within each life-form	0
	≥ 25% to 90% of benchmark number of species within each life-form	2.5
	> 90% of benchmark number of species within each life-form	5
3. Tree canopy height	< 25% of benchmark height	0
	≥ 25% to 70% of benchmark height	3
	≥ 70% of benchmark height	5
4. Tree Canopy Cover	< 10 % of benchmark	0
	≥ 10% and < 50 % of benchmark ** Minimum score for offset area	2
	≥ 50% to ≤ 200% of benchmark	5
	> 200% of benchmark	3
5. Shrub canopy cover	< 10 % of benchmark shrub cover	0
	< 50% or >200% of benchmark shrub cover	3
	≥ 50% to ≤ 200% of benchmark shrub cover	5
6. Native perennial grass cover	< 10% of benchmark perennial grass cover	0
	≥ 10 to 50% of benchmark perennial grass cover	1
	> 50 to 90% of benchmark perennial grass cover	3
	> 90% of benchmark perennial grass cover	5
7. Organic litter cover	< 10 % of benchmark organic litter	0
	< 50% or >200% of benchmark organic litter	3
	≥ 50% to ≤ 200% of benchmark organic litter	5
8. Large trees	No large trees present	0
	0 to 50% of benchmark of large trees	5
	>50% to 100% of benchmark number of large trees	10
	>benchmark number of large trees	15
9. Coarse woody debris	< 10 % of benchmark number or total length of CWD	0
	< 50% or >200% of benchmark number or total length of CWD	2
	≥ 50% or ≤ 200% of benchmark number or total length of CWD	5
10. Weed cover	> 50 % weed cover	0
	>25 to 50% weed cover	3
	≥5 to 25% weed cover	5
	< 5 % weed cover	10

Total 55.5/65

Step 3 – Context ***(only measured for fragmented landscapes)***
Assessment involves measuring the amount of remnant vegetation and high value regrowth vegetation within a one kilometre buffer around the site. This indicator can be measured using GIS.

To calculate the context score:
1. Create a one kilometre buffer around the edge of the site.
2. Measure the percentage of remnant and high value regrowth vegetation within the buffer zone.
3. Determine the score for this indicator from Table 4.

Step 4 – Permanent water ***(only measured for intact landscapes)***
This indicator can be measured through satellite imagery or air photo interpretation. It can also be measured by on-ground verification of the location of watering points. Permanent water points include dams, earth tanks, raised ring-tanks, troughs on pipelines and natural permanent water supplies (rivers and waterholes).

To calculate the permanent water score:
1. Measure the distance to the nearest water source from the site within a five kilometre radius.
2. Determine the score for this indicator from Table 4.

Table 4 – GIS-based ecological condition indicator scores

GIS-based ecological condition indicators		
Indicator	**Description**	**Score**
11. Size of patch *(measured only in fragmented landscapes)*	< 5 ha	**0**
	5–25 ha	**2**
	26–100 ha	**5**
	101–200 ha	**7**
	> 200 ha	**10**
12. Connectivity *(measured only in fragmented landscapes)*	The assessment unit is not connected using any of the below descriptions	**0**
	The assessment unit adjoins with adjacent remnant vegetation along ≥10 per cent to <50 per cent of its perimeter; or adjoins with adjacent remnant vegetation along <10 per cent of its perimeter AND adjoins with adjacent non-remnant native vegetation > 25 per cent of its perimeter	**2**
	The assessment unit adjoins with adjacent remnant vegetation along 50 per cent to 75 per cent of its perimeter	**4**
	The assessment unit adjoins with adjacent remnant vegetation along > 75 per cent of its perimeter; or includes > 500 ha remnant vegetation	**5**
13. Context *(measured only in fragmented landscapes)*	< 10 per cent remnant vegetation AND < 30 per cent native non-remnant vegetation (regrowth)	**0**
	≥ 10 per cent to 30 per cent remnant vegetation AND < 30 per cent high value regrowth; or < 10 per cent remnant vegetation AND ≥ 30 per cent high value regrowth	**2**
	≥ 30 per cent to 75 per cent remnant vegetation; OR ≥ 10 per cent to 30 per cent remnant vegetation AND ≥ 50 per cent high value regrowth	**4**
	> 75 per cent remnant vegetation	**5**
14. Distance from permanent water *(measured only in intact landscapes)*	0–500 m from water point	**0**
	500 m to 1 km from water point	**2**
	1–3 km from water point	**5**
	3–5 km from water point	**10**
	>5 km from water point	**20**

Rec 3.

Table 2 – Field-based indicator scores

Field-based indicators		
Indicator	**Description**	**Score**
1. Recruitment of woody perennial species	< 20% of overstorey species present as regeneration	0
	≥ 20 – 75% of overstorey species present as regeneration **Minimum score for offset area	3
	≥ 75% of overstorey species present as regeneration	5
2. Native plant species richness (trees, shrubs, grasses, forbs)	< 25% of benchmark number of species within each life-form	0
	≥ 25% to 90% of benchmark number of species within each life-form	2.5
	> 90% of benchmark number of species within each life-form	5
3. Tree canopy height	< 25% of benchmark height	0
	≥ 25% to 70% of benchmark height	3
	≥ 70% of benchmark height	5
4. Tree Canopy Cover	< 10 % of benchmark	0
	≥ 10% and < 50 % of benchmark ** Minimum score for offset area	2
	≥ 50% to ≤ 200% of benchmark	5
	> 200% of benchmark	3
5. Shrub canopy cover	< 10 % of benchmark shrub cover	0
	< 50% or >200% of benchmark shrub cover	3
	≥ 50% to ≤ 200% of benchmark shrub cover	5
6. Native perennial grass cover	< 10% of benchmark perennial grass cover	0
	≥ 10 to 50% of benchmark perennial grass cover	1
	> 50 to 90% of benchmark perennial grass cover	3
	> 90% of benchmark perennial grass cover	5
7. Organic litter cover	< 10 % of benchmark organic litter	0
	< 50% or >200% of benchmark organic litter	3
	≥ 50% to ≤ 200% of benchmark organic litter	5
8. Large trees	No large trees present	0
	0 to 50% of benchmark of large trees	5
	>50% to 100% of benchmark number of large trees	10
	>benchmark number of large trees	15
9. Coarse woody debris	< 10 % of benchmark number or total length of CWD	0
	< 50% or >200% of benchmark number or total length of CWD	2
	≥ 50% or ≤ 200% of benchmark number or total length of CWD	5
10. Weed cover	> 50 % weed cover	0
	>25 to 50% weed cover	3
	≥5 to 25% weed cover	5
	< 5 % weed cover	10

Total 55/65

Step 3 – Context ***(only measured for fragmented landscapes)***
Assessment involves measuring the amount of remnant vegetation and high value regrowth vegetation within a one kilometre buffer around the site. This indicator can be measured using GIS.

To calculate the context score:
1. Create a one kilometre buffer around the edge of the site.
2. Measure the percentage of remnant and high value regrowth vegetation within the buffer zone.
3. Determine the score for this indicator from Table 4.

Step 4 – Permanent water ***(only measured for intact landscapes)***
This indicator can be measured through satellite imagery or air photo interpretation. It can also be measured by on-ground verification of the location of watering points. Permanent water points include dams, earth tanks, raised ring-tanks, troughs on pipelines and natural permanent water supplies (rivers and waterholes).

To calculate the permanent water score:
1. Measure the distance to the nearest water source from the site within a five kilometre radius.
2. Determine the score for this indicator from Table 4.

Table 4 – GIS-based ecological condition indicator scores

GIS-based ecological condition indicators		
Indicator	**Description**	**Score**
11. Size of patch *(measured only in fragmented landscapes)*	< 5 ha	**0**
	5–25 ha	**2**
	26–100 ha	**5**
	101–200 ha	**7**
	> 200 ha	**10**
12. Connectivity *(measured only in fragmented landscapes)*	The assessment unit is not connected using any of the below descriptions	**0**
	The assessment unit adjoins with adjacent remnant vegetation along ≥10 per cent to <50 per cent of its perimeter; or adjoins with adjacent remnant vegetation along <10 per cent of its perimeter AND adjoins with adjacent non-remnant native vegetation > 25 per cent of its perimeter	**2**
	The assessment unit adjoins with adjacent remnant vegetation along 50 per cent to 75 per cent of its perimeter	**4**
	The assessment unit adjoins with adjacent remnant vegetation along > 75 per cent of its perimeter; or includes > 500 ha remnant vegetation	**5**
13. Context *(measured only in fragmented landscapes)*	< 10 per cent remnant vegetation AND < 30 per cent native non-remnant vegetation (regrowth)	**0**
	≥ 10 per cent to 30 per cent remnant vegetation AND < 30 per cent high value regrowth; or < 10 per cent remnant vegetation AND ≥ 30 per cent high value regrowth	**2**
	≥ 30 per cent to 75 per cent remnant vegetation; OR ≥ 10 per cent to 30 per cent remnant vegetation AND ≥ 50 per cent high value regrowth	**4**
	> 75 per cent remnant vegetation	**5**
14. Distance from permanent water *(measured only in intact landscapes)*	0–500 m from water point	**0**
	500 m to 1 km from water point	**2**
	1–3 km from water point	**5**
	3–5 km from water point	**10**
	>5 km from water point	**20**

Rec 4

Table 2 – Field-based indicator scores

Field-based indicators		
Indicator	**Description**	**Score**
1. Recruitment of woody perennial species	< 20% of overstorey species present as regeneration	**0**
	≥ 20 – 75% of overstorey species present as regeneration **Minimum score for offset area	**3**
	≥ 75% of overstorey species present as regeneration	**5**
2. Native plant species richness (trees, shrubs, grasses, forbs)	< 25% of benchmark number of species within each life-form	**0**
	≥ 25% to 90% of benchmark number of species within each life-form	**2.5**
	> 90% of benchmark number of species within each life-form	**5**
3. Tree canopy height	< 25% of benchmark height	**0**
	≥ 25% to 70% of benchmark height	**3**
	≥ 70% of benchmark height	**5**
4. Tree Canopy Cover	< 10 % of benchmark	**0**
	≥ 10% and < 50 % of benchmark ** Minimum score for offset area	**2**
	≥ 50% to ≤ 200% of benchmark	**5**
	> 200% of benchmark	**3**
5. Shrub canopy cover	< 10 % of benchmark shrub cover	**0**
	< 50% or >200% of benchmark shrub cover	**3**
	≥ 50% to ≤ 200% of benchmark shrub cover	**5**
6. Native perennial grass cover	< 10% of benchmark perennial grass cover	**0**
	≥ 10 to 50% of benchmark perennial grass cover	**1**
	> 50 to 90% of benchmark perennial grass cover	**3**
	> 90% of benchmark perennial grass cover	**5**
7. Organic litter cover	< 10 % of benchmark organic litter	**0**
	< 50% or >200% of benchmark organic litter	**3**
	≥ 50% to ≤ 200% of benchmark organic litter	**5**
8. Large trees	No large trees present	**0**
	0 to 50% of benchmark of large trees	**5**
	>50% to 100% of benchmark number of large trees	**10**
	>benchmark number of large trees	**15**
9. Coarse woody debris	< 10 % of benchmark number or total length of CWD	**0**
	< 50% or >200% of benchmark number or total length of CWD	**2**
	≥ 50% or ≤ 200% of benchmark number or total length of CWD	**5**
10. Weed cover	> 50 % weed cover	**0**
	>25 to 50% weed cover	**3**
	≥5 to 25% weed cover	**5**
	< 5 % weed cover	**10**

Total 98.5/65

Step 3 – Context ***(only measured for fragmented landscapes)***
Assessment involves measuring the amount of remnant vegetation and high value regrowth vegetation within a one kilometre buffer around the site. This indicator can be measured using GIS.

To calculate the context score:
1. Create a one kilometre buffer around the edge of the site.
2. Measure the percentage of remnant and high value regrowth vegetation within the buffer zone.
3. Determine the score for this indicator from Table 4.

Step 4 – Permanent water ***(only measured for intact landscapes)***
This indicator can be measured through satellite imagery or air photo interpretation. It can also be measured by on-ground verification of the location of watering points. Permanent water points include dams, earth tanks, raised ring-tanks, troughs on pipelines and natural permanent water supplies (rivers and waterholes).

To calculate the permanent water score:
1. Measure the distance to the nearest water source from the site within a five kilometre radius.
2. Determine the score for this indicator from Table 4.

Table 4 – GIS-based ecological condition indicator scores

GIS-based ecological condition indicators		
Indicator	**Description**	**Score**
11. Size of patch *(measured only in fragmented landscapes)*	< 5 ha	**0**
	5–25 ha	**2**
	26–100 ha	**5**
	101–200 ha	**7**
	> 200 ha	**10**
12. Connectivity *(measured only in fragmented landscapes)*	The assessment unit is not connected using any of the below descriptions	**0**
	The assessment unit adjoins with adjacent remnant vegetation along ≥10 per cent to <50 per cent of its perimeter; or adjoins with adjacent remnant vegetation along <10 per cent of its perimeter AND adjoins with adjacent non-remnant native vegetation > 25 per cent of its perimeter	**2**
	The assessment unit adjoins with adjacent remnant vegetation along 50 per cent to 75 per cent of its perimeter	**4**
	The assessment unit adjoins with adjacent remnant vegetation along > 75 per cent of its perimeter; or includes > 500 ha remnant vegetation	**5**
13. Context *(measured only in fragmented landscapes)*	< 10 per cent remnant vegetation AND < 30 per cent native non-remnant vegetation (regrowth)	**0**
	≥ 10 per cent to 30 per cent remnant vegetation AND < 30 per cent high value regrowth; or < 10 per cent remnant vegetation AND ≥ 30 per cent high value regrowth	**2**
	≥ 30 per cent to 75 per cent remnant vegetation; OR ≥ 10 per cent to 30 per cent remnant vegetation AND ≥ 50 per cent high value regrowth	**4**
	> 75 per cent remnant vegetation	**5**
14. Distance from permanent water *(measured only in intact landscapes)*	0–500 m from water point	**0**
	500 m to 1 km from water point	**2**
	1–3 km from water point	**5**
	3–5 km from water point	**10**
	>5 km from water point	**20**

Rec 5

Table 2 – Field-based indicator scores

Field-based indicators		
Indicator	**Description**	**Score**
1. Recruitment of woody perennial species	< 20% of overstorey species present as regeneration	0
	≥ 20 – 75% of overstorey species present as regeneration **Minimum score for offset area	3
	≥ 75% of overstorey species present as regeneration	5
2. Native plant species richness (trees, shrubs, grasses, forbs)	< 25% of benchmark number of species within each life-form	0
	≥ 25% to 90% of benchmark number of species within each life-form	2.5
	> 90% of benchmark number of species within each life-form	5
3. Tree canopy height	< 25% of benchmark height	0
	≥ 25% to 70% of benchmark height	3
	≥ 70% of benchmark height	5
4. Tree Canopy Cover	< 10 % of benchmark	0
	≥ 10% and < 50 % of benchmark ** Minimum score for offset area	2
	≥ 50% to ≤ 200% of benchmark	5
	> 200% of benchmark	3
5. Shrub canopy cover	< 10 % of benchmark shrub cover	0
	< 50% or >200% of benchmark shrub cover	3
	≥ 50% to ≤ 200% of benchmark shrub cover	5
6. Native perennial grass cover	< 10% of benchmark perennial grass cover	0
	≥ 10 to 50% of benchmark perennial grass cover	1
	> 50 to 90% of benchmark perennial grass cover	3
	> 90% of benchmark perennial grass cover	5
7. Organic litter cover	< 10 % of benchmark organic litter	0
	< 50% or >200% of benchmark organic litter	3
	≥ 50% to ≤ 200% of benchmark organic litter	5
8. Large trees	No large trees present	0
	0 to 50% of benchmark of large trees	5
	>50% to 100% of benchmark number of large trees	10
	>benchmark number of large trees	15
9. Coarse woody debris	< 10 % of benchmark number or total length of CWD	0
	< 50% or >200% of benchmark number or total length of CWD	2
	≥ 50% or ≤ 200% of benchmark number or total length of CWD	5
10. Weed cover	> 50 % weed cover	0
	>25 to 50% weed cover	3
	≥5 to 25% weed cover	5
	< 5 % weed cover	10

Total: 44/65

Step 3 – Context ***(only measured for fragmented landscapes)***
Assessment involves measuring the amount of remnant vegetation and high value regrowth vegetation within a one kilometre buffer around the site. This indicator can be measured using GIS.

To calculate the context score:
1. Create a one kilometre buffer around the edge of the site.
2. Measure the percentage of remnant and high value regrowth vegetation within the buffer zone.
3. Determine the score for this indicator from Table 4.

Step 4 – Permanent water ***(only measured for intact landscapes)***
This indicator can be measured through satellite imagery or air photo interpretation. It can also be measured by on-ground verification of the location of watering points. Permanent water points include dams, earth tanks, raised ring-tanks, troughs on pipelines and natural permanent water supplies (rivers and waterholes).

To calculate the permanent water score:
1. Measure the distance to the nearest water source from the site within a five kilometre radius.
2. Determine the score for this indicator from Table 4.

Table 4 – GIS-based ecological condition indicator scores

GIS-based ecological condition indicators		
Indicator	**Description**	**Score**
11. Size of patch *(measured only in fragmented landscapes)*	< 5 ha	**0**
	5–25 ha	**2**
	26–100 ha	**5**
	101–200 ha	**7**
	> 200 ha	**10**
12. Connectivity *(measured only in fragmented landscapes)*	The assessment unit is not connected using any of the below descriptions	**0**
	The assessment unit adjoins with adjacent remnant vegetation along ≥10 per cent to <50 per cent of its perimeter; or adjoins with adjacent remnant vegetation along <10 per cent of its perimeter AND adjoins with adjacent non-remnant native vegetation > 25 per cent of its perimeter	**2**
	The assessment unit adjoins with adjacent remnant vegetation along 50 per cent to 75 per cent of its perimeter	**4**
	The assessment unit adjoins with adjacent remnant vegetation along > 75 per cent of its perimeter; or includes > 500 ha remnant vegetation	**5**
13. Context *(measured only in fragmented landscapes)*	< 10 per cent remnant vegetation AND < 30 per cent native non-remnant vegetation (regrowth)	**0**
	≥ 10 per cent to 30 per cent remnant vegetation AND < 30 per cent high value regrowth; or < 10 per cent remnant vegetation AND ≥ 30 per cent high value regrowth	**2**
	≥ 30 per cent to 75 per cent remnant vegetation; OR ≥ 10 per cent to 30 per cent remnant vegetation AND ≥ 50 per cent high value regrowth	**4**
	> 75 per cent remnant vegetation	**5**
14. Distance from permanent water *(measured only in intact landscapes)*	0–500 m from water point	**0**
	500 m to 1 km from water point	**2**
	1–3 km from water point	**5**
	3–5 km from water point	**10**
	>5 km from water point	**20**

Rec 6

Table 2 – Field-based indicator scores

Field-based indicators		
Indicator	**Description**	**Score**
1. Recruitment of woody perennial species	< 20% of overstorey species present as regeneration	0
	≥ 20 – 75% of overstorey species present as regeneration **Minimum score for offset area	3
	≥ 75% of overstorey species present as regeneration	5
2. Native plant species richness (trees, shrubs, grasses, forbs)	< 25% of benchmark number of species within each life-form	0
	≥ 25% to 90% of benchmark number of species within each life-form	2.5
	> 90% of benchmark number of species within each life-form	5
3. Tree canopy height	< 25% of benchmark height	0
	≥ 25% to 70% of benchmark height	3
	≥ 70% of benchmark height	5
4. Tree Canopy Cover	< 10 % of benchmark	0
	≥ 10% and < 50 % of benchmark ** Minimum score for offset area	2
	≥ 50% to ≤ 200% of benchmark	5
	> 200% of benchmark	3
5. Shrub canopy cover	< 10 % of benchmark shrub cover	0
	< 50% or >200% of benchmark shrub cover	3
	≥ 50% to ≤ 200% of benchmark shrub cover	5
6. Native perennial grass cover	< 10% of benchmark perennial grass cover	0
	≥ 10 to 50% of benchmark perennial grass cover	1
	> 50 to 90% of benchmark perennial grass cover	3
	> 90% of benchmark perennial grass cover	5
7. Organic litter cover	< 10 % of benchmark organic litter	0
	< 50% or >200% of benchmark organic litter	3
	≥ 50% to ≤ 200% of benchmark organic litter	5
8. Large trees	No large trees present	0
	0 to 50% of benchmark of large trees	5
	>50% to 100% of benchmark number of large trees	10
	>benchmark number of large trees	15
9. Coarse woody debris	< 10 % of benchmark number or total length of CWD	0
	< 50% or >200% of benchmark number or total length of CWD	2
	≥ 50% or ≤ 200% of benchmark number or total length of CWD	5
10. Weed cover	> 50 % weed cover	0
	>25 to 50% weed cover	3
	≥5 to 25% weed cover	5
	< 5 % weed cover	10

Total : 55/65

Step 3 – Context ***(only measured for fragmented landscapes)***
Assessment involves measuring the amount of remnant vegetation and high value regrowth vegetation within a one kilometre buffer around the site. This indicator can be measured using GIS.

To calculate the context score:
1. Create a one kilometre buffer around the edge of the site.
2. Measure the percentage of remnant and high value regrowth vegetation within the buffer zone.
3. Determine the score for this indicator from Table 4.

Step 4 – Permanent water ***(only measured for intact landscapes)***
This indicator can be measured through satellite imagery or air photo interpretation. It can also be measured by on-ground verification of the location of watering points. Permanent water points include dams, earth tanks, raised ring-tanks, troughs on pipelines and natural permanent water supplies (rivers and waterholes).

To calculate the permanent water score:
1. Measure the distance to the nearest water source from the site within a five kilometre radius.
2. Determine the score for this indicator from Table 4.

Table 4 – GIS-based ecological condition indicator scores

GIS-based ecological condition indicators		
Indicator	**Description**	**Score**
11. Size of patch *(measured only in fragmented landscapes)*	< 5 ha	**0**
	5–25 ha	**2**
	26–100 ha	**5**
	101–200 ha	**7**
	> 200 ha	**10**
12. Connectivity *(measured only in fragmented landscapes)*	The assessment unit is not connected using any of the below descriptions	**0**
	The assessment unit adjoins with adjacent remnant vegetation along ≥10 per cent to <50 per cent of its perimeter; or adjoins with adjacent remnant vegetation along <10 per cent of its perimeter AND adjoins with adjacent non-remnant native vegetation > 25 per cent of its perimeter	**2**
	The assessment unit adjoins with adjacent remnant vegetation along 50 per cent to 75 per cent of its perimeter	**4**
	The assessment unit adjoins with adjacent remnant vegetation along > 75 per cent of its perimeter; or includes > 500 ha remnant vegetation	**5**
13. Context *(measured only in fragmented landscapes)*	< 10 per cent remnant vegetation AND < 30 per cent native non-remnant vegetation (regrowth)	**0**
	≥ 10 per cent to 30 per cent remnant vegetation AND < 30 per cent high value regrowth; or < 10 per cent remnant vegetation AND ≥ 30 per cent high value regrowth	**2**
	≥ 30 per cent to 75 per cent remnant vegetation; OR ≥ 10 per cent to 30 per cent remnant vegetation AND ≥ 50 per cent high value regrowth	**4**
	> 75 per cent remnant vegetation	**5**
14. Distance from permanent water *(measured only in intact landscapes)*	0–500 m from water point	**0**
	500 m to 1 km from water point	**2**
	1–3 km from water point	**5**
	3–5 km from water point	**10**
	>5 km from water point	**20**

Rec 7

Table 2 – Field-based indicator scores

Field-based indicators		
Indicator	**Description**	**Score**
1. Recruitment of woody perennial species	< 20% of overstorey species present as regeneration	**0**
	≥ 20 – 75% of overstorey species present as regeneration **Minimum score for offset area	**3**
	≥ 75% of overstorey species present as regeneration	**5**
2. Native plant species richness (trees, shrubs, grasses, forbs)	< 25% of benchmark number of species within each life-form	**0**
	≥ 25% to 90% of benchmark number of species within each life-form	**2.5**
	> 90% of benchmark number of species within each life-form	**5**
3. Tree canopy height	< 25% of benchmark height	**0**
	≥ 25% to 70% of benchmark height	**3**
	≥ 70% of benchmark height	**5**
4. Tree Canopy Cover	< 10 % of benchmark	**0**
	≥ 10% and < 50 % of benchmark ** Minimum score for offset area	**2**
	≥ 50% to ≤ 200% of benchmark	**5**
	> 200% of benchmark	**3**
5. Shrub canopy cover	< 10 % of benchmark shrub cover	**0**
	< 50% or >200% of benchmark shrub cover	**3**
	≥ 50% to ≤ 200% of benchmark shrub cover	**5**
6. Native perennial grass cover	< 10% of benchmark perennial grass cover	**0**
	≥ 10 to 50% of benchmark perennial grass cover	**1**
	> 50 to 90% of benchmark perennial grass cover	**3**
	> 90% of benchmark perennial grass cover	**5**
7. Organic litter cover	< 10 % of benchmark organic litter	**0**
	< 50% or >200% of benchmark organic litter	**3**
	≥ 50% to ≤ 200% of benchmark organic litter	**5**
8. Large trees	No large trees present	**0**
	0 to 50% of benchmark of large trees	**5**
	>50% to 100% of benchmark number of large trees	**10**
	>benchmark number of large trees	**15**
9. Coarse woody debris	< 10 % of benchmark number or total length of CWD	**0**
	< 50% or >200% of benchmark number or total length of CWD	**2**
	≥ 50% or ≤ 200% of benchmark number or total length of CWD	**5**
10. Weed cover	> 50 % weed cover	**0**
	>25 to 50% weed cover	**3**
	≥5 to 25% weed cover	**5**
	< 5 % weed cover	**10**

Total: 51.5/65

Step 3 – Context ***(only measured for fragmented landscapes)***
Assessment involves measuring the amount of remnant vegetation and high value regrowth vegetation within a one kilometre buffer around the site. This indicator can be measured using GIS.

To calculate the context score:
1. Create a one kilometre buffer around the edge of the site.
2. Measure the percentage of remnant and high value regrowth vegetation within the buffer zone.
3. Determine the score for this indicator from Table 4.

Step 4 – Permanent water ***(only measured for intact landscapes)***
This indicator can be measured through satellite imagery or air photo interpretation. It can also be measured by on-ground verification of the location of watering points. Permanent water points include dams, earth tanks, raised ring-tanks, troughs on pipelines and natural permanent water supplies (rivers and waterholes).

To calculate the permanent water score:
1. Measure the distance to the nearest water source from the site within a five kilometre radius.
2. Determine the score for this indicator from Table 4.

Table 4 – GIS-based ecological condition indicator scores

GIS-based ecological condition indicators		
Indicator	**Description**	**Score**
11. Size of patch *(measured only in fragmented landscapes)*	< 5 ha	**0**
	5–25 ha	**2**
	26–100 ha	**5**
	101–200 ha	**7**
	> 200 ha	**10**
12. Connectivity *(measured only in fragmented landscapes)*	The assessment unit is not connected using any of the below descriptions	**0**
	The assessment unit adjoins with adjacent remnant vegetation along ≥10 per cent to <50 per cent of its perimeter; or adjoins with adjacent remnant vegetation along <10 per cent of its perimeter AND adjoins with adjacent non-remnant native vegetation > 25 per cent of its perimeter	**2**
	The assessment unit adjoins with adjacent remnant vegetation along 50 per cent to 75 per cent of its perimeter	**4**
	The assessment unit adjoins with adjacent remnant vegetation along > 75 per cent of its perimeter; or includes > 500 ha remnant vegetation	**5**
13. Context *(measured only in fragmented landscapes)*	< 10 per cent remnant vegetation AND < 30 per cent native non-remnant vegetation (regrowth)	**0**
	≥ 10 per cent to 30 per cent remnant vegetation AND < 30 per cent high value regrowth; or < 10 per cent remnant vegetation AND ≥ 30 per cent high value regrowth	**2**
	≥ 30 per cent to 75 per cent remnant vegetation; OR ≥ 10 per cent to 30 per cent remnant vegetation AND ≥ 50 per cent high value regrowth	**4**
	> 75 per cent remnant vegetation	**5**
14. Distance from permanent water *(measured only in intact landscapes)*	0–500 m from water point	**0**
	500 m to 1 km from water point	**2**
	1–3 km from water point	**5**
	3–5 km from water point	**10**
	>5 km from water point	**20**

Rec 8

Table 2 – Field-based indicator scores

Field-based indicators		
Indicator	**Description**	**Score**
1. Recruitment of woody perennial species	< 20% of overstorey species present as regeneration	0
	≥ 20 – 75% of overstorey species present as regeneration **Minimum score for offset area	3
	≥ 75% of overstorey species present as regeneration	5
2. Native plant species richness (trees, shrubs, grasses, forbs)	< 25% of benchmark number of species within each life-form	0
	≥ 25% to 90% of benchmark number of species within each life-form	2.5
	> 90% of benchmark number of species within each life-form	5
3. Tree canopy height	< 25% of benchmark height	0
	≥ 25% to 70% of benchmark height	3
	≥ 70% of benchmark height	5
4. Tree Canopy Cover	< 10 % of benchmark	0
	≥ 10% and < 50 % of benchmark ** Minimum score for offset area	2
	≥ 50% to ≤ 200% of benchmark	5
	> 200% of benchmark	3
5. Shrub canopy cover	< 10 % of benchmark shrub cover	0
	< 50% or >200% of benchmark shrub cover	3
	≥ 50% to ≤ 200% of benchmark shrub cover	5
6. Native perennial grass cover	< 10% of benchmark perennial grass cover	0
	≥ 10 to 50% of benchmark perennial grass cover	1
	> 50 to 90% of benchmark perennial grass cover	3
	> 90% of benchmark perennial grass cover	5
7. Organic litter cover	< 10 % of benchmark organic litter	0
	< 50% or >200% of benchmark organic litter	3
	≥ 50% to ≤ 200% of benchmark organic litter	5
8. Large trees	No large trees present	0
	0 to 50% of benchmark of large trees	5
	>50% to 100% of benchmark number of large trees	10
	>benchmark number of large trees	15
9. Coarse woody debris	< 10 % of benchmark number or total length of CWD	0
	< 50% or >200% of benchmark number or total length of CWD	2
	≥ 50% or ≤ 200% of benchmark number or total length of CWD	5
10. Weed cover	> 50 % weed cover	0
	>25 to 50% weed cover	3
	≥5 to 25% weed cover	5
	< 5 % weed cover	10

Total: 46.5/65.

Step 3 – Context ***(only measured for fragmented landscapes)***
Assessment involves measuring the amount of remnant vegetation and high value regrowth vegetation within a one kilometre buffer around the site. This indicator can be measured using GIS.

To calculate the context score:
1. Create a one kilometre buffer around the edge of the site.
2. Measure the percentage of remnant and high value regrowth vegetation within the buffer zone.
3. Determine the score for this indicator from Table 4.

Step 4 – Permanent water ***(only measured for intact landscapes)***
This indicator can be measured through satellite imagery or air photo interpretation. It can also be measured by on-ground verification of the location of watering points. Permanent water points include dams, earth tanks, raised ring-tanks, troughs on pipelines and natural permanent water supplies (rivers and waterholes).

To calculate the permanent water score:
1. Measure the distance to the nearest water source from the site within a five kilometre radius.
2. Determine the score for this indicator from Table 4.

Table 4 – GIS-based ecological condition indicator scores

GIS-based ecological condition indicators		
Indicator	**Description**	**Score**
11. Size of patch *(measured only in fragmented landscapes)*	< 5 ha	**0**
	5–25 ha	**2**
	26–100 ha	**5**
	101–200 ha	**7**
	> 200 ha	**10**
12. Connectivity *(measured only in fragmented landscapes)*	The assessment unit is not connected using any of the below descriptions	**0**
	The assessment unit adjoins with adjacent remnant vegetation along ≥10 per cent to <50 per cent of its perimeter; or adjoins with adjacent remnant vegetation along <10 per cent of its perimeter AND adjoins with adjacent non-remnant native vegetation > 25 per cent of its perimeter	**2**
	The assessment unit adjoins with adjacent remnant vegetation along 50 per cent to 75 per cent of its perimeter	**4**
	The assessment unit adjoins with adjacent remnant vegetation along > 75 per cent of its perimeter; or includes > 500 ha remnant vegetation	**5**
13. Context *(measured only in fragmented landscapes)*	< 10 per cent remnant vegetation AND < 30 per cent native non-remnant vegetation (regrowth)	**0**
	≥ 10 per cent to 30 per cent remnant vegetation AND < 30 per cent high value regrowth; or < 10 per cent remnant vegetation AND ≥ 30 per cent high value regrowth	**2**
	≥ 30 per cent to 75 per cent remnant vegetation; OR ≥ 10 per cent to 30 per cent remnant vegetation AND ≥ 50 per cent high value regrowth	**4**
	> 75 per cent remnant vegetation	**5**
14. Distance from permanent water *(measured only in intact landscapes)*	0–500 m from water point	**0**
	500 m to 1 km from water point	**2**
	1–3 km from water point	**5**
	3–5 km from water point	**10**
	>5 km from water point	**20**

Rec 9

Table 2 – Field-based indicator scores

Field-based indicators		
Indicator	**Description**	**Score**
1. Recruitment of woody perennial species	< 20% of overstorey species present as regeneration	**0**
	≥ 20 – 75% of overstorey species present as regeneration **Minimum score for offset area	**3**
	≥ 75% of overstorey species present as regeneration	**5**
2. Native plant species richness (trees, shrubs, grasses, forbs)	< 25% of benchmark number of species within each life-form	**0**
	≥ 25% to 90% of benchmark number of species within each life-form	**2.5**
	> 90% of benchmark number of species within each life-form	**5**
3. Tree canopy height	< 25% of benchmark height	**0**
	≥ 25% to 70% of benchmark height	**3**
	≥ 70% of benchmark height	**5**
4. Tree Canopy Cover	< 10 % of benchmark	**0**
	≥ 10% and < 50 % of benchmark ** Minimum score for offset area	**2**
	≥ 50% to ≤ 200% of benchmark	**5**
	> 200% of benchmark	**3**
5. Shrub canopy cover	< 10 % of benchmark shrub cover	**0**
	< 50% or >200% of benchmark shrub cover	**3**
	≥ 50% to ≤ 200% of benchmark shrub cover	**5**
6. Native perennial grass cover	< 10% of benchmark perennial grass cover	**0**
	≥ 10 to 50% of benchmark perennial grass cover	**1**
	> 50 to 90% of benchmark perennial grass cover	**3**
	> 90% of benchmark perennial grass cover	**5**
7. Organic litter cover	< 10 % of benchmark organic litter	**0**
	< 50% or >200% of benchmark organic litter	**3**
	≥ 50% to ≤ 200% of benchmark organic litter	**5**
8. Large trees	No large trees present	**0**
	0 to 50% of benchmark of large trees	**5**
	>50% to 100% of benchmark number of large trees	**10**
	>benchmark number of large trees	**15**
9. Coarse woody debris	< 10 % of benchmark number or total length of CWD	**0**
	< 50% or >200% of benchmark number or total length of CWD	**2**
	≥ 50% or ≤ 200% of benchmark number or total length of CWD	**5**
10. Weed cover	> 50 % weed cover	**0**
	>25 to 50% weed cover	**3**
	≥5 to 25% weed cover	**5**
	< 5 % weed cover	**10**

Total: 55/65

Step 3 – Context ***(only measured for fragmented landscapes)***
Assessment involves measuring the amount of remnant vegetation and high value regrowth vegetation within a one kilometre buffer around the site. This indicator can be measured using GIS.

To calculate the context score:
1. Create a one kilometre buffer around the edge of the site.
2. Measure the percentage of remnant and high value regrowth vegetation within the buffer zone.
3. Determine the score for this indicator from Table 4.

Step 4 – Permanent water ***(only measured for intact landscapes)***
This indicator can be measured through satellite imagery or air photo interpretation. It can also be measured by on-ground verification of the location of watering points. Permanent water points include dams, earth tanks, raised ring-tanks, troughs on pipelines and natural permanent water supplies (rivers and waterholes).

To calculate the permanent water score:
1. Measure the distance to the nearest water source from the site within a five kilometre radius.
2. Determine the score for this indicator from Table 4.

Table 4 – GIS-based ecological condition indicator scores

GIS-based ecological condition indicators		
Indicator	**Description**	**Score**
11. Size of patch *(measured only in fragmented landscapes)*	< 5 ha	**0**
	5–25 ha	**2**
	26–100 ha	**5**
	101–200 ha	**7**
	> 200 ha	**10**
12. Connectivity *(measured only in fragmented landscapes)*	The assessment unit is not connected using any of the below descriptions	**0**
	The assessment unit adjoins with adjacent remnant vegetation along ≥10 per cent to <50 per cent of its perimeter; or adjoins with adjacent remnant vegetation along <10 per cent of its perimeter AND adjoins with adjacent non-remnant native vegetation > 25 per cent of its perimeter	**2**
	The assessment unit adjoins with adjacent remnant vegetation along 50 per cent to 75 per cent of its perimeter	**4**
	The assessment unit adjoins with adjacent remnant vegetation along > 75 per cent of its perimeter; or includes > 500 ha remnant vegetation	**5**
13. Context *(measured only in fragmented landscapes)*	< 10 per cent remnant vegetation AND < 30 per cent native non-remnant vegetation (regrowth)	**0**
	≥ 10 per cent to 30 per cent remnant vegetation AND < 30 per cent high value regrowth; or < 10 per cent remnant vegetation AND ≥ 30 per cent high value regrowth	**2**
	≥ 30 per cent to 75 per cent remnant vegetation; OR ≥ 10 per cent to 30 per cent remnant vegetation AND ≥ 30 per cent high value regrowth	**4**
	> 75 per cent remnant vegetation	**5**
14. Distance from permanent water *(measured only in intact landscapes)*	0–500 m from water point	**0**
	500 m to 1 km from water point	**2**
	1–3 km from water point	**5**
	3–5 km from water point	**10**
	>5 km from water point	**20**

Appendix E
Ecological condition scoring sheets

Ecological Equivalence Methodology (ecological condition) scoring sheet

For assessment of ecological equivalence under the Biodiversity Offset Policy and the Policy for Vegetation Management Offsets, Version 1.0 2011

Project title: GTP Cycas megacarpa DERM reference: _____

Lot plan/s: _____ Bioregion: 11

Ecological condition	Clearing area			Offset area		
	Assessment unit 1	Assessment unit 2	Assessment unit 3	Assessment unit 1	Assessment unit 2	Assessment unit 3
	Site 1	Site 2	Site 3			
1. Recruitment of woody perennial species	5	3	5			
2. Native plant species richness	5	2.5	5			
- Trees	~~0~~					
- Shrubs	~~0~~					
- Grasses						
- Forbs						
3. Tree canopy height	5	5	3			
4. Tree canopy cover	5	5	5			
5. Shrub canopy cover	3	5	3			
6. Native perennial grass cover	1	0	5			
7. Organic litter	3	3	5			
8. Large trees	15	0	5			
9. Coarse woody debris	5	0	5			
10. Weed cover	0	0	5			
11. Size of patch (fragmented)	10	10	10			
12. Connectivity (fragmented)	5	5	5			
13. Context (fragmented)	5	5	5			
14. Distance from water (intact)						
Sum of score	67.	43.5.	66.			
Area (ha)	0.64a	1.4ha	0.8ha.			
Assessment unit ecological condition score = Sum of scores x area / 100	0.40	0.61	0.53			
Overall ecological condition score	Sum of assessment unit scores 1.54		+ ② 2.09 + ③ 4.62	Sum of assessment unit scores		

*Woodland: 100; Shrubland: 65; Grassland: 50; Mangrove: 85.

Total = 8.25

(2)

Ecological Equivalence Methodology (ecological condition) scoring sheet

For assessment of ecological equivalence under the Biodiversity Offset Policy and the Policy for Vegetation Management Offsets. Version 1.0 2011

Project title: GTP Cycas megacarpa DERM reference:

Lot plan/s: Bioregion: 11

Ecological condition	Clearing area			Offset area (Woodland/Shrubland)		
	Assessment unit 1 Site 4	Assessment unit 2 Site 5	Assessment unit 3 Site 6	Assessment unit 1	Assessment unit 2	Assessment unit 3
1. Recruitment of woody perennial species	5	5	5			
2. Native plant species richness	2.5	2.5	2.5			
- Trees						
- Shrubs						
- Grasses						
- Forbs						
3. Tree canopy height	3	3	3			
4. Tree canopy cover	5	5	5			
5. Shrub canopy cover	3	0	3			
6. Native perennial grass cover	5	5	5			
7. Organic litter	5	5	5			
8. Large trees	10	5	10			
9. Coarse woody debris	5	5	5			
10. Weed cover	3	5	0			
11. Size of patch (fragmented)	10	10	10			
12. Connectivity (fragmented)	5	5	5			
13. Context (fragmented)	5	5	5			
14. Distance from water (intact)						
Sum of score	66.5	60.5	63.5			
Area (ha)	0.9ha	0.9ha	1.5ha			
Assessment unit ecological condition score = Sum of scores x area / 100	0.60	0.54	0.95			
Overall ecological condition score	Sum of assessment unit scores 2.09	+ (1) 1.54	+ (3) 4.62	Sum of assessment unit scores		

*Woodland: 100; Shrubland: 65; Grassland: 50; Mangrove: 85.

Total = 8.25

(3)

Ecological Equivalence Methodology (ecological condition) scoring sheet

For assessment of ecological equivalence under the Biodiversity Offset Policy and the Policy for Vegetation Management Offsets. Version 1.0 2011

Project title: CTP Cycas megacarpa — DERM reference: _____

Lot plan/s: _____ — Bioregion: 11

Ecological condition	Clearing area			Offset area (Read Shift)		
	Assessment unit 1 Site 7	Assessment unit 2 Site 8	Assessment unit 3 Site 9	Assessment unit 1	Assessment unit 2	Assessment unit 3
1. Recruitment of woody perennial species	5	5	3			
2. Native plant species richness	5	5	2.5			
- Trees						
- Shrubs						
- Grasses						
- Forbs						
3. Tree canopy height	3	5	5			
4. Tree canopy cover	5	5	5			
5. Shrub canopy cover	3	3	0			
6. Native perennial grass cover	5	1	1			
7. Organic litter	5	3	3			
8. Large trees	10	10	15			
9. Coarse woody debris	5	2	5			
10. Weed cover	3	0	0			
11. Size of patch (fragmented)	10	10	10			
12. Connectivity (fragmented)	5	5	5			
13. Context (fragmented)	5	5	5			
14. Distance from water (intact)						
Sum of score	69	59.	59.5			
Area (ha)	2.4ha	3ha.	2.0ha.			
Assessment unit ecological condition score = Sum of scores x area / 100	1.66	1.77	1.19.			
Overall ecological condition score	Sum of assessment unit scores 4.62	+ (1) 1.54	+ (2) 2.09	Sum of assessment unit scores		

*Woodland: 100; Shrubland: 65; Grassland: 50; Mangrove: 85.

Total = 8.25

Ecological Equivalence Methodology (ecological condition) scoring sheet

For assessment of ecological equivalence under the Biodiversity Offset Policy and the Policy for Vegetation Management Offsets. Version 1.0 2011

Project title: _____ DERM reference: _____

Lot plan/s: _____ Bioregion: _____

Total Area = 166 ha

Ecological condition	Clearing area			Offset area (Inverness)		
	Assessment unit 1	Assessment unit 2	Assessment unit 3	Assessment unit 1 Rec 1	Assessment unit 2 Rec 2	Assessment unit 3 Rec 3
1. Recruitment of woody perennial species				5	5	5
2. Native plant species richness				2.5	2.5	5
- Trees						
- Shrubs						
- Grasses						
- Forbs						
3. Tree canopy height				5	3	3
4. Tree canopy cover				5	5	5
5. Shrub canopy cover				5	5	5
6. Native perennial grass cover				5	5	5
7. Organic litter				5	5	5
8. Large trees				15	15	15
9. Coarse woody debris				5	5	2
10. Weed cover				5	5	5
11. Size of patch (fragmented)				10	10	10
12. Connectivity (fragmented)				5	5	5
13. Context (fragmented)				5	5	5
14. Distance from water (intact)						
Sum of score				77.5	75.5	75
Area (ha)				41.5	41.5	41.5
Assessment unit ecological condition score = Sum of scores x area / 100				32.16	31.33	31.13
Overall ecological condition score	Sum of assessment unit scores [ ]			Sum of assessment unit scores [94.62]		+ 28.43

*Woodland: 100; Shrubland: 65; Grassland: 50; Mangrove: 85.

166ha/4 units = 41.5ha.

Total = 123.05

Ecological Equivalence Methodology (ecological condition) scoring sheet

For assessment of ecological equivalence under the Biodiversity Offset Policy and the Policy for Vegetation Management Offsets. Version 1.0 2011

(5)

Project title: _____ DERM reference: _____

Lot plan/s: _____ Bioregion: _____

Ecological condition	Clearing area			Offset area (Invasive)		
	Assessment unit 1	Assessment unit 2	Assessment unit 3	Assessment unit 1 Rec 4.	Assessment unit 2	Assessment unit 3
1. Recruitment of woody perennial species				5		
2. Native plant species richness				2.5		
- Trees						
- Shrubs						
- Grasses						
- Forbs						
3. Tree canopy height				3		
4. Tree canopy cover				5		
5. Shrub canopy cover				3		
6. Native perennial grass cover				5		
7. Organic litter				5		
8. Large trees				10		
9. Coarse woody debris				5		
10. Weed cover				5		
11. Size of patch (fragmented)				10		
12. Connectivity (fragmented)				5		
13. Context (fragmented)				5		
14. Distance from water (intact)						
Sum of score				68.5		
Area (ha)				41.5		
Assessment unit ecological condition score = Sum of scores x area / 100				28.43		
Overall ecological condition score	Sum of assessment unit scores [ ]			Sum of assessment unit scores [28.43]		+ (4) 94.62

*Woodland: 100; Shrubland: 65; Grassland: 50; Mangrove: 85.

Total = 123.05

(6)

Ecological Equivalence Methodology (ecological condition) scoring sheet

For assessment of ecological equivalence under the Biodiversity Offset Policy and the Policy for Vegetation Management Offsets. Version 1.0 2011

Project title: _____ DERM reference: _____

Lot plan/s: _____ Bioregion: _____

Total area = 166 ha.

Ecological condition	Clearing area			Offset area (Red Sh.7)		
	Assessment unit 1	Assessment unit 2	Assessment unit 3	Assessment unit 1 Rec 5	Assessment unit 2 REC 6	Assessment unit 3 REC 7
1. Recruitment of woody perennial species				5	5	5
2. Native plant species richness				5	5	2.5
- Trees						
- Shrubs						
- Grasses						
- Forbs						
3. Tree canopy height				5	5	5
4. Tree canopy cover				2	5	5
5. Shrub canopy cover				3	5	5
6. Native perennial grass cover				1	5	1
7. Organic litter				3	10 5	3
8. Large trees				10	10	15
9. Coarse woody debris				5	5	5
10. Weed cover				5	5	5
11. Size of patch (fragmented)				10	10	10
12. Connectivity (fragmented)				4	4	5
13. Context (fragmented)				5	5	5
14. Distance from water (intact)						
Sum of score				63.	74	71.5.
Area (ha)				33.2	33.2	33.2.
Assessment unit ecological condition score = Sum of scores x area / 100				209.16	2492.	23.74.
Overall ecological condition score	Sum of assessment unit scores			Sum of assessment unit scores 69.1		+ (7) 46.98

*Woodland: 100; Shrubland: 65; Grassland: 50; Mangrove: 85.

1664a/5 units = 33.26a. Total = 116.08

Ecological Equivalence Methodology (ecological condition) scoring sheet

For assessment of ecological equivalence under the Biodiversity Offset Policy and the Policy for Vegetation Management Offsets. Version 1.0 2011

Project title: _____ DERM reference: _____

Lot plan/s: _____ Bioregion: _____

Ecological condition	Clearing area			Offset area (Rec Sh.7+.)		
	Assessment unit 1	Assessment unit 2	Assessment unit 3	Assessment unit 1 Rec 8	Assessment unit 2 Rec 9	Assessment unit 3
1. Recruitment of woody perennial species				5	5	
2. Native plant species richness				2.5	5	
- Trees						
- Shrubs						
- Grasses						
- Forbs						
3. Tree canopy height				5	5	
4. Tree canopy cover				5	5	
5. Shrub canopy cover				3	5	
6. Native perennial grass cover				3	5	
7. Organic litter				3	5	
8. Large trees				15	10	
9. Coarse woody debris				2	5	
10. Weed cover				3	5	
11. Size of patch (fragmented)				10	10	
12. Connectivity (fragmented)				5	5	
13. Context (fragmented)				5	5	
14. Distance from water (intact)						
Sum of score				66.5	75	
Area (ha)				33.2	33.2	
Assessment unit ecological condition score = Sum of scores x area / 100				22.08	24.9	
Overall ecological condition score	Sum of assessment unit scores [ ]			Sum of assessment unit scores [46.98] + 69.1		

*Woodland: 100; Shrubland: 65; Grassland: 50; Mangrove: 85.

Total = 116.08

Appendix F
Special features indicator scores

Site 1

Table 7 – Special features indicator scores: which require adjacency calculation (1–10 and 12)

Special feature indicator	Description	Score
1: Centres of endemism	No value	0
	Medium	5
	High	17
	Very high	20
2: Wildlife refugia	No value	0
	Medium	7
	High	17
	Very high	20
3: Areas with concentrations of disjunct populations	No value	0
	Medium	3
	High	12
	Very high	15
4: Areas with taxa at limits of geographic range	No value	0
	Medium	1
	High	4
	Very high	5
5: Areas with high species richness	No value	0
	Medium	5
	High	17
	Very High	20
6: Areas considered to be important for maintaining populations of ancient and primitive taxa	No value	0
	Medium	3
	High	12
	Very high	15
7: Areas containing regional ecosystems with distinct variation in taxa composition associated with geomorphology and other environmental variables	No value	0
	Medium	2
	High	8
	Very high	10
8: Artificially created waterbodies of ecological significance	No value	0
	Medium	1
	High	4
	Very high	5
9: Areas considered to be important because of high relative density of hollow-bearing trees	No value	0
	Medium	1
	High	4
	Very high	5
10: Breeding or roosting sites used by a significant number of individuals	No value	0
	Medium	3
	High	12
	Very high	15
12: Priority species	No value	0
	Medium	5
	High	8
	Very high	10

90 + 25 = 115

Table 8 – Special features indicator scores: where adjacency is not applicable (11, 13 and 14)

Special feature indicator	Description	Score
11: Ecological corridors	No value	0
	Regionally significant terrestrial or riparian corridor	17
	State significant terrestrial or riparian corridor	20
13: Significance of patch within a 1 kilometre buffer	> 50% of native vegetation remaining in buffer within 1 km of the assessment unit	0
	>30–50% of native vegetation remaining in buffer within 1 km of the assessment unit	2.5
	10–30% of native vegetation remaining in buffer within 1 km of the assessment unit	5
	< 10% of native vegetation remaining in buffer within 1 km of the assessment unit	10
14: Protected area estate buffer	Not in buffer of protected area estate	0
	Within buffer of protected area estate	5

4. Calculate special features score

To calculate the special features score, input all the scores into the special features scoring sheet provided in Appendix E. A completed scoring sheet based on the information described in Boxes 3.9 and 3.10 is provided in Box 3.11. Note that only the offset area contains calculations using the adjacency principle, and in this example there was only one special feature indicator present within the 2km buffer. The clearing area score is based on whether or not it contains a special feature. An example of where there are multiple special feature indicators adjacent to an offset area is provided in Box B.5 in Appendix B.

Section 3.3 discusses how to interpret the scores and options to address the scenarios when ecological equivalence is not achieved between the clearing area and offset area.

Site 2

Table 7 – Special features indicator scores: which require adjacency calculation (1–10 and 12)

Special feature indicator	Description	Score
1: Centres of endemism	No value	0
	Medium	5
	High	17
	Very high	20
2: Wildlife refugia	No value	0
	Medium	7
	High	17
	Very high	20
3: Areas with concentrations of disjunct populations	No value	0
	Medium	3
	High	12
	Very high	15
4: Areas with taxa at limits of geographic range	No value	0
	Medium	1
	High	4
	Very high	5
5: Areas with high species richness	No value	0
	Medium	5
	High	17
	Very High	20
6: Areas considered to be important for maintaining populations of ancient and primitive taxa	No value	0
	Medium	3
	High	12
	Very high	15
7: Areas containing regional ecosystems with distinct variation in taxa composition associated with geomorphology and other environmental variables	No value	0
	Medium	2
	High	8
	Very high	10
8: Artificially created waterbodies of ecological significance	No value	0
	Medium	1
	High	4
	Very high	5
9: Areas considered to be important because of high relative density of hollow-bearing trees	No value	0
	Medium	1
	High	4
	Very high	5
10: Breeding or roosting sites used by a significant number of individuals	No value	0
	Medium	3
	High	12
	Very high	15
12: Priority species	No value	0
	Medium	5
	High	8
	Very high	10

90 + 5 = 95

Table 8 – Special features indicator scores: where adjacency is not applicable (11, 13 and 14)

Special feature indicator	Description	Score
11: Ecological corridors	No value	0
	Regionally significant terrestrial or riparian corridor	17
	State significant terrestrial or riparian corridor	20
13: Significance of patch within a 1 kilometre buffer	> 50% of native vegetation remaining in buffer within 1 km of the assessment unit	0
	>30–50% of native vegetation remaining in buffer within 1 km of the assessment unit	2.5
	10–30% of native vegetation remaining in buffer within 1 km of the assessment unit	5
	< 10% of native vegetation remaining in buffer within 1 km of the assessment unit	10
14: Protected area estate buffer	Not in buffer of protected area estate	0
	Within buffer of protected area estate	5

4. Calculate special features score

To calculate the special features score, input all the scores into the special features scoring sheet provided in Appendix E. A completed scoring sheet based on the information described in Boxes 3.9 and 3.10 is provided in Box 3.11. Note that only the offset area contains calculations using the adjacency principle, and in this example there was only one special feature indicator present within the 2km buffer. The clearing area score is based on whether or not it contains a special feature. An example of where there are multiple special feature indicators adjacent to an offset area is provided in Box B.5 in Appendix B.

Section 3.3 discusses how to interpret the scores and options to address the scenarios when ecological equivalence is not achieved between the clearing area and offset area.

Site 3

Table 7 – Special features indicator scores: which require adjacency calculation (1–10 and 12)

Special feature indicator	Description	Score
1: Centres of endemism	No value	0
	Medium	5
	High	17
	Very high	20
2: Wildlife refugia	No value	0
	Medium	7
	High	17
	Very high	20
3: Areas with concentrations of disjunct populations	No value	0
	Medium	3
	High	12
	Very high	15
4: Areas with taxa at limits of geographic range	No value	0
	Medium	1
	High	4
	Very high	5
5: Areas with high species richness	No value	0
	Medium	5
	High	17
	Very High	20
6: Areas considered to be important for maintaining populations of ancient and primitive taxa	No value	0
	Medium	3
	High	12
	Very high	15
7: Areas containing regional ecosystems with distinct variation in taxa composition associated with geomorphology and other environmental variables	No value	0
	Medium	2
	High	8
	Very high	10
8: Artificially created waterbodies of ecological significance	No value	0
	Medium	1
	High	4
	Very high	5
9: Areas considered to be important because of high relative density of hollow-bearing trees	No value	0
	Medium	1
	High	4
	Very high	5
10: Breeding or roosting sites used by a significant number of individuals	No value	0
	Medium	3
	High	12
	Very high	15
12: Priority species	No value	0
	Medium	5
	High	8
	Very high	10

90 + 20 = 110

Table 8 – Special features indicator scores: where adjacency is not applicable (11, 13 and 14)

Special feature indicator	Description	Score
11: Ecological corridors	No value	0
	Regionally significant terrestrial or riparian corridor	17
	State significant terrestrial or riparian corridor	20
13: Significance of patch within a 1 kilometre buffer	> 50% of native vegetation remaining in buffer within 1 km of the assessment unit	0
	>30–50% of native vegetation remaining in buffer within 1 km of the assessment unit	2.5
	10–30% of native vegetation remaining in buffer within 1 km of the assessment unit	5
	< 10% of native vegetation remaining in buffer within 1 km of the assessment unit	10
14: Protected area estate buffer	Not in buffer of protected area estate	0
	Within buffer of protected area estate	5

4. Calculate special features score

To calculate the special features score, input all the scores into the special features scoring sheet provided in Appendix E. A completed scoring sheet based on the information described in Boxes 3.9 and 3.10 is provided in Box 3.11. Note that only the offset area contains calculations using the adjacency principle, and in this example there was only one special feature indicator present within the 2km buffer. The clearing area score is based on whether or not it contains a special feature. An example of where there are multiple special feature indicators adjacent to an offset area is provided in Box B.5 in Appendix B.

Section 3.3 discusses how to interpret the scores and options to address the scenarios when ecological equivalence is not achieved between the clearing area and offset area.

Site 4

Table 7 – Special features indicator scores: which require adjacency calculation (1–10 and 12)

Special feature indicator	Description	Score
1: Centres of endemism	No value	0
	Medium	5
	High	17
	Very high	20
2: Wildlife refugia	No value	0
	Medium	7
	High	17
	Very high	20
3: Areas with concentrations of disjunct populations	No value	0
	Medium	3
	High	12
	Very high	15
4: Areas with taxa at limits of geographic range	No value	0
	Medium	1
	High	4
	Very high	5
5: Areas with high species richness	No value	0
	Medium	5
	High	17
	Very High	20
6: Areas considered to be important for maintaining populations of ancient and primitive taxa	No value	0
	Medium	3
	High	12
	Very high	15
7: Areas containing regional ecosystems with distinct variation in taxa composition associated with geomorphology and other environmental variables	No value	0
	Medium	2
	High	8
	Very high	10
8: Artificially created waterbodies of ecological significance	No value	0
	Medium	1
	High	4
	Very high	5
9: Areas considered to be important because of high relative density of hollow-bearing trees	No value	0
	Medium	1
	High	4
	Very high	5
10: Breeding or roosting sites used by a significant number of individuals	No value	0
	Medium	3
	High	12
	Very high	15
12: Priority species	No value	0
	Medium	5
	High	8
	Very high	10

90+20 = 110

Table 8 – Special features indicator scores: where adjacency is not applicable (11, 13 and 14)

Special feature indicator	Description	Score
11: Ecological corridors	No value	0
	Regionally significant terrestrial or riparian corridor	17
	State significant terrestrial or riparian corridor	20
13: Significance of patch within a 1 kilometre buffer	> 50% of native vegetation remaining in buffer within 1 km of the assessment unit	0
	>30–50% of native vegetation remaining in buffer within 1 km of the assessment unit	2.5
	10–30% of native vegetation remaining in buffer within 1 km of the assessment unit	5
	< 10% of native vegetation remaining in buffer within 1 km of the assessment unit	10
14: Protected area estate buffer	Not in buffer of protected area estate	0
	Within buffer of protected area estate	5

4. Calculate special features score

To calculate the special features score, input all the scores into the special features scoring sheet provided in Appendix E. A completed scoring sheet based on the information described in Boxes 3.9 and 3.10 is provided in Box 3.11. Note that only the offset area contains calculations using the adjacency principle, and in this example there was only one special feature indicator present within the 2km buffer. The clearing area score is based on whether or not it contains a special feature. An example of where there are multiple special feature indicators adjacent to an offset area is provided in Box B.5 in Appendix B.

Section 3.3 discusses how to interpret the scores and options to address the scenarios when ecological equivalence is not achieved between the clearing area and offset area.

Side 5

Table 7 – Special features indicator scores: which require adjacency calculation (1–10 and 12)

Special feature indicator	Description	Score
1: Centres of endemism	No value	0
	Medium	5
	High	17
	Very high	20
2: Wildlife refugia	No value	0
	Medium	7
	High	17
	Very high	20
3: Areas with concentrations of disjunct populations	No value	0
	Medium	3
	High	12
	Very high	15
4: Areas with taxa at limits of geographic range	No value	0
	Medium	1
	High	4
	Very high	5
5: Areas with high species richness	No value	0
	Medium	5
	High	17
	Very High	20
6: Areas considered to be important for maintaining populations of ancient and primitive taxa	No value	0
	Medium	3
	High	12
	Very high	15
7: Areas containing regional ecosystems with distinct variation in taxa composition associated with geomorphology and other environmental variables	No value	0
	Medium	2
	High	8
	Very high	10
8: Artificially created waterbodies of ecological significance	No value	0
	Medium	1
	High	4
	Very high	5
9: Areas considered to be important because of high relative density of hollow-bearing trees	No value	0
	Medium	1
	High	4
	Very high	5
10: Breeding or roosting sites used by a significant number of individuals	No value	0
	Medium	3
	High	12
	Very high	15
12: Priority species	No value	0
	Medium	5
	High	8
	Very high	10

90 + 20 = 110

Site 5

Table 8 – Special features indicator scores: where adjacency is not applicable (11, 13 and 14)

Special feature indicator	Description	Score
11: Ecological corridors	No value	0
	Regionally significant terrestrial or riparian corridor	17
	State significant terrestrial or riparian corridor	20
13: Significance of patch within a 1 kilometre buffer	> 50% of native vegetation remaining in buffer within 1 km of the assessment unit	0
	>30–50% of native vegetation remaining in buffer within 1 km of the assessment unit	2.5
	10–30% of native vegetation remaining in buffer within 1 km of the assessment unit	5
	< 10% of native vegetation remaining in buffer within 1 km of the assessment unit	10
14: Protected area estate buffer	Not in buffer of protected area estate	0
	Within buffer of protected area estate	5

4. Calculate special features score

To calculate the special features score, input all the scores into the special features scoring sheet provided in Appendix E. A completed scoring sheet based on the information described in Boxes 3.9 and 3.10 is provided in Box 3.11. Note that only the offset area contains calculations using the adjacency principle, and in this example there was only one special feature indicator present within the 2km buffer. The clearing area score is based on whether or not it contains a special feature. An example of where there are multiple special feature indicators adjacent to an offset area is provided in Box B.5 in Appendix B.

Section 3.3 discusses how to interpret the scores and options to address the scenarios when ecological equivalence is not achieved between the clearing area and offset area.

Site 6

Table 7 – Special features indicator scores: which require adjacency calculation (1–10 and 12)

Special feature indicator	Description	Score
1: Centres of endemism	No value	0
	Medium	5
	High	17
	Very high	20
2: Wildlife refugia	No value	0
	Medium	7
	High	17
	Very high	20
3: Areas with concentrations of disjunct populations	No value	0
	Medium	3
	High	12
	Very high	15
4: Areas with taxa at limits of geographic range	No value	0
	Medium	1
	High	4
	Very high	5
5: Areas with high species richness	No value	0
	Medium	5
	High	17
	Very High	20
6: Areas considered to be important for maintaining populations of ancient and primitive taxa	No value	0
	Medium	3
	High	12
	Very high	15
7: Areas containing regional ecosystems with distinct variation in taxa composition associated with geomorphology and other environmental variables	No value	0
	Medium	2
	High	8
	Very high	10
8: Artificially created waterbodies of ecological significance	No value	0
	Medium	1
	High	4
	Very high	5
9: Areas considered to be important because of high relative density of hollow-bearing trees	No value	0
	Medium	1
	High	4
	Very high	5
10: Breeding or roosting sites used by a significant number of individuals	No value	0
	Medium	5
	High	12
	Very high	15
12: Priority species	No value	0
	Medium	5
	High	8
	Very high	10

90 + 20 = 110

Table 8 – Special features indicator scores: where adjacency is not applicable (11, 13 and 14)

Special feature indicator	Description	Score
11: Ecological corridors	No value	0
	Regionally significant terrestrial or riparian corridor	17
	State significant terrestrial or riparian corridor	20
13: Significance of patch within a 1 kilometre buffer	> 50% of native vegetation remaining in buffer within 1 km of the assessment unit	0
	>30–50% of native vegetation remaining in buffer within 1 km of the assessment unit	2.5
	10–30% of native vegetation remaining in buffer within 1 km of the assessment unit	5
	< 10% of native vegetation remaining in buffer within 1 km of the assessment unit	10
14: Protected area estate buffer	Not in buffer of protected area estate	0
	Within buffer of protected area estate	5

4. Calculate special features score

To calculate the special features score, input all the scores into the special features scoring sheet provided in Appendix E. A completed scoring sheet based on the information described in Boxes 3.9 and 3.10 is provided in Box 3.11. Note that only the offset area contains calculations using the adjacency principle, and in this example there was only one special feature indicator present within the 2km buffer. The clearing area score is based on whether or not it contains a special feature. An example of where there are multiple special feature indicators adjacent to an offset area is provided in Box B.5 in Appendix B.

Section 3.3 discusses how to interpret the scores and options to address the scenarios when ecological equivalence is not achieved between the clearing area and offset area.

Site 7

Table 7 – Special features indicator scores: which require adjacency calculation (1–10 and 12)

Special feature indicator	Description	Score
1: Centres of endemism	No value	0
	Medium	5
	High	17
	Very high	20
2: Wildlife refugia	No value	0
	Medium	7
	High	17
	Very high	20
3: Areas with concentrations of disjunct populations	No value	0
	Medium	3
	High	12
	Very high	15
4: Areas with taxa at limits of geographic range	No value	0
	Medium	1
	High	4
	Very high	5
5: Areas with high species richness	No value	0
	Medium	5
	High	17
	Very High	20
6: Areas considered to be important for maintaining populations of ancient and primitive taxa	No value	0
	Medium	3
	High	12
	Very high	15
7: Areas containing regional ecosystems with distinct variation in taxa composition associated with geomorphology and other environmental variables	No value	0
	Medium	2
	High	8
	Very high	10
8: Artificially created waterbodies of ecological significance	No value	0
	Medium	1
	High	4
	Very high	5
9: Areas considered to be important because of high relative density of hollow-bearing trees	No value	0
	Medium	1
	High	4
	Very high	5
10: Breeding or roosting sites used by a significant number of individuals	No value	0
	Medium	3
	High	12
	Very high	15
12: Priority species	No value	0
	Medium	5
	High	8
	Very high	10

90 + 20 = 110

Site 7

Table 8 – Special features indicator scores: where adjacency is not applicable (11, 13 and 14)

Special feature indicator	Description	Score
11: Ecological corridors	No value	0
	Regionally significant terrestrial or riparian corridor	17
	State significant terrestrial or riparian corridor	20
13: Significance of patch within a 1 kilometre buffer	> 50% of native vegetation remaining in buffer within 1 km of the assessment unit	0
	>30–50% of native vegetation remaining in buffer within 1 km of the assessment unit	2.5
	10–30% of native vegetation remaining in buffer within 1 km of the assessment unit	5
	< 10% of native vegetation remaining in buffer within 1 km of the assessment unit	10
14: Protected area estate buffer	Not in buffer of protected area estate	0
	Within buffer of protected area estate	5

20

4. Calculate special features score

To calculate the special features score, input all the scores into the special features scoring sheet provided in Appendix E. A completed scoring sheet based on the information described in Boxes 3.9 and 3.10 is provided in Box 3.11. Note that only the offset area contains calculations using the adjacency principle, and in this example there was only one special feature indicator present within the 2km buffer. The clearing area score is based on whether or not it contains a special feature. An example of where there are multiple special feature indicators adjacent to an offset area is provided in Box B.5 in Appendix B.

Section 3.3 discusses how to interpret the scores and options to address the scenarios when ecological equivalence is not achieved between the clearing area and offset area.

Site 6

Table 7 – Special features indicator scores: which require adjacency calculation (1–10 and 12)

Special feature indicator	Description	Score
1: Centres of endemism	No value	0
	Medium	5
	High	17
	Very high	20
2: Wildlife refugia	No value	0
	Medium	7
	High	17
	Very high	20
3: Areas with concentrations of disjunct populations	No value	0
	Medium	3
	High	12
	Very high	15
4: Areas with taxa at limits of geographic range	No value	0
	Medium	1
	High	4
	Very high	5
5: Areas with high species richness	No value	0
	Medium	5
	High	17
	Very High	20
6: Areas considered to be important for maintaining populations of ancient and primitive taxa	No value	0
	Medium	3
	High	12
	Very high	15
7: Areas containing regional ecosystems with distinct variation in taxa composition associated with geomorphology and other environmental variables	No value	0
	Medium	2
	High	8
	Very high	10
8: Artificially created waterbodies of ecological significance	No value	0
	Medium	1
	High	4
	Very high	5
9: Areas considered to be important because of high relative density of hollow-bearing trees	No value	0
	Medium	1
	High	4
	Very high	5
10: Breeding or roosting sites used by a significant number of individuals	No value	0
	Medium	3
	High	12
	Very high	15
12: Priority species	No value	0
	Medium	3
	High	8
	Very high	10

90 + 20 = 110

Site 8

Table 8 – Special features indicator scores: where adjacency is not applicable (11, 13 and 14)

Special feature indicator	Description	Score
11: Ecological corridors	No value	0
	Regionally significant terrestrial or riparian corridor	17
	State significant terrestrial or riparian corridor	20
13: Significance of patch within a 1 kilometre buffer	> 50% of native vegetation remaining in buffer within 1 km of the assessment unit	0
	>30–50% of native vegetation remaining in buffer within 1 km of the assessment unit	2.5
	10–30% of native vegetation remaining in buffer within 1 km of the assessment unit	5
	< 10% of native vegetation remaining in buffer within 1 km of the assessment unit	10
14: Protected area estate buffer	Not in buffer of protected area estate	0
	Within buffer of protected area estate	5

20

4. Calculate special features score

To calculate the special features score, input all the scores into the special features scoring sheet provided in Appendix E. A completed scoring sheet based on the information described in Boxes 3.9 and 3.10 is provided in Box 3.11. Note that only the offset area contains calculations using the adjacency principle, and in this example there was only one special feature indicator present within the 2km buffer. The clearing area score is based on whether or not it contains a special feature. An example of where there are multiple special feature indicators adjacent to an offset area is provided in Box B.5 in Appendix B.

Section 3.3 discusses how to interpret the scores and options to address the scenarios when ecological equivalence is not achieved between the clearing area and offset area.

Site 9

Table 7 – Special features indicator scores: which require adjacency calculation (1–10 and 12)

Special feature indicator	Description	Score
1: Centres of endemism	No value	0
	Medium	5
	High	17
	Very high	20
2: Wildlife refugia	No value	0
	Medium	7
	High	17
	Very high	20
3: Areas with concentrations of disjunct populations	No value	0
	Medium	3
	High	12
	Very high	15
4: Areas with taxa at limits of geographic range	No value	0
	Medium	1
	High	4
	Very high	5
5: Areas with high species richness	No value	0
	Medium	5
	High	17
	Very High	20
6: Areas considered to be important for maintaining populations of ancient and primitive taxa	No value	0
	Medium	3
	High	12
	Very high	15
7: Areas containing regional ecosystems with distinct variation in taxa composition associated with geomorphology and other environmental variables	No value	0
	Medium	2
	High	8
	Very high	10
8: Artificially created waterbodies of ecological significance	No value	0
	Medium	1
	High	4
	Very high	5
9: Areas considered to be important because of high relative density of hollow-bearing trees	No value	0
	Medium	1
	High	4
	Very high	5
10: Breeding or roosting sites used by a significant number of individuals	No value	0
	Medium	3
	High	12
	Very high	15
12: Priority species	No value	0
	Medium	5
	High	8
	Very high	10

0

Sht 9

Table 8 – Special features indicator scores: where adjacency is not applicable (11, 13 and 14)

Special feature indicator	Description	Score
11: Ecological corridors	No value	0
	Regionally significant terrestrial or riparian corridor	17
	State significant terrestrial or riparian corridor	20
13: Significance of patch within a 1 kilometre buffer	> 50% of native vegetation remaining in buffer within 1 km of the assessment unit	0
	>30–50% of native vegetation remaining in buffer within 1 km of the assessment unit	2.5
	10–30% of native vegetation remaining in buffer within 1 km of the assessment unit	5
	< 10% of native vegetation remaining in buffer within 1 km of the assessment unit	10
14: Protected area estate buffer	Not in buffer of protected area estate	0
	Within buffer of protected area estate	5

0

4. Calculate special features score

To calculate the special features score, input all the scores into the special features scoring sheet provided in Appendix E. A completed scoring sheet based on the information described in Boxes 3.9 and 3.10 is provided in Box 3.11. Note that only the offset area contains calculations using the adjacency principle, and in this example there was only one special feature indicator present within the 2km buffer. The clearing area score is based on whether or not it contains a special feature. An example of where there are multiple special feature indicators adjacent to an offset area is provided in Box B.5 in Appendix B.

Section 3.3 discusses how to interpret the scores and options to address the scenarios when ecological equivalence is not achieved between the clearing area and offset area.

Rec 1

Table 7 – Special features indicator scores: which require adjacency calculation (1–10 and 12)

Special feature indicator	Description	Score
1: Centres of endemism	No value	0
	Medium	5
	High	17
	Very high	20
2: Wildlife refugia	No value	0
	Medium	7
	High	17
	Very high	20
3: Areas with concentrations of disjunct populations	No value	0
	Medium	3
	High	12
	Very high	15
4: Areas with taxa at limits of geographic range	No value	0
	Medium	1
	High	4
	Very high	5
5: Areas with high species richness	No value	0
	Medium	5
	High	17
	Very High	20
6: Areas considered to be important for maintaining populations of ancient and primitive taxa	No value	0
	Medium	3
	High	12
	Very high	15
7: Areas containing regional ecosystems with distinct variation in taxa composition associated with geomorphology and other environmental variables	No value	0
	Medium	2
	High	8
	Very high	10
8: Artificially created waterbodies of ecological significance	No value	0
	Medium	1
	High	4
	Very high	5
9: Areas considered to be important because of high relative density of hollow-bearing trees	No value	0
	Medium	1
	High	4
	Very high	5
10: Breeding or roosting sites used by a significant number of individuals	No value	0
	Medium	3
	High	12
	Very high	15
12: Priority species	No value	0
	Medium	5
	High	8
	Very high	10

90 + 20 = 110

Table 8 – Special features indicator scores: where adjacency is not applicable (11, 13 and 14)

Special feature indicator	Description	Score
11: Ecological corridors	No value	0
	Regionally significant terrestrial or riparian corridor	17
	State significant terrestrial or riparian corridor	20
13: Significance of patch within a 1 kilometre buffer	> 50% of native vegetation remaining in buffer within 1 km of the assessment unit	0
	>30–50% of native vegetation remaining in buffer within 1 km of the assessment unit	2.5
	10–30% of native vegetation remaining in buffer within 1 km of the assessment unit	5
	< 10% of native vegetation remaining in buffer within 1 km of the assessment unit	10
14: Protected area estate buffer	Not in buffer of protected area estate	0
	Within buffer of protected area estate	5

4. Calculate special features score

To calculate the special features score, input all the scores into the special features scoring sheet provided in Appendix E. A completed scoring sheet based on the information described in Boxes 3.9 and 3.10 is provided in Box 3.11. Note that only the offset area contains calculations using the adjacency principle, and in this example there was only one special feature indicator present within the 2km buffer. The clearing area score is based on whether or not it contains a special feature. An example of where there are multiple special feature indicators adjacent to an offset area is provided in Box B.5 in Appendix B.

Section 3.3 discusses how to interpret the scores and options to address the scenarios when ecological equivalence is not achieved between the clearing area and offset area.

Rec 2

Table 7 – Special features indicator scores: which require adjacency calculation (1–10 and 12)

Special feature indicator	Description	Score
1: Centres of endemism	No value	0
	Medium	5
	High	17
	Very high	20
2: Wildlife refugia	No value	0
	Medium	7
	High	17
	Very high	20
3: Areas with concentrations of disjunct populations	No value	0
	Medium	3
	High	12
	Very high	15
4: Areas with taxa at limits of geographic range	No value	0
	Medium	1
	High	4
	Very high	5
5: Areas with high species richness	No value	0
	Medium	5
	High	17
	Very High	20
6: Areas considered to be important for maintaining populations of ancient and primitive taxa	No value	0
	Medium	3
	High	12
	Very high	15
7: Areas containing regional ecosystems with distinct variation in taxa composition associated with geomorphology and other environmental variables	No value	0
	Medium	2
	High	8
	Very high	10
8: Artificially created waterbodies of ecological significance	No value	0
	Medium	1
	High	4
	Very high	5
9: Areas considered to be important because of high relative density of hollow-bearing trees	No value	0
	Medium	1
	High	4
	Very high	5
10: Breeding or roosting sites used by a significant number of individuals	No value	0
	Medium	3
	High	12
	Very high	15
12: Priority species	No value	0
	Medium	5
	High	8
	Very high	10

90 + 20 = 110

Table 8 – Special features indicator scores: where adjacency is not applicable (11, 13 and 14)

Special feature indicator	Description	Score
11: Ecological corridors	No value	0
	Regionally significant terrestrial or riparian corridor	17
	State significant terrestrial or riparian corridor	20
13: Significance of patch within a 1 kilometre buffer	> 50% of native vegetation remaining in buffer within 1 km of the assessment unit	0
	>30–50% of native vegetation remaining in buffer within 1 km of the assessment unit	2.5
	10–30% of native vegetation remaining in buffer within 1 km of the assessment unit	5
	< 10% of native vegetation remaining in buffer within 1 km of the assessment unit	10
14: Protected area estate buffer	Not in buffer of protected area estate	0
	Within buffer of protected area estate	5

4. Calculate special features score

To calculate the special features score, input all the scores into the special features scoring sheet provided in Appendix E. A completed scoring sheet based on the information described in Boxes 3.9 and 3.10 is provided in Box 3.11. Note that only the offset area contains calculations using the adjacency principle, and in this example there was only one special feature indicator present within the 2km buffer. The clearing area score is based on whether or not it contains a special feature. An example of where there are multiple special feature indicators adjacent to an offset area is provided in Box B.5 in Appendix B.

Section 3.3 discusses how to interpret the scores and options to address the scenarios when ecological equivalence is not achieved between the clearing area and offset area.

Rec 3

Table 7 – Special features indicator scores: which require adjacency calculation (1–10 and 12)

Special feature indicator	Description	Score
1: Centres of endemism	No value	0
	Medium	5
	High	17
	Very high	20
2: Wildlife refugia	No value	0
	Medium	7
	High	17
	Very high	20
3: Areas with concentrations of disjunct populations	No value	0
	Medium	3
	High	12
	Very high	15
4: Areas with taxa at limits of geographic range	No value	0
	Medium	1
	High	4
	Very high	5
5: Areas with high species richness	No value	0
	Medium	5
	High	17
	Very High	20
6: Areas considered to be important for maintaining populations of ancient and primitive taxa	No value	0
	Medium	3
	High	12
	Very high	15
7: Areas containing regional ecosystems with distinct variation in taxa composition associated with geomorphology and other environmental variables	No value	0
	Medium	2
	High	8
	Very high	10
8: Artificially created waterbodies of ecological significance	No value	0
	Medium	1
	High	4
	Very high	5
9: Areas considered to be important because of high relative density of hollow-bearing trees	No value	0
	Medium	1
	High	4
	Very high	5
10: Breeding or roosting sites used by a significant number of individuals	No value	0
	Medium	3
	High	12
	Very high	15
12: Priority species	No value	0
	Medium	5
	High	8
	Very high	10

90 + 10 = 110

Rec 3

Table 8 – Special features indicator scores: where adjacency is not applicable (11, 13 and 14)

Special feature indicator	Description	Score
11: Ecological corridors	No value	0
	Regionally significant terrestrial or riparian corridor	17
	State significant terrestrial or riparian corridor	20
13: Significance of patch within a 1 kilometre buffer	> 50% of native vegetation remaining in buffer within 1 km of the assessment unit	0
	>30–50% of native vegetation remaining in buffer within 1 km of the assessment unit	2.5
	10–30% of native vegetation remaining in buffer within 1 km of the assessment unit	5
	< 10% of native vegetation remaining in buffer within 1 km of the assessment unit	10
14: Protected area estate buffer	Not in buffer of protected area estate	0
	Within buffer of protected area estate	5

4. Calculate special features score

20

To calculate the special features score, input all the scores into the special features scoring sheet provided in Appendix E. A completed scoring sheet based on the information described in Boxes 3.9 and 3.10 is provided in Box 3.11. Note that only the offset area contains calculations using the adjacency principle, and in this example there was only one special feature indicator present within the 2km buffer. The clearing area score is based on whether or not it contains a special feature. An example of where there are multiple special feature indicators adjacent to an offset area is provided in Box B.5 in Appendix B.

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Rec 4

Table 7 – Special features indicator scores: which require adjacency calculation (1–10 and 12)

Special feature indicator	Description	Score
1: Centres of endemism	No value	0
	Medium	5
	High	17
	Very high	20
2: Wildlife refugia	No value	0
	Medium	7
	High	17
	Very high	20
3: Areas with concentrations of disjunct populations	No value	0
	Medium	3
	High	12
	Very high	15
4: Areas with taxa at limits of geographic range	No value	0
	Medium	1
	High	4
	Very high	5
5: Areas with high species richness	No value	0
	Medium	5
	High	17
	Very High	20
6: Areas considered to be important for maintaining populations of ancient and primitive taxa	No value	0
	Medium	3
	High	12
	Very high	15
7: Areas containing regional ecosystems with distinct variation in taxa composition associated with geomorphology and other environmental variables	No value	0
	Medium	2
	High	8
	Very high	10
8: Artificially created waterbodies of ecological significance	No value	0
	Medium	1
	High	4
	Very high	5
9: Areas considered to be important because of high relative density of hollow-bearing trees	No value	0
	Medium	1
	High	4
	Very high	5
10: Breeding or roosting sites used by a significant number of individuals	No value	0
	Medium	3
	High	12
	Very high	15
12: Priority species	No value	0
	Medium	5
	High	8
	Very high	10

90 + 20 = 110

Rec 4

Table 8 – Special features indicator scores: where adjacency is not applicable (11, 13 and 14)

Special feature indicator	Description	Score
11: Ecological corridors	No value	0
	Regionally significant terrestrial or riparian corridor	17
	State significant terrestrial or riparian corridor	20
13: Significance of patch within a 1 kilometre buffer	> 50% of native vegetation remaining in buffer within 1 km of the assessment unit	0
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	10–30% of native vegetation remaining in buffer within 1 km of the assessment unit	5
	< 10% of native vegetation remaining in buffer within 1 km of the assessment unit	10
14: Protected area estate buffer	Not in buffer of protected area estate	0
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4. Calculate special features score

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	Medium	1
	High	4
	Very high	5
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	Very high	15
12: Priority species	No value	0
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	High	8
	Very high	10

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APPENDIX 7 - Memo of the Cycas megacarpa Translocation Management Team and advisors regarding the preferred offset and translocation site.

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Brisbane QLD 4000 AUSTRALIA
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Memo

To:	Darryl Patching; Brendan Monckton	**Date:**	27/11/2012
CC:	Mark McNamara; Paul Forster; Brent Braddick; Trevor Mylrea; Ayax Diaz-Ruiz; Heather Wood; Alison Shapcott; Brian Perry; Tom Howard; Dean Salter	**Ref:**	3380-GLNG-4-1.3-0148
From:	Joe Adair	**No. of pages: (incl. this one)**	Three
Subject:	Site assessment of *Cycas megacarpa* offset properties – Red Shirt and Inverness (Callide and Calliope Ranges).		

The *Cycas megacarpa* (Cycads) Translocation Management Team and advisors undertook a field inspection on 21 November 2012 of two potential offset sites for Cycads. The sites, Red Shirt and Inverness are those sites selected from an exhaustive process of identifying locations most suitable to: a) translocate Cycads collected from the RoW, and b) propagate and plant additional Cycads to meet Commonwealth and State Government Requirements.

Persons undertaking the inspection were:

- Joe Adair – leader (GLNG – Principal Ecologist: Pipeline)
- Mark McNamara (GLNG – Sustainability)
- Dr Ayax Diaz-Ruiz (SAIPEM – Environment)
- Dr Paul Forster (Qld Herbarium)
- Heather James (University of Sunshine Coast – PhD student Cycad genetics)
- Brent Braddick (Keep it Native Nursery)
- Trevor Mylrea (Mylrea Plant Care)
- Dean Salter (GLNG – Land Agent)
- Tom Howard (GLNG – Land Agent)

Apologies

- Brian Perry (Australian Natives) was unable to attend.

The findings of the inspection were:

1. Red Shirt (see Map 1) was the site preferred by all members of the party for the following reasons:

    a. Access to the site along the rail line was good with no major climbs or steep terrain. A small creek crossing will need to be upgraded. This would provide safe access for work crews, plant and equipment.

b. The site was relatively flat with gentle to moderate side slope and extended for approximately 500m by 150m, providing sufficient area to place 3990 Cycads.
c. Weeds in the area appeared to be restricted to *Lantana camara* within the drainage areas on lower slopes. Targeted treatment of this species can be included in the property management program.
d. Relatively flat topography and cleared lands to west on neighbouring land allow for safe fire management.

2. Inverness was not preferred for the following reasons

    a. Access to likely offset areas is very steep making it difficult to get water tankers, excavators and other equipment to the site. This is a significant constraint for the translocation and planting of cycads into the site and ongoing maintenance.
    b. Weed, creeping lantana and many exotic grasses make the site less suitable for translocation generally.
    c. Increased fire risk from topography placing the translocated plants at the top of ridge lines, making ongoing maintenance much more difficult. Exotic grasses also increase fire intensity.
    d. The area had a history of hot burns as evidenced by existing vegetation types and presence of dead trees with burn scars.
3. Review attributes with previous draft of management plan to ensure all aspects are covered.
4. Remove Inverness site from the report (this Revision) for resubmission.

Further analysis of the property is required to determine the offset potential for additional Cycads should GLNG wish to look at other collaborative projects (e.g. QRN). This would involve air photo interpretation and follow up inspection is needed to determine if further offset opportunities are available.

Agreed Actions:

1. Prepare memo – detailing findings of the site inspection
2. Revise *Cycas megacarpa* management plan and submit to Commonwealth and State Regulators for approval
3. Engage land owners to determine interest and confirm findings of research
4. Meet with Aurecon to undertake review of EEM report and analysis of findings. Send Aurecon photos and site attribute data.
5. Meet with QRN to determine likely offset requirement from rail upgrade.
6. Survey of Red Shirt and negotiate access arrangements along rail corridor
7. Develop offset site management plan for implementation.

Views of Group (Expert Panel)

- Paul Forster – Red Shirt best site (as seen – flat, less weeds, good access, fire management able to be addressed, large enough area, genetic mixing and suppression is unlikely given proximity to populations being moved and genetic similarity within the populations. Cycads present indicating that the property is suitable for offset site.

- Brent Braddick – flat site, good access, fire and weed management is straight forward. Healthy cycads present

- Trevor Mylrea – flat site, good access for management and maintenance

- Heather Jones – good access, healthy cycads present, Red Shirt is better than Inverness. No concerns regarding genetic mixing of translocated / propogated plants.

- Ayax Diaz-Ruiz – Site has positive attributes for establishing a translocation site and offset for cycads.

- Mark McNamara – Red Shirt is superior to Inverness given access, weed and fire management aspects. Healthy cycads being present indicates that the site has good potential for offset. Need to investigate property more fully to determine additional locations on the property which may be suitable as an offset location. GLNG is required to secure 166 ha of land as an offset site. Opportunities for additional offset potential needs to be investigated.

- Tom Howard – Both property owners (Red Shirt – Wilson & Inverness – Tarry) are receptive to the option of the land being purchased as an offset. Red Shirt has superior access, however will need to have another land owner permission for easement / access to the Red Shirt Property.

- Dean Salter – Red Shirt has better access, less environmental constraints suitable for the offset site. Negotiations with Tarry regarding Inverness have not progressed to the point of no return and arrangements can be made to ensure suitable compensation for easement (pipeline) and property inspections,

- Joe Adair – Inverness may have a larger area of offset site potential to meet the C'wealth requirements for area, however is more difficult to manage in the longer term. Additional resources for water (pumps and tanks) can address the water requirements. Red Shirt has a prime location for the offset requirement to plant 3390 Cycads. Is this area large enough? Are there further areas on Red Shirt that may meet the requirement? Further work in this area is needed. Red Shirt is superior in terms of access, operation and maintenance of plants once established and strategic in contributing to development of a wildlife corridor, despite the special features mapping.

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APPENDIX 8 – Cycad Identification Data Spreadsheet

PLANT_ ID	PLANT_ HEIG	CROWN_ HEIG	GENDER	FRUIT_ PRES	CONE_ SIZE	INSECTS _PR	INSECT _ATT	NEW_ GROWTH	CROWN _PHOT	PARENT _ID	ACTION SUGGESTED	DATE_	COUNT	DESCRIPTION	X	Y	Z	OPERATOR	LOCATION	FOOTPRINT	NEAREST KP	CONDITION	ACCESS	SOIL_ TYPE
0	1.20	0.50	Unknown	No	0	No		Yes	0		Translocate	06/10/2012	1		150.772013	-24.110189	165.101471	Ausecology	Within	RoW	343982	Good	Easy	Clay/Silt
1163	1.10	0.60	Unknown	No	0	No		Yes	2379		Translocate	06/10/2012	1		150.772003	-24.110175	165.356384	Ausecology	Within	RoW	343981	Poor	Easy	Clay/Silt
1171	1.00	0.40	Unknown	No	0	No		Yes	2381		Translocate	06/10/2012	1		150.772007	-24.110192	164.932584	Ausecology	Within	RoW	343981	Poor	Easy	Clay/Silt
1179	0.40	0.40	Unknown	No	0	No		Yes	2382		Translocate	06/10/2012	1		150.772012	-24.110183	165.501238	Ausecology	Within	RoW	343982	Poor	Easy	Clay/Silt
1178	0.60	0.60	Unknown	No	0	No		Yes	2383		Translocate	06/10/2012	1		150.772011	-24.110190	166.044676	Ausecology	Within	RoW	343981	Fair	Easy	Clay/Silt
1164	0.60	0.60	Unknown	No	0	No		Yes	2384		Translocate	06/10/2012	1		150.772016	-24.110186	165.300922	Ausecology	Within	RoW	343982	Fair	Easy	Clay/Silt
1176	0.30	0.30	Unknown	No	0	No		Yes	2385		Translocate	06/10/2012	1		150.772012	-24.110184	165.685015	Ausecology	Within	RoW	343982	Fair	Easy	Clay/Silt
1168	1.30	1.20	Unknown	No	0	No		No	2534		Avoid	09/10/2012	1		151.056770	-23.771470	154.062910	Ausecology	Within	RoW	399254	Good	Easy	Soil
1197	1.50	1.30	Unknown	No	0	No		Yes	2541		Avoid	09/10/2012	1		151.056886	-23.771066	153.298975	Ausecology	Outside	Outside	399300	Good	Easy	Rock
1193	0.70	0.50	Unknown	No	0	No		No	5637		Avoid	09/10/2012	1		151.056975	-23.770968	154.673786	Ausecology	Within	RoW	399313	Good	Easy	Soil
1192	1.50	1.30	Unknown	No	0	No		Yes	5638		Translocate	09/10/2012	1		151.057040	-23.770863	155.532192	Ausecology	Within	RoW	399327	Good	Easy	Soil
0	0.00	0.00							0			20/07/2012	1		150.610153	-24.226443	0.000000	David Gatfield	Outside	Outside	319740			
0	0.00	0.00							0			27/08/2012	1		150.722738	-24.146490	368.777000	Ausecology	Outside	Outside	337071			
0	0.00	0.00							0				1		150.611012	-24.220425	0.000000	David Gatfield	Outside	Outside	319679			
0	0.00	0.00							0				1		150.624000	-24.251504	0.000000	David Gatfield	Outside	Outside	319817			
0	0.00	0.00							0				1		150.000000	-24.214948	0.000000	David Gatfield	Outside	Outside	257246			
0	0.00	0.00							0			09/10/2012	6	outside corridor	151.056693	-23.771396	154.705528	Ausecology	Outside	Outside	399258			
1	4.00	1.00	Male	No	No cone	No	No	No	228		Translocate	25/08/2012	1	228	150.624070	-24.215038	0.000000	David Gatfield	Within	RoW	321325		Difficult	Rocky
2	4.00	0.50	Female	Yes	No cone	No	Yes	Yes	229		Translocate	25/08/2012	1	229	150.624815	-24.214945	0.000000	David Gatfield	Within	RoW	321407		Difficult	Rocky
3	0.70	0.40	Unknown	No	No cone	No	No	No	230		Translocate	25/08/2012	1		150.625008	-24.214985	0.000000	David Gatfield	Within	RoW	321425		Difficult	Rocky
4	1.00	0.50	Unknown	No	No cone	No	Yes	No	231		Translocate	25/08/2012	1	Not healthy	150.625053	-24.214922	0.000000	David Gatfield	Within	RoW	321431	Poor	Difficult	Rocky
5	1.50	0.50	Unknown	No	No cone	Yes	No	Yes	232		Translocate	25/08/2012	1	new growth very health	150.625097	-24.215022	0.000000	David Gatfield	Within	RoW	321433	Good	Difficult	Rocky
6	1.70	0.50	Female	No	No cone	No	Yes	Yes	232		Avoid	25/08/2012	1		150.624955	-24.215167	0.000000	David Gatfield	Within	RoW	321415		Difficult	Rocky
7	1.70	0.30	Female	No	No cone	Ants	Yes	Yes	234		Avoid	25/08/2012	1		150.624940	-24.215138	0.000000	David Gatfield	Within	RoW	321415		Difficult	Rocky
8	0.40	0.40	Unknown	No	No cone	No		Yes	235	10	Avoid	25/08/2012	1		150.625165	-24.215160	0.000000	David Gatfield	Outside	Outside	321436		Difficult	Rocky
9	0.20	0.20	Unknown	No	No cone	No		No	236	10	Avoid	25/08/2012	1		150.625108	-24.215172	0.000000	David Gatfield	Outside	Outside	321430		Difficult	Rocky
10	4.00	0.50	Female	No	No cone	No		No	237		Avoid	25/08/2012	1	Not healthy	150.625083	-24.215162	0.000000	David Gatfield	Outside	Outside	321428	Poor	Difficult	Rocky
11	0.30	0.30	Unknown	No	No cone	No	Yes	No	238	10	Avoid	25/08/2012	1		150.625073	-24.215198	0.000000	David Gatfield	Outside	Outside	321426		Difficult	Rocky
12	0.40	0.20	Unknown	No	No cone	No	Yes	No	239	10	Avoid	25/08/2012	1		150.625110	-24.215078	0.000000	David Gatfield	Within	RoW	321433		Difficult	Rocky
13	0.10	0.10	Unknown	No	No cone	No	Yes	No	240	10	Avoid	25/08/2012	1		150.625095	-24.215167	0.000000	David Gatfield	Outside	Outside	321429		Difficult	Rocky
14	0.70	0.40	Unknown	No	No cone	No	Yes	No	241	10	Avoid	25/08/2012	1		150.625187	-24.215168	0.000000	David Gatfield	Outside	Outside	321438		Difficult	Rocky
15	0.40	0.40	Unknown	No	No cone	No		No	242	10	Avoid	25/08/2012	1		150.625103	-24.215188	0.000000	David Gatfield	Outside	Outside	321429		Difficult	Rocky
16	0.40	0.40	Unknown	No	No cone	No	Yes	No	243	10	Avoid	25/08/2012	1		150.625105	-24.215175	0.000000	David Gatfield	Outside	Outside	321430		Difficult	Rocky
17	0.60	0.40	Unknown	No	No cone	No	miNor	No	244	10	Avoid	25/08/2012	1		150.625187	-24.215147	0.000000	David Gatfield	Outside	Outside	321439		Difficult	Rocky
18	0.60	0.40	Unknown	No	No cone	No	Yes	No	245	10	Avoid	25/08/2012	1		150.625172	-24.215157	0.000000	David Gatfield	Outside	Outside	321437		Difficult	Rocky
19	0.60	0.30	Unknown	No	No cone	No		No	246	10	Avoid	25/08/2012	1		150.625193	-24.215198	0.000000	David Gatfield	Outside	Outside	321438		Difficult	Rocky
20	0.50	0.50	Unknown	No	No cone	No	Yes	No	247		Avoid	25/08/2012	1		150.625242	-24.215222	0.000000	David Gatfield	Outside	Outside	321442		Difficult	Rocky
21	1.40	0.70	Unknown	No	No cone	No	Yes	No	248		Avoid	25/08/2012	1		150.625153	-24.215125	0.000000	David Gatfield	Within	RoW	321436		Difficult	Rocky
22	0.50	0.50	Unknown	No	No cone	No	No	No	249		Translocate	25/08/2012	7	clump of 7	150.616723	-24.216513	0.000000	David Gatfield	Outside	Outside	320501		easy	
23	1.00	0.70	Unknown	No	No cone	No	Yes	No	250		Translocate	25/08/2012	1		150.616793	-24.216592	0.000000	David Gatfield	Within	RoW	320507			
24	1.20	0.50	Unknown	No	No cone	No	No	No	251		Translocate	25/08/2012	1	unhealthy	150.616847	-24.216598	0.000000	David Gatfield	Within	RoW	320513	Poor		
25	0.40	0.20	Unknown	No	No cone	No	No	No	252		Translocate	25/08/2012	1	unhealthy	150.616817	-24.216602	0.000000	David Gatfield	Within	RoW	320510	Poor		
26	1.00	0.80	Unknown	No	No cone	No	No	No	253		Translocate	25/08/2012	1		150.616897	-24.216590	0.000000	David Gatfield	Within	RoW	320518			
27	1.60	0.50	Female	Yes	No cone	No	Yes	No	254		Translocate	25/08/2012	1		150.625395	-24.214950	0.000000	David Gatfield	Within	RoW	321464		Difficult	
28	1.40	0.50	Female	Yes	No cone	No	Yes	No	255		Translocate	25/08/2012	1		150.625412	-24.214928	0.000000	David Gatfield	Within	RoW	321467			Rocky
29	3.50	0.70	Unknown	No	No cone	No	Yes	No	256		Translocate	25/08/2012	1		150.625482	-24.214838	0.000000	David Gatfield	Within	RoW	321476			Rocky
30	1.50	0.40	Unknown	No	No cone	No	Yes	No	257		Translocate	25/08/2012	1		150.625768	-24.214812	0.000000	David Gatfield	Within	RoW	321503			Rocky
31	1.30	0.40	Female	Yes, on ground	No cone	No	Yes	No	258		Translocate	25/08/2012	1		150.625713	-24.214692	0.000000	David Gatfield	Outside	Outside	321496			Rocky
32	1.00	0.30	Unknown	No	No cone	No	Yes	No	259		Translocate	25/08/2012	1		150.625503	-24.215000	0.000000	David Gatfield	Within	RoW	321474			Rocky
33	1.60	0.30	Unknown	No	No cone	Yes	Yes	No	260		Translocate	25/08/2012	1	unhealthy, No leaflets on frond	150.625807	-24.215073	0.000000	David Gatfield	Within	RoW	321524	Poor		Rocky
34	0.60	0.60	Unknown	No	No cone	No	No	No	261		Translocate	25/08/2012	1		150.625752	-24.215053	0.000000	David Gatfield	Within	RoW	321518			Rocky
35	1.60	0.40	Unknown	No	No cone	No	Yes	No	262		Translocate	25/08/2012	1	unhealthy	150.626062	-24.214960	0.000000	David Gatfield	Outside	Outside	321537	Poor		Rocky
36	2.00	0.30	Unknown	No	No cone	No	Yes	No	263		Translocate	25/08/2012	1		150.626160	-24.215273	0.000000	David Gatfield	Within	RoW	321566			Rocky
37	3.00	0.70	Female	Yes, on ground	No cone	No	Yes	No	264		Translocate	25/08/2012	1		150.626353	-24.215367	0.000000	David Gatfield	Within	RoW	321588			Rocky
38	1.60	0.70	Unknown	No	No cone	No	No	No	265		Translocate	25/08/2012	1		150.626370	-24.215422	0.000000	David Gatfield	Within	RoW	321593			Rocky
39	1.20	0.50	Unknown	No	No cone	No	Yes	No	266		Translocate	25/08/2012	1		150.633707	-24.217227	0.000000	David Gatfield	Within	RoW	322375			Rocky
40	0.50	0.50	Unknown	No	No cone	No	No	No	267		Translocate	25/08/2012	1		150.633712	-24.217245	0.000000	David Gatfield	Within	RoW	322376			Rocky
41	3.10	0.60	Female	Yes	No cone	No	Yes	No	268		Translocate	25/08/2012	1		150.633833	-24.217130	0.000000	David Gatfield	Within	RoW	322384			Rocky
42	0.40	0.40	Unknown	No	No cone	No	No	No	269	41	Translocate	25/08/2012	1		150.633842	-24.217150	0.000000	David Gatfield	Within	RoW	322385			Rocky
43	1.50	0.70	Unknown	No	No cone	No	Yes	No	270	41	Translocate	25/08/2012	1		150.633827	-24.217170	0.000000	David Gatfield	Within	RoW	322384			Rocky
44	1.60	0.60	Unknown	No	No cone	No	No	No	271		Translocate	25/08/2012	3	2 seedlings less than 10cm at base,	150.633765	-24.217097	0.000000	David Gatfield	Within	RoW	322376			Rocky
45	0.30	0.30	Unknown	No	No cone	No	No	No	272		Translocate	25/08/2012	1		150.633808	-24.217057	0.000000	David Gatfield	Outside	Outside	322379			Rocky
46	0.30	0.30	Unknown	No	No cone	No	No	No	272		Translocate	25/08/2012	1		150.633798	-24.217092	0.000000	David Gatfield	Within	RoW	322379			Rocky
47	0.20	0.20	Unknown	No	No cone	No	Yes	No	272		Translocate	25/08/2012	1		150.633815	-24.217098	0.000000	David Gatfield	Within	RoW	322381			Rocky
48	0.40	0.40	Unknown	No	No cone	No	Yes	No	274		Translocate	25/08/2012	1		150.633862	-24.217108	0.000000	David Gatfield	Within	RoW	322386			Rocky
49	0.20	0.20	Unknown	No	No cone	No	No	No	275		Translocate	25/08/2012	1		150.633923	-24.217113	0.000000	David Gatfield	Outside	Outside	322392			Rocky
50	0.50	0.50	Unknown	No	No cone	No	No	No	276		Translocate	25/08/2012	1		150.633873	-24.217088	0.000000	David Gatfield	Outside	Outside	322386			Rocky
51	0.35	0.35	Unknown	No	No cone	No	No	No	277		Translocate	25/08/2012	1		150.633808	-24.217053	0.000000	David Gatfield	Outside	Outside	322379			Rocky
52	1.60	1.60	Unknown	No	No cone	No	Yes	No	27		Translocate	25/08/2012	1		150.634357	-24.217318	0.000000	David Gatfield	Within	RoW	322441			Rocky
53	0.70	0.70	Unknown	No	No cone	No	Yes	No	279		Avoid	25/08/2012	1		150.634397	-24.217220	0.000000	David Gatfield	Outside	Outside	322441			Rocky
54	1.30	1.30	Unknown	No	No cone	No	No	No	280		Avoid	25/08/2012	1		150.634553	-24.217282	0.000000	David Gatfield	Outside	Outside	322459			Rocky

55	3.00	0.60	Unknown	Yes on ground	No cone	No	Yes	No	282	Avoid	25/08/2012	4	3 seedlings under 10 cm near base	150.634575	-24.217662	0.000000	David Gatfield	Outside	Outside	322474			Rocky
56	1.00	0.60	Unknown	No	No cone	No	No	No	283	Avoid	25/08/2012	1		150.634658	-24.217673	0.000000	David Gatfield	Within	RoW	322482			Rocky
57	0.40	0.40	Unknown	No	No cone	No	No	No	284	Avoid	25/08/2012	1		150.634728	-24.217360	0.000000	David Gatfield	Outside	Outside	322478			Rocky
58	0.70	0.50	Unknown	No	No cone	No	No	No	285	Avoid	25/08/2012	1		150.634715	-24.217273	0.000000	David Gatfield	Outside	Outside	322474			Rocky
59	1.00	0.50	Unknown	No	No cone	No	No	No	286	Avoid	25/08/2012	1		150.634820	-24.217317	0.000000	David Gatfield	Outside	Outside	322486			Rocky
60	1.20	0.60	Unknown	No	No cone	No	Yes	No	287	Avoid	25/08/2012	1	healthy	150.634757	-24.217757	0.000000	David Gatfield	Outside	Outside	322495	Good		Rocky
61	0.80	0.10	Unknown	No	No cone	No	No	Yes	288	Avoid	25/08/2012	1	new growth from base	150.635215	-24.217845	0.000000	David Gatfield	Within	RoW	322542			Rocky
62	1.60	0.30	Unknown	No	No cone	No	Yes	No	289	Avoid	25/08/2012	1		150.635433	-24.218078	0.000000	David Gatfield	Outside	Outside	322585			Rocky
63	1.00	0.50	Unknown	No	No cone	No	No	No	290	Translocate	25/08/2012	1		150.635648	-24.218222	0.000000	David Gatfield	Within	RoW	322612			Rocky
64	0.40	0.20	Unknown	No	No cone	No	Yes	Yes	291	Translocate	25/08/2012	1		150.635648	-24.218265	0.000000	David Gatfield	Within	RoW	322615			Rocky
65	1.40	0.20	Unknown	No	No cone	Yes	Yes	No	0	Translocate	25/08/2012	1		150.656277	-24.212338	0.000000	David Gatfield	Within	RoW	325150		Difficult	Rocky
66	0.60	0.60	Unknown	No	No cone	No	No	No	292	Translocate	25/08/2012	2	2 plants	150.635662	-24.218283	0.000000	David Gatfield	Within	RoW	322617			Rocky
67	1.00	0.80	Unknown	No	No cone	No	No	No	293	Translocate	25/08/2012	1		150.635975	-24.218513	0.000000	David Gatfield	Within	RoW	322658			Rocky
68	0.70	0.70	Unknown	No	No cone	No	No	No	294	Translocate	25/08/2012	1		150.642587	-24.218422	0.000000	David Gatfield	Within	RoW	323349			sandy loam
69	0.60	0.50	Unknown	No	No cone	No	No	No	295	Translocate	25/08/2012	2	2 plants	150.644367	-24.218128	0.000000	David Gatfield	Within	RoW	323533			
70	0.60	0.15	Unknown	No	No cone	No	No	No	296	Translocate	25/08/2012	1		150.643635	-24.218333	0.000000	David Gatfield	Within	RoW	323456			
71	1.00	0.80	Unknown	No	No cone	No	No	No	297	Avoid	25/08/2012	1		150.644448	-24.217998	0.000000	David Gatfield	Outside	Outside	323543			
72	1.20	0.50	Unknown	No	No cone	No	No	No	298	Translocate	25/08/2012	1		150.644517	-24.218020	0.000000	David Gatfield	Within	RoW	323550			
73	1.00	0.80	Unknown	No	No cone	No	No	No	299	Translocate	25/08/2012	1		150.644548	-24.217997	0.000000	David Gatfield	Within	RoW	323553			
74	0.60	0.20	Unknown	No	No cone	No	No	No	300	Avoid	25/08/2012	1		150.644590	-24.217933	0.000000	David Gatfield	Outside	Outside	323559			
75	0.40	0.10	Unknown	No	No cone	No	No	No	301	Translocate	25/08/2012	1		150.644840	-24.217950	0.000000	David Gatfield	Within	RoW	323584			
76	1.00	0.60	Unknown	No	No cone	No	No	No	302	Translocate	25/08/2012	2	2 plants	150.644880	-24.217895	0.000000	David Gatfield	Outside	Outside	323589			
77	0.90	0.50	Unknown	No	No cone	No	No	No	303	Avoid	25/08/2012	1		150.644993	-24.217903	0.000000	David Gatfield	Outside	Outside	323600			
78	0.60	0.10	Unknown	No	No cone	No	No	No	304	Translocate	25/08/2012	1		150.644930	-24.218057	0.000000	David Gatfield	Within	RoW	323591			
79	0.70	0.40	Unknown	No	No cone	No	No	No	305	Translocate	25/08/2012	1		150.644927	-24.218048	0.000000	David Gatfield	Within	RoW	323591			
80	0.50	0.50	Unknown	No	No cone	No	No	No	306	Translocate	25/08/2012	1		150.645013	-24.218080	0.000000	David Gatfield	Within	RoW	323599			
81	0.60	0.10	Unknown	No	No cone	No	No	No	387	Translocate	25/08/2012	3	3 plants	150.645157	-24.218073	0.000000	David Gatfield	Within	RoW	323613			
82	0.60	0.10	Unknown	No	No cone	No	No	No	308	Translocate	25/08/2012	1		150.645588	-24.217925	0.000000	David Gatfield	Within	RoW	323659			
83	0.65	0.15	Unknown	No	No cone	No	No	No	309	Translocate	25/08/2012	1		150.645598	-24.218060	0.000000	David Gatfield	Within	RoW	323658			
84	0.50	0.10	Unknown	No	No cone	No	No	No	310	Translocate	25/08/2012	1		150.645667	-24.218047	0.000000	David Gatfield	Within	RoW	323665			
85	0.60	0.60	Unknown	No	No cone	No	No	No	311	Translocate	25/08/2012	1		150.645718	-24.218083	0.000000	David Gatfield	Outside	Outside	323669			
86	0.60	0.40	Unknown	No	No cone	No	No	No	312	Translocate	25/08/2012	3	3 plants	150.645717	-24.218027	0.000000	David Gatfield	Within	RoW	323670			
87	0.50	0.50	Unknown	No	No cone	No	No	No	313	Translocate	25/08/2012	5	5 plants	150.645835	-24.217903	0.000000	David Gatfield	Within	RoW	323684			
88	0.40	0.40	Unknown	No	No cone	No	No	No	314	Translocate	25/08/2012	4	4 plants	150.646013	-24.217942	0.000000	David Gatfield	Within	RoW	323701			
89	0.80	0.40	Unknown	No	No cone	No	No	No	0	Translocate	25/08/2012	1		150.646178	-24.217843	0.000000	David Gatfield	Within	RoW	323720			
90	1.80	0.40	Unknown	No	No cone	No	No	No	317	Translocate	25/08/2012	1		150.646240	-24.217857	0.000000	David Gatfield	Within	RoW	323726			
91	0.60	0.60	Unknown	No	No cone	No	No	No	318	Avoid	25/08/2012	1		150.646247	-24.217955	0.000000	David Gatfield	Within	RoW	323726			
92	1.00	0.50	Unknown	No	No cone	No	Yes	No	319	Avoid	25/08/2012	1		150.646263	-24.217995	0.000000	David Gatfield	Outside	Outside	323728			
93	0.60	0.60	Unknown	No	No cone	No	No	No	320	Avoid	25/08/2012	1		150.646310	-24.217893	0.000000	David Gatfield	Within	RoW	323733			
94	0.60	0.60	Unknown	No	No cone	No	No	No	321	Translocate	25/08/2012	6	6	150.646407	-24.217793	0.000000	David Gatfield	Within	RoW	323744			
95	0.80	0.20	Unknown	No	No cone	No	No	No	322	Translocate	25/08/2012	1		150.647135	-24.217707	0.000000	David Gatfield	Within	RoW	323818			
96	0.70	0.50	Unknown	No	No cone	No	Yes	No	1698	Avoid		1		150.657428	-24.212332	0.000000	David Gatfield	Outside	Outside	325265		Difficult	
97	1.10	0.30	Unknown	No	No cone	No	No	No	1663	Translocate		1		150.655692	-24.212620	0.000000	David Gatfield	Within	RoW	325083		Difficult	Rocky
98	2.50	0.50	Unknown	No	No cone	No	No	No	363	Translocate		1		150.656472	-24.212501	0.000000	Ausecology	Within	RoW	325161	Good	Easy	Soil
99	1.40	0.60	Unknown	No	No cone	No	Yes	No	1688	Avoid		1		150.657277	-24.212375	0.000000	David Gatfield	Outside	Outside	325249		Difficult	Rocky
100	0.50	0.50	Unknown	No	No cone	No	Yes	No	1689	Translocate		1		150.657292	-24.212365	0.000000	David Gatfield	Outside	Outside	325250		Difficult	Rocky
101	1.00	0.60	Unknown	No	No cone	No	No	No	323	Avoid		3	lumix 1359; 3 plants	150.647197	-24.217891	0.000000	Ausecology	Outside	Outside	323823	Good	Difficult	Rock
102	0.10	0.10	Unknown	No	No cone	No	No	No	330	Translocate		1	small seedling	150.650690	-24.216523	0.000000	Ausecology	Within	RoW	324214	Good	Difficult	Soil
103	0.40	0.40	Unknown	No	No cone	No	No	No	1664	Translocate		1		150.655805	-24.212555	0.000000	David Gatfield	Within	RoW	325096		Difficult	Rocky
104	1.30	0.30	Unknown	No	No cone	No	No	No	364	Translocate		1		150.656448	-24.212473	0.000000	Ausecology	Within	RoW	325160	Good	Easy	Soil
105	1.00	0.50	Unknown	No	No cone	No	Yes	No	1693	Avoid		1		150.657375	-24.212285	0.000000	David Gatfield	Within	RoW	325260		Difficult	Rocky
106	0.80	0.50	Unknown	No	No cone	No	No	No	324	Translocate		1		150.647232	-24.217813	0.000000	Ausecology	Within	RoW	323827	Poor	Easy	Soil
107	0.80	0.30	Unknown	No	No cone	No	Yes	No	1659	Translocate		1		150.655400	-24.212720	0.000000	David Gatfield	Within	RoW	325051		Difficult	Rocky
108	1.00	0.50	Unknown	No	No cone	No	No	No	347	Translocate		1		150.655858	-24.212759	0.000000	Ausecology	Within	RoW	325092	Good	Easy	Soil
110	1.10	0.50	Unknown	No	No cone	No	No	No	383	Avoid		1		150.657115	-24.212389	0.000000	Ausecology	Outside	Outside	325232	Good	Difficult	Soil
111	0.60	0.60	Unknown	No	No cone	No	Yes	No	1649	Translocate		1		150.647465	-24.217507	0.000000	David Gatfield	Outside	Outside	323854			Rocky
112	1.80	0.40	Unknown	No	No cone	No	No	No	335	Avoid		1		150.655429	-24.212959	0.000000	Ausecology	Within	RoW	325044	Good	Easy	Soil
113	0.80	0.60	Unknown	No	No cone	No	Yes	No	1667	Translocate		1		150.656210	-24.212447	0.000000	David Gatfield	Within	RoW	325139		Difficult	Rocky
114	3.00	1.00	Unknown	No	No cone	No	No	No	376	Translocate		1		150.657050	-24.212293	0.000000	Ausecology	Within	RoW	325227	Good	Difficult	Soil
115	1.25	0.75	Unknown	No	No cone	No	No	No	393	Translocate		1		150.657189	-24.212300	0.000000	Ausecology	Within	RoW	325241	Good	Easy	Soil
116	1.00	0.30	Unknown	No	No cone	No	Yes	No	1690	Avoid		1		150.657305	-24.212312	0.000000	David Gatfield	Within	RoW	325253		Difficult	Rocky
117	1.70	0.70	Unknown	No	No cone	No	Yes	No	1660	Translocate		1		150.655522	-24.212635	0.000000	David Gatfield	Outside	Outside	325066		Difficult	Rocky
118	1.70	0.50	Unknown	No	No cone	No	No	No	350	Translocate		1		150.655913	-24.212656	0.000000	Ausecology	Within	RoW	325102		Easy	Soil
119	1.50	0.40	Unknown	No	No cone	No	No	No	379	Avoid		1		150.656921	-24.212445	0.000000	Ausecology	Outside	Outside	325212	Good	Difficult	Soil
120	0.20	0.20	Unknown	No	No cone	No	No	No	421	Avoid		1	h 20cm; c 20cm	150.657098	-24.212375	0.000000	Ausecology	Outside	Outside	325231	Good	Difficult	Soil
121	0.50	0.50	Unknown	No	No cone	No	No	No	325			1		150.647255	-24.217748	0.000000	Ausecology	Within	RoW	323830	Poor		Soil
123	1.40	0.50	Unknown	No	No cone	No	Yes	No	1665	Translocate		1		150.656015	-24.212592	0.000000	David Gatfield	Within	RoW	325114		Difficult	Rocky
124	1.00	0.60	Unknown	No	No cone	No	No	No	382	Avoid		2	little baby one at base	150.657085	-24.212382	0.000000	Ausecology	Outside	Outside	325229	Good	Difficult	Soil
125	0.60	0.50	Unknown	No	No cone	No	Yes	No	1695	Avoid		1		150.657410	-24.212325	0.000000	David Gatfield	Outside	Outside	325263		Difficult	Rocky
126	1.20	0.50	Unknown	No	No cone	No	No	No	351	Translocate		1		150.656183	-24.212612	0.000000	Ausecology	Within	RoW	325129	Good	Easy	Soil
127	1.60	0.75	Unknown	No	No cone	No	No	No	360	Translocate		1		150.656274	-24.212503	0.000000	Ausecology	Within	RoW	325142	Good	Easy	Soil
128	0.50	0.25	Unknown	No	No cone	No	No	No	361	Translocate		1		150.656289	-24.212505	0.000000	Ausecology	Within	RoW	325144	Good	Easy	Soil
129	1.50	0.50	Unknown	No	No cone	No	No	No	384	Avoid		1		150.657128	-24.212382	0.000000	Ausecology	Outside	Outside	325234	Good	Difficult	Soil

130	1.20	0.20	Unknown	Yes	No cone	No	No	No	412	Translocate	1		150.657641	-24.212017	0.000000	Ausecology	Within	RoW	325292	Good	Easy	Soil
131	1.40	0.40	Unknown	No	No cone	No	No	Yes	1650	Translocate	1		150.649537	-24.217272	0.000000	David Gatfield	Within	RoW	324071			
132	2.40	0.80	Unknown	No	No cone	No	No	No	333	Translocate	1		150.651443	-24.216386	0.000000	Ausecology	Within	RoW	324306	Good	Easy	Rock
133	1.00	0.25	Unknown	No	No cone	No	No	No	352	Translocate	1		150.656219	-24.212608	0.000000	Ausecology	Within	RoW	325133	Good	Difficult	Soil
134	1.70	0.40	Unknown	No	No cone	No	No	No	370	Translocate	1		150.656801	-24.212386	0.000000	Ausecology	Within	RoW	325201	Fair	Difficult	Soil
135	1.00	0.50	Unknown	Yes	No cone	No	No	No	359	Translocate	1		150.656213	-24.212543	0.000000	Ausecology	Within	RoW	325135	Fair	Easy	Soil
136	2.40	0.80	Unknown	No	No cone	No	No	No	326	Translocate	1		150.650156	-24.216935	0.000000	Ausecology	Within	RoW	324144	Good	Difficult	Rock
137	0.60	0.60	Unknown	No	No cone	No	No	No	1656	Translocate	1		150.655347	-24.212707	0.000000	David Gatfield	Outside	Outside	325046			Rocky
138	1.20	0.50	Unknown	No	No cone	No	No	No	353	Translocate	1		150.656240	-24.212549	0.000000	Ausecology	Within	RoW	325137	Good	Difficult	Soil
139	0.70	0.30	Unknown	No	No cone	No	No	No	386	Avoid	1		150.657118	-24.212377	0.000000	Ausecology	Outside	Outside	325233	Good	Difficult	Soil
140	1.00	0.60	Unknown	No	No cone	No	Yes	No	1700	Avoid	1		150.657488	-24.212267	0.000000	David Gatfield	Within	RoW	325272		Difficult	
141	1.30	0.80	Unknown	No	No cone	No	No	No	327		1		150.650542	-24.216636	0.000000	Ausecology	Within	RoW	324195	Fair		Soil
142	1.50	0.50	Unknown	No	No cone	No	No	No	338	Avoid	1		150.655518	-24.212979	0.000000	Ausecology	Outside	Outside	325051	Good	Easy	Rock
143	1.50	0.50	Unknown	No	No cone	No	No	No	355	Translocate	1		150.656261	-24.212562	0.000000	Ausecology	Within	RoW	325139	Good	Difficult	Soil
144	1.20	0.60	Unknown	No	No cone	Yes	No	No	385	Avoid	1		150.657102	-24.212375	0.000000	Ausecology	Outside	Outside	325231	Good	Difficult	Soil
145	1.00	0.50	Unknown	No	No cone	No	No	No	387	Avoid	1		150.657127	-24.212371	0.000000	Ausecology	Outside	Outside	325234	Good	Difficult	Soil
146	1.60	0.60	Unknown	No	No cone	No	No	Yes	1651	Translocate	1		150.650377	-24.216518	0.000000	David Gatfield	Outside	Outside	324187		Difficult	
148	1.30	0.60	Unknown	No	No cone	No	No	No	356	Translocate	1		150.656293	-24.212547	0.000000	Ausecology	Within	RoW	325142	Fair	Difficult	Soil
149	1.50	0.50	Unknown	No	No cone	No	No	No	388	Avoid	1		150.657132	-24.212363	0.000000	Ausecology	Within	RoW	325234	Good	Difficult	Soil
150	1.00	0.40	Unknown	No	No cone	No	No	No	390	Avoid	1		150.657144	-24.212351	0.000000	Ausecology	Within	RoW	325236	Good	Difficult	Soil
151	1.60	0.50	Unknown	No	No cone	No	Yes	No	1652	Translocate	1		150.650542	-24.216545	0.000000	David Gatfield	Within	RoW	324200		Moderate	
152	0.80	0.50	Unknown	No	No cone	No	Yes	No	1669	Translocate	1		150.656187	-24.212475	0.000000	David Gatfield	Within	RoW	325135		Difficult	Rocky
153	0.40	0.40	Unknown	No	No cone	No	No	No	1691	Avoid	1		150.657282	-24.212282	0.000000	David Gatfield	Within	RoW	325251		Difficult	Rocky
154	0.75	0.50	Unknown	No	No cone	No	No	No	389	Avoid	1		150.657144	-24.212338	0.000000	Ausecology	Within	RoW	325236	Good	Difficult	Soil
155	1.80	0.50	Unknown	No	No cone	No	Yes	No	1702	Avoid	1		150.657518	-24.212240	0.000000	David Gatfield	Within	RoW	325275		Difficult	
156	2.00	0.40	Unknown	No	No cone	No	Yes	Yes	1653	Translocate	1		150.650650	-24.216467	0.000000	David Gatfield	Within	RoW	324214		Moderate	Rocky
157	1.00	0.30	Unknown	No	No cone	No	Yes	No	1670	Translocate	1		150.656165	-24.212412	0.000000	David Gatfield	Within	RoW	325136		Difficult	Rocky
158	0.75	0.50	Unknown	No	No cone	No	No	No	357	Translocate	1		150.656270	-24.212536	0.000000	Ausecology	Within	RoW	325141	Good	Difficult	Soil
159	0.75	0.50	Unknown	No	No cone	No	No	No	391	Avoid	1		150.657137	-24.212360	0.000000	Ausecology	Within	RoW	325235	Good	Difficult	Soil
160	1.25	0.40	Unknown	No	No cone	No	No	No	392	Avoid	1		150.657167	-24.212346	0.000000	Ausecology	Within	RoW	325238	Good	Difficult	Soil
161	1.20	0.40	Female	No	No cone	No	No	No	328	Translocate	1		150.650697	-24.216536	0.000000	Ausecology	Within	RoW	324214	Good	Difficult	Soil
162	1.30	1.00	Unknown	No	No cone	No	No	No	339	Translocate	1		150.655521	-24.212903	0.000000	Ausecology	Within	RoW	325055	Good	Easy	Soil
163	0.50	0.30	Unknown	No	No cone	No	No	No	358	Translocate	1		150.656253	-24.212528	0.000000	Ausecology	Within	RoW	325139	Good	Easy	Soil
164	1.80	0.50	Unknown	No	No cone	No	No	No	395	Translocate	1		150.657233	-24.212258	0.000000	Ausecology	Within	RoW	325246	Good	Easy	Soil
165	1.20	0.70	Unknown	No	No cone	No	No	No	396	Translocate	1		150.657224	-24.212277	0.000000	Ausecology	Within	RoW	325245	Good	Easy	Soil
166	0.10	0.10	Unknown	No	No cone	No	No	No	329	Translocate	1	small seedling	150.650687	-24.216527	0.000000	Ausecology	Within	RoW	324214	Good	Difficult	Soil
167	0.60	0.60	Unknown	No	No cone	No	No	No	1694	Avoid	1		150.657415	-24.212320	0.000000	David Gatfield	Outside	Outside	325264		Difficult	Rocky
168	1.60	0.75	Unknown	No	No cone	No	No	No	362	Avoid	1		150.656415	-24.212539	0.000000	Ausecology	Within	RoW	325154	Fair	Easy	Soil
169	1.00	0.90	Unknown	No	No cone	No	No	No	403	Translocate	1		150.657301	-24.212159	0.000000	Ausecology	Within	RoW	325255	Good	Easy	Soil
170	1.80	0.50	Unknown	No	No cone	No	No	Yes	1699	Avoid	1		150.657437	-24.212282	0.000000	David Gatfield	Within	RoW	325267		Difficult	Rocky
171	0.10	0.10	Unknown	No	No cone	No	No	No	331	Translocate	1	alot of seeds on ground	150.650695	-24.216533	0.000000	Ausecology	Within	RoW	324214	Good	Difficult	Soil
172	1.50	0.50	Unknown	No	No cone	No	No	No	340	Translocate	1		150.655573	-24.212905	0.000000	Ausecology	Within	RoW	325060	Good	Easy	Soil
173	0.40	0.40	Unknown	No	No cone	No	No	No	1671	Translocate	1		150.656282	-24.212300	0.000000	David Gatfield	Outside	Outside	325152		Difficult	Rocky
174	1.30	0.30	Unknown	No	No cone	No	No	No	407	Translocate	1		150.657437	-24.212174	0.000000	Ausecology	Within	RoW	325268	Good	Easy	Soil
175	2.00	0.75	Unknown	No	No cone	No	No	No	411	Translocate	1		150.657508	-24.212007	0.000000	Ausecology	Outside	Outside	325279	Fair	Easy	Soil
176	1.70	0.50	Unknown	No	No cone	Yes	Yes	Yes	1654	Translocate	1		150.650665	-24.216343	0.000000	David Gatfield	Outside	Outside	324222		Moderate	Rocky
177	1.50	0.50	Unknown	No	No cone	No	No	No	341	Translocate	1		150.655515	-24.212823	0.000000	Ausecology	Within	RoW	325057	Good	Easy	Soil
178	0.50	0.50	Unknown	No	No cone	No	No	No	1684	Translocate	1		150.657188	-24.212245	0.000000	David Gatfield	Within	RoW	325242		Difficult	Rocky
179	1.20	0.50	Unknown	No	No cone	No	No	No	405	Translocate	1		150.657418	-24.212179	0.000000	Ausecology	Within	RoW	325266	Good	Easy	Soil
180	0.30	0.30	Unknown	No	No cone	No	No	No	413	Translocate	1		150.657629	-24.212039	0.000000	Ausecology	Within	RoW	325290	Good	Easy	Soil
181	1.80	0.60	Unknown	No	No cone	No	Yes	No	1687	Translocate	1		150.657188	-24.212268	0.000000	David Gatfield	Within	RoW	325242		Difficult	Rocky
182	1.00	0.40	Unknown	No	No cone	No	No	No	342	Translocate	1		150.655679	-24.212840	0.000000	Ausecology	Within	RoW	325072	Good	Easy	Soil
183	0.40	0.40	Unknown	No	No cone	No	No	No	1686	Translocate	1		150.657147	-24.212280	0.000000	David Gatfield	Within	RoW	325237		Difficult	Rocky
184	0.40	0.40	Unknown	No	No cone	No	No	No	368	Avoid	1		150.656468	-24.212189	0.000000	Ausecology	Outside	Outside	325174	Good	Easy	Soil
185	1.20	0.50	Unknown	No	No cone	No	No	No	418	Translocate	1		150.657859	-24.212076	0.000000	Ausecology	Within	RoW	325313	Good	Easy	Soil
186	0.70	0.70	Unknown	No	No cone	No	No	No	1692	Avoid	1		150.657320	-24.212267	0.000000	David Gatfield	Within	RoW	325255		Difficult	Rocky
188	0.60	0.60	Unknown	No	No cone	No	No	No	1679	Translocate	1		150.657248	-24.212183	0.000000	David Gatfield	Within	RoW	325249		Difficult	Rocky
189	1.20	0.75	Unknown	No	No cone	No	No	No	366	Translocate	1		150.656542	-24.212281	0.000000	Ausecology	Within	RoW	325177	Good	Easy	Soil
190	1.00	0.75	Unknown	No	No cone	No	No	No	404	Translocate	1		150.657368	-24.212140	0.000000	Ausecology	Within	RoW	325262	Good	Easy	Soil
191	1.50	0.20	Unknown	No	No cone	No	No	No	400	Translocate	1		150.657251	-24.212213	0.000000	Ausecology	Within	RoW	325249	Good	Easy	Soil
192	1.50	0.75	Unknown	No	No cone	No	No	No	409	Translocate	1		150.657453	-24.212162	0.000000	Ausecology	Within	RoW	325270	Fair	Easy	Soil
193	1.00	0.70	Unknown	No	No cone	No	No	Yes	1681	Translocate	1		150.657162	-24.212222	0.000000	David Gatfield	Within	RoW	325240		Difficult	Rocky
194	0.60	0.60	Unknown	No	No cone	No	No	No	1703	Avoid	1		150.657555	-24.212290	0.000000	David Gatfield	Within	RoW	325278		Difficult	
195	0.50	0.75	Unknown	No	No cone	No	No	No	371	Translocate	1		150.656801	-24.212378	0.000000	Ausecology	Within	RoW	325201	Good	Easy	Soil
196	1.60	0.50	Unknown	No	No cone	No	No	No	1655	Translocate	1		150.650808	-24.216315	0.000000	David Gatfield	Within	RoW	324236		Moderate	Rocky
197	1.10	0.60	Unknown	No	No cone	No	No	No	343	Avoid	1		150.655740	-24.212883	0.000000	Ausecology	Outside	Outside	325076	Good	Easy	Soil
198	1.40	0.40	Unknown	No	No cone	No	Yes	No	1678	Translocate	1		150.657140	-24.212155	0.000000	David Gatfield	Within	RoW	325239		Difficult	Rocky
199	1.20	0.75	Unknown	No	No cone	No	No	No	369	Translocate	1		150.656803	-24.212288	0.000000	Ausecology	Within	RoW	325203	Good	Easy	Soil
200	2.50	0.80	Unknown	No	No cone	No	No	No	414	Translocate	1		150.657608	-24.212163	0.000000	Ausecology	Within	RoW	325286	Good	Easy	Soil
201	1.30	0.60	Female	Yes	No cone	No	No	No	332	Translocate	1		150.650864	-24.216460	0.000000	Ausecology	Within	RoW	324233	Good	Easy	Soil
202	1.00	0.30	Unknown	No	No cone	No	No	No	1662	Translocate	1		150.655625	-24.212623	0.000000	David Gatfield	Within	RoW	325076		Difficult	Rocky
203	1.30	0.50	Unknown	No	No cone	No	No	No	1685	Translocate	1		150.657150	-24.212227	0.000000	David Gatfield	Within	RoW	325239		Difficult	Rocky
204	1.00	0.75	Unknown	No	No cone	No	No	No	372	Translocate	1		150.656755	-24.212215	0.000000	Ausecology	Within	RoW	325199	Good	Easy	Soil
205	0.40	0.40	Unknown	No	No cone	No	Yes	No	1696	Avoid	1		150.657430	-24.212317	0.000000	David Gatfield	Outside	Outside	325265			
206	0.40	0.40	Unknown	No	No cone	No	No	No	422	Translocate	1	h 0.4m; c 0.4m	150.657667	-24.212181	0.000000	Ausecology	Within	RoW	325291	Good	Easy	Soil

207	0.50	0.50	Unknown	No	No cone	No	Yes	No	1701		Avoid	1		150.657550	-24.212248	0.000000	David Gatfield	Within	RoW	325278		Difficult	
208	1.60	0.40	Unknown	No	No cone	No	Yes	No	1677		Translocate	1		150.656387	-24.212332	0.000000	David Gatfield	Within	RoW	325160		Difficult	Rocky
209	1.00	0.60	Unknown	No	No cone	No	No	No	373		Translocate	1		150.656922	-24.212250	0.000000	Ausecology	Within	RoW	325215	Good	Easy	Soil
210	1.80	0.60	Unknown	No	No cone	No	No	No	374		Translocate	1		150.656937	-24.212230	0.000000	Ausecology	Within	RoW	325217	Good	Easy	Soil
211	1.00	0.90	Unknown	No	No cone	No	No	No	415		Translocate	1		150.657631	-24.212189	0.000000	Ausecology	Within	RoW	325288	Good	Easy	Soil
212	0.20	0.20	Unknown	No	No cone	No	No	No	344		Avoid	1	small seedling	150.655753	-24.212837	0.000000	Ausecology	Outside	Outside	325079	Good	Easy	Soil
213	1.20	0.30	Unknown	No	No cone	No	No	No	1678	238	Translocate	1		150.656292	-24.212252	0.000000	David Gatfield	Outside	Outside	325155		Difficult	Rocky
214	1.00	0.40	Unknown	No	No cone	No	No	No	377		Avoid	1		150.657009	-24.212380	0.000000	Ausecology	Within	RoW	325222	Good	Difficult	Soil
215	0.50	0.50	Unknown	No	No cone	No	No	No	419		Translocate	1	h 0.5; c 0.5	150.656274	-24.212535	0.000000	Ausecology	Within	RoW	325141	Good	Easy	Soil
216	1.10	0.60	Unknown	No	No cone	No	No	No	334		Translocate	1		150.654777	-24.213012	0.000000	Ausecology	Within	RoW	324980	Good	Easy	Soil
217	1.80	0.40	Unknown	No	No cone	No	No	No	1661		Translocate	1		150.655715	-24.212653	0.000000	David Gatfield	Within	RoW	325083		Difficult	Rocky
218	0.50	0.50	Unknown	No	No cone	No	No	No	1682		Translocate	1		150.657158	-24.212220	0.000000	David Gatfield	Within	RoW	325240		Difficult	Rocky
219	1.20	0.50	Unknown	No	No cone	No	No	No	365		Translocate	1		150.656504	-24.212411	0.000000	Ausecology	Within	RoW	325168	Good	Easy	Soil
220	1.60	0.40	Unknown	No	No cone	No	No	No	367		Avoid	1		150.656422	-24.212220	0.000000	Ausecology	Outside	Outside	325168	Good	Easy	Soil
221	0.40	0.40	Unknown	No	No cone	No	No	No	1665		Translocate	1		150.655828	-24.212533	0.000000	David Gatfield	Within	RoW	325099		Difficult	Rocky
222	0.60	0.20	Unknown	No	No cone	No	Yes	No	1675	238	Translocate	1		150.656298	-24.212262	0.000000	David Gatfield	Outside	Outside	325155		Difficult	Rocky
223	1.50	0.50	Unknown	No	No cone	No	No	No	378		Avoid	1		150.656968	-24.212418	0.000000	Ausecology	Outside	Outside	325217	Good	Difficult	Soil
224	0.30	0.30	Unknown	No	No cone	No	No	No	420		Avoid	1		150.657096	-24.212372	0.000000	Ausecology	Within	RoW	325231	Good	Difficult	Soil
225	0.80	0.60	Unknown	No	No cone	No	No	No	397		Translocate	1		150.657267	-24.212245	0.000000	Ausecology	Within	RoW	325250	Good	Easy	Soil
226	0.50	0.50	Unknown	No	No cone	No	Yes	No	1657		Translocate	1		150.655397	-24.212738	0.000000	David Gatfield	Within	RoW	325050		Difficult	Rocky
227	1.50	0.50	Unknown	No	No cone	No	No	No	345		Avoid	1		150.655822	-24.212839	0.000000	Ausecology	Outside	Outside	325086	Good	Easy	Soil
228	1.40	0.80	Unknown	No	No cone	No	Yes	No	1678		Translocate	1		150.657127	-24.212200	0.000000	David Gatfield	Within	RoW	325237		Difficult	Rocky
229	1.20	0.75	Unknown	No	No cone	No	No	No	398		Translocate	1		150.657281	-24.212243	0.000000	Ausecology	Within	RoW	325252	Good	Easy	Soil
230	0.75	0.50	Unknown	No	No cone	No	No	No	380		Avoid	1		150.657085	-24.212367	0.000000	Ausecology	Within	RoW	325230	Good	Difficult	Soil
231	1.50	0.30	Unknown	No	No cone	No	No	No	1658		Translocate	1		150.655373	-24.212822	0.000000	David Gatfield	Within	RoW	325044		Difficult	Rocky
232	1.20	0.50	Unknown	No	No cone	No	No	No	346		Avoid	1		150.655854	-24.212826	0.000000	Ausecology	Outside	Outside	325089	Good	Easy	Soil
233	1.40	0.80	Unknown	No	No cone	No	Yes	No	1676	238	Translocate	1		150.656318	-24.212222	0.000000	David Gatfield	Outside	Outside	325158		Difficult	Rocky
234	2.00	0.75	Unknown	No	No cone	No	No	No	406		Translocate	1		150.657431	-24.212185	0.000000	Ausecology	Within	RoW	325268	Good	Easy	Soil
235	1.60	0.60	Unknown	No	No cone	No	No	No	381		Avoid	1		150.657100	-24.212364	0.000000	Ausecology	Within	RoW	325231	Good	Difficult	Soil
236	1.70	0.70	Unknown	No	No cone	No	No	No	336		Translocate	1		150.655377	-24.212848	0.000000	Ausecology	Within	RoW	325043	Good	Easy	Soil
237	1.00	0.60	Unknown	No	No cone	No	No	No	348		Translocate	1		150.655885	-24.212714	0.000000	Ausecology	Within	RoW	325097	Good	Easy	Soil
238	5.00	0.30	Female	Yes	No cone	No	Yes	No	1672		Translocate	1		150.656293	-24.212252	0.000000	David Gatfield	Outside	Outside	325155		Difficult	Rocky
239	0.40	0.40	Unknown	No	No cone	No	No	No	394		Translocate	1		150.657189	-24.212285	0.000000	Ausecology	Within	RoW	325242	Good	Easy	Soil
240	0.30	0.30	Unknown	No	No cone	No	No	No	410		Translocate	1		150.657499	-24.212081	0.000000	Ausecology	Within	RoW	325276	Good	Easy	Soil
241	1.00	0.50	Unknown	No	No cone	No	No	No	337		Translocate	1		150.655409	-24.212840	0.000000	Ausecology	Within	RoW	325047	Fair	Easy	Soil
242	1.20	0.20	Unknown	No	No cone	No	No	No	1666		Translocate	1		150.656010	-24.212528	0.000000	David Gatfield	Within	RoW	325116		Difficult	Rocky
243	0.60	0.20	Unknown	No	No cone	No	No	No	1674	238	Translocate	1		150.656335	-24.212242	0.000000	David Gatfield	Outside	Outside	325159		Difficult	Rocky
244	1.20	0.60	Unknown	No	No cone	No	No	No	416		Translocate	1		150.657672	-24.212155	0.000000	Ausecology	Within	RoW	325292	Fair	Easy	Soil
245	1.30	0.60	Unknown	No	No cone	No	No	No	408		Translocate	1		150.657440	-24.212174	0.000000	Ausecology	Within	RoW	325269	Good	Easy	Soil
246	4.00	1.00	Unknown	No	No cone	No	No	No	402		Translocate	2	smaller plant at base	150.657278	-24.212204	0.000000	Ausecology	Within	RoW	325252	Good	Easy	Soil
247	1.20	0.40	Unknown	No	No cone	No	No	No	354		Translocate	1		150.656252	-24.212547	0.000000	Ausecology	Within	RoW	325139	Fair	Difficult	Soil
248	1.20	0.60	Unknown	No	No cone	No	No	No	1683		Translocate	1		150.657097	-24.212283	0.000000	David Gatfield	Within	RoW	325232		Difficult	Rocky
249	1.80	0.60	Unknown	No	No cone	No	No	No	417		Translocate	1		150.657740	-24.212077	0.000000	Ausecology	Within	RoW	325301	Good	Easy	Soil
250	1.00	0.70	Unknown	No	No cone	No	No	No	399		Translocate	2	smaller plant at base	150.657272	-24.212228	0.000000	Ausecology	Within	RoW	325251	Good	Easy	Soil
251	0.70	0.30	Unknown	No	No cone	No	Yes	No	1707		Translocate	1		150.658320	-24.212437	0.000000	David Gatfield	Within	RoW	325381		Difficult	
252	0.75	0.50	Unknown	No	No cone	No	Yes	No	1708		Translocate	1		150.658395	-24.212588	0.000000	David Gatfield	Within	RoW	325397		Difficult	
253	0.90	0.40	Unknown	No	No cone	No	Yes	No	1709		Translocate	1		150.658443	-24.212688	0.000000	David Gatfield	Within	RoW	325408			
254	0.70	0.70	Unknown	No	No cone	No	No	Yes	1704		Translocate	1		150.657698	-24.212247	0.000000	David Gatfield	Within	RoW	325293			
255	1.60	0.60	Unknown	No	No cone	No	No	No	440		Translocate	1	h 1.6m; c0.6m	150.661253	-24.211658	0.000000	Ausecology	Outside	Outside	325762	Good	Difficult	Soil
256	1.40	0.40	Unknown	No	No cone	No	Yes	Yes	1721		Avoid	1		150.659810	-24.212678	0.000000	David Gatfield	Within	RoW	325576		Difficult	Rocky
257	0.70	0.50	Unknown	No	No cone	No	Yes	No	1748		Avoid	3	2 growing from base	150.661237	-24.211335	0.000000	David Gatfield	Within	RoW	325782		Difficult	
258	0.30	0.30	Unknown	No	No cone	Yes	Yes	No	1714		Translocate	1		150.660115	-24.212715	0.000000	David Gatfield	Outside	Outside	325599		Difficult	Rocky
259	1.10	0.60	Unknown	No	No cone	No	Yes	Yes	1727		Translocate	1		150.660607	-24.211797	0.000000	David Gatfield	Within	RoW	325699		Difficult	Rocky
260	0.50	0.50	Unknown	No	No cone	No	No	Yes	1723		Translocate	1		150.660072	-24.212357	0.000000	David Gatfield	Within	RoW	325619		Difficult	
261	0.70	0.50	Unknown	No	No cone	No	Yes	No	1705		Avoid	1		150.657697	-24.212327	0.000000	David Gatfield	Outside	Outside	325292		Difficult	
262	0.60	0.40	Unknown	No	No cone	No	No	No	1706		Avoid	1		150.657982	-24.212303	0.000000	David Gatfield	Within	RoW	325345		Difficult	Rocky
263	0.80	0.40	Unknown	No	No cone	Yes	Yes	No	1715		Translocate	1		150.659287	-24.212948	0.000000	David Gatfield	Within	RoW	325515		Difficult	
264	0.30	0.30	Unknown	No	No cone	No	No	No	1725		Translocate	1		150.660598	-24.211903	0.000000	David Gatfield	Within	RoW	325692		Moderate	
265	1.85	0.30	Unknown	No	No cone	No	Yes	No	1721		Avoid	1		150.659825	-24.212585	0.000000	David Gatfield	Within	RoW	325583			
266	0.70	0.70	Unknown	No	No cone	No	Yes	No	1711		Translocate	1		150.658592	-24.212753	0.000000	David Gatfield	Within	RoW	325425			
267	0.50	0.40	Unknown	No	No cone	No	Yes	No	1719		Translocate	1		150.659620	-24.212785	0.000000	David Gatfield	Within	RoW	325553		Difficult	Rocky
268	0.70	0.50	Unknown	No	No cone	No	No	Yes	1726		Translocate	1		150.660507	-24.211857	0.000000	David Gatfield	Within	RoW	325687			Rocky
269	0.20	0.10	Unknown	No	No cone	No	Yes	No	1717	274	Avoid	1		150.659628	-24.212985	0.000000	David Gatfield	Outside	Outside	325541		Difficult	Rocky
270	0.40	0.40	Unknown	No	No cone	No	No	No	1712		Translocate	1		150.658813	-24.213013	0.000000	David Gatfield	Within	RoW	325461		Difficult	
271	0.50	0.50	Unknown	No	No cone	No	No	No	1720		Translocate	1		150.659560	-24.212783	0.000000	David Gatfield	Within	RoW	325548		Difficult	Rocky
272	0.50	0.40	Unknown	No	No cone	No	Yes	No	1718	274	Avoid	1		150.659628	-24.212948	0.000000	David Gatfield	Outside	Outside	325543		Difficult	Rocky
273	1.00	0.30	Unknown	No	No cone	No	Yes	No	1724		Translocate	1		150.660418	-24.212030	0.000000	David Gatfield	Within	RoW	325669		Difficult	
274	2.00	0.40	Female	Yes ground at base	No cone	Yes	Yes	No	1716		Avoid	1		150.659637	-24.212952	0.000000	David Gatfield	Outside	Outside	325544		Difficult	Rocky
275	0.80	0.40	Unknown	No	No cone	No	Yes	No	1713		Translocate	1		150.659032	-24.213060	0.000000	David Gatfield	Within	RoW	325481		Difficult	
276	1.50	0.50	Unknown	No	No cone	No	No	No	443		Translocate	1	h 1.5m; c 0.5m	150.661271	-24.211556	0.000000	Ausecology	Within	RoW	325770	Fair	Easy	Soil
277	0.60	0.60	Unknown	No	No cone	No	No	No	444		Translocate	1	h 0.6m; c 0.6m	150.661284	-24.211542	0.000000	Ausecology	Within	RoW	325772	Good	Easy	Soil
278	1.20	0.70	Unknown	No	No cone	No	No	No	451		Translocate	1	h 1.2m; c 0.7m	150.661847	-24.211120	0.000000	Ausecology	Within	RoW	325845	Good	Easy	Soil
279	1.90	0.50	Unknown	No	No cone	No	No	No	458		Translocate	1	h 1.9m; c 0.5m	150.663700	-24.209380	0.000000	Ausecology	Within	RoW	326114	Good	Easy	Soil

280	0.50	0.50	Unknown	No	No cone	No	No	No	427		Translocate	1	h 0.5m; c 0.5m	150.660705	-24.211990	0.000000	Ausecology	Within	RoW	325695	Good	Difficult	Soil
281	1.60	0.60	Unknown	No	No cone	No	No	No	441		Translocate	1	h 1.6m; c 0.6m	150.661215	-24.211615	0.000000	Ausecology	Within	RoW	325761	Fair	Easy	Soil
282	0.50	0.50	Unknown	No	No cone	No	No	No	424		Translocate	1	h 0.5m; c 0.5m	150.660329	-24.212222	0.000000	Ausecology	Within	RoW	325649	Good	Difficult	Soil
283	1.30	0.50	Unknown	No	No cone	No	No	No	448		Translocate	1	h 1.3m; c 0.5m	150.661741	-24.211151	0.000000	Ausecology	Within	RoW	325835	Fair	Easy	Soil
284	0.10	0.10	Unknown	No	No cone	No	No	No	459		Translocate	1	h 0.1m; c 0.1m	150.663758	-24.209337	0.000000	Ausecology	Within	RoW	326121	Good	Easy	Soil
285	0.40	0.40	Unknown	No	No cone	No	No	No	428		Translocate	1	h 0.4m; c 0.4m	150.660691	-24.211966	0.000000	Ausecology	Within	RoW	325695	Good	Difficult	Soil
286	0.40	0.40	Unknown	No	No cone	No	No	No	438		Translocate	1	h 0.4m; c0.4m	150.661050	-24.211683	0.000000	Ausecology	Within	RoW	325743	Good	Easy	Soil
288	1.00	0.40	Unknown	No	No cone	Yes	No	No	425		Translocate	1	h 1m; c 0.4m	150.660484	-24.211967	0.000000	Ausecology	Within	RoW	325678	Fair	Easy	Soil
289	0.30	0.30	Unknown	No	No cone	No	No	No	432		Translocate	1	h 0.3m; c 0.3m	150.660720	-24.211967	0.000000	Ausecology	Within	RoW	325698	Good	Difficult	Soil
290	1.70	0.40	Male	No	0.15	No	No	No	248		Translocate	1	cone 15cm	150.727909	-24.135860	0.000000	Ausecology	Outside	Outside	338400	Good	Difficult	Rock
291	0.75	0.65	Unknown	No	No cone	No	No	No	437		Translocate	1	h 0.8m; c 0.65m	150.661038	-24.211663	0.000000	Ausecology	Within	RoW	325744	Good	Easy	Soil
292	1.75	0.50	Unknown	No	No cone	No	No	No	446		Translocate	1	h 1.75m; c 0.5m	150.661481	-24.211457	0.000000	Ausecology	Outside	Outside	325794	Good	Easy	Soil
293	0.50	0.30	Unknown	No	No cone	No	No	No	447		Translocate	1	h 0.5m; c0.3m	150.661703	-24.211222	0.000000	Ausecology	Within	RoW	325827	Good	Easy	Soil
294	0.20	0.20	Unknown	No	No cone	No	No	No	454		Translocate	1	h 1m; c 1m; 2 plants	150.662745	-24.210223	0.000000	Ausecology	Within	RoW	325979	Good	Easy	Soil
295	1.00	1.00	Unknown	No	No cone	No	No	No	460		Translocate	1	h 0.2m; c 0.2m	150.663723	-24.209349	0.000000	Ausecology	Within	RoW	326118	Good	Easy	Soil
296	0.50	0.50	Unknown	No	No cone	No	No	No	442		Translocate	1	h 0.5m; c 0.5m	150.661237	-24.211603	0.000000	Ausecology	Within	RoW	325764	Good	Easy	Soil
297	1.00	0.50	Unknown	No	No cone	No	No	No	450		Translocate	1	h 1m; c 0.5m	150.661810	-24.211157	0.000000	Ausecology	Within	RoW	325840	Fair	Difficult	Soil
298	1.00	0.50	Unknown	No	No cone	No	No	No	449		Translocate	1	h 1m; c 0.5m	150.661804	-24.211161	0.000000	Ausecology	Within	RoW	325839	Fair	Difficult	Soil
299	3.50	0.50	Unknown	No	No cone	No	No	No	465		Translocate	1	h 3.5m; c 0.5m	150.663855	-24.209373	0.000000	Ausecology	Within	RoW	326127	Good	Easy	Soil
300	1.20	1.00	Unknown	No	No cone	No	No	No	467		Translocate	1	h 1.2m; c 1	150.664813	-24.208285	0.000000	Ausecology	Within	RoW	326278	Good	Easy	Soil
300	0.50	0.30	Unknown	No	No cone	No	No	No	527		Translocate	1	Fair	150.728060	-24.135325	0.000000	David Gatfield	Within	RoW	338451	Fair	Moderate	Soil
301	0.50	0.20	Unknown	No	No cone	No	No	No	430		Translocate	1	h 0.5m; c 0.2m	150.660719	-24.211971	0.000000	Ausecology	Within	RoW	325697	Good	Difficult	Soil
302	1.50	0.50	Unknown	No	No cone	No	No	No	439		Translocate	1	h 1.5m; c 0.5m	150.661089	-24.211629	0.000000	Ausecology	Within	RoW	325750	Fair	Easy	Soil
303	0.15	0.15	Unknown	No	No cone	No	No	No	462		Translocate	1	h 0.15m; c 0.15m	150.663760	-24.209307	0.000000	Ausecology	Within	RoW	326124	Good	Easy	Soil
304	0.80	0.60	Unknown	No	No cone	No	No	No	468		Translocate	1	h 0.8m; 0.6m	150.665149	-24.208098	0.000000	Ausecology	Within	RoW	326318	Good	Easy	Soil
305	0.30	0.30	Unknown	No	No cone	No	No	No	463		Translocate	1	h 0.3m; c 0.3m	150.663797	-24.209299	0.000000	Ausecology	Within	RoW	326127	Good	Easy	Soil
306	0.30	0.30	Unknown	No	No cone	No	No	No	429		Translocate	1	h 0.3m; c 0.3m; Note may be hard to relocate as next to tree	150.660706	-24.211970	0.000000	Ausecology	Within	RoW	325696	Fair	Difficult	Soil
306	2.50	0.75	Female	Yes	No cone	No	No	Yes	533		Translocate	2	Good; 1 seedling at base	150.728268	-24.135402	0.000000	David Gatfield	Within	RoW	338461	Good	Moderate	Soil
307	0.50	0.50	Unknown	No	No cone	No	No	No	435		Translocate	1	h 0.5m; c0.5m	150.660807	-24.211969	0.000000	Ausecology	Outside	Outside	325705	Good	Difficult	Soil
308	1.80	0.40	Unknown	Yes	No cone	No	No	No	469		Avoid	1	h 1.8m, c 0.4m	150.665256	-24.208170	0.000000	Ausecology	Outside	Outside	326322	Fair	Easy	
309	0.40	0.40	Unknown	No	No cone	No	No	No	249		Translocate	1		150.728080	-24.135765	0.000000	Ausecology	Outside	Outside	338420	Good	Difficult	Rock
310	1.50	0.50	Unknown	Yes	No cone	No	No	No	457		Translocate	1	h 1.5m; c 0.5m	150.663225	-24.209710	0.000000	Ausecology	Within	RoW	326053	Good	Easy	Soil
311	0.40	0.30	Unknown	No	No cone	No	No	No	426		Translocate	1	h 0.4m; 0.3m	150.660655	-24.212016	0.000000	Ausecology	Within	RoW	325689	Good	Difficult	Soil
312	2.00	0.75	Unknown	No	No cone	No	No	No	436		Translocate	1	h 2m; c 0.75m	150.660864	-24.211741	0.000000	Ausecology	Within	RoW	325724	Good	Easy	Soil
313	0.50	0.50	Unknown	No	No cone	No	No	No	464		Translocate	1	h 0.5m; c 0.5m	150.663784	-24.209312	0.000000	Ausecology	Within	RoW	326125	Good	Easy	Soil
314	0.30	0.10	Unknown	No	No cone	No	No	No	433		Translocate	1	h 0.3m; c 0.1m	150.660724	-24.211957	0.000000	Ausecology	Within	RoW	325699	Fair	Difficult	Soil
315	1.50	0.75	Unknown	No	No cone	No	No	No	466		Translocate	1	h 1.5m; c 0.75m	150.664771	-24.208371	0.000000	Ausecology	Within	RoW	326269	Good	Easy	Soil
316	1.00	0.50	Unknown	No	No cone	No	No	No	431		Translocate	1	h 0.75m; 0.25m	150.660726	-24.211957	0.000000	Ausecology	Within	RoW	325699	Good	Difficult	Soil
317	1.50	0.50	Unknown	No	No cone	No	No	No	434		Translocate	1	h 0.5m; 0.5m	150.660709	-24.211956	0.000000	Ausecology	Within	RoW	325697	Good	Easy	Soil
318	1.80	0.50	Unknown	No	No cone	No	No	No	452		Translocate	1	h 1.8m; c 0.5m	150.662146	-24.210858	0.000000	Ausecology	Within	RoW	325887	Good	Easy	Soil
319	0.20	0.20	Unknown	No	No cone	No	No	No	251		Translocate	1		150.728055	-24.135676	0.000000	Ausecology	Within	RoW	338424	Fair	Easy	Clay/Silt
320	0.50	0.50	Unknown	No	No cone	No	No	No	456		Translocate	1	h 1.2m; c 0.7m	150.663213	-24.209752	0.000000	Ausecology	Within	RoW	326049	Good	Easy	Soil
321	0.50	0.50	Unknown	No	No cone	No	No	No	445		Translocate	1	h 0.5m; c 0.5m	150.661380	-24.211456	0.000000	Ausecology	Within	RoW	325785	Good	Easy	Soil
322	0.40	0.40	Unknown	No	No cone	No	Yes	No	1781	385	Translocate	1		150.663875	-24.209320	0.000000	David Gatfield	Within	RoW	326132			
323	0.50	0.50	Unknown	No	No cone	No	No	No	461		Translocate	1	h 0.5m; c 0.4m	150.663756	-24.209312	0.000000	Ausecology	Within	RoW	326123	Good	Easy	Soil
324	1.00	0.40	Unknown	No	No cone	No	No	No	423		Translocate	1	h 1m; c 0.4m	150.660309	-24.212269	0.000000	Ausecology	Within	RoW	325644	Poor	Difficult	Rock
325	1.50	0.60	Female	Yes	No cone	No	No	No	453		Translocate	1	h 1.5m; c 0.6m	150.662434	-24.210503	0.000000	Ausecology	Within	RoW	325935	Good	Easy	Soil
326	0.80	0.60	Unknown	No	No cone	No	Yes	No	1728		Translocate	1		150.660703	-24.211867	0.000000	David Gatfield	Within	RoW	325703			
327	0.40	0.30	Unknown	No	No cone	No	Yes	No	1740		Avoid	1		150.660762	-24.211930	0.000000	David Gatfield	Within	RoW	325703			
328	0.25	0.25	Unknown	No	No cone	No	Yes	No	1732	341	Translocate	1		150.660705	-24.211922	0.000000	David Gatfield	Within	RoW	325699			
329	0.70	0.40	Unknown	No	No cone	No	Yes	No	1734		Translocate	1		150.660660	-24.211962	0.000000	David Gatfield	Within	RoW	325693		Difficult	Rocky
330	1.00	0.60	Unknown	No	No cone	No	Yes	No	1746		Translocate	1		150.660878	-24.211638	0.000000	David Gatfield	Within	RoW	325732		Difficult	
331	0.40	0.40	Unknown	No	No cone	No	Yes	No	1743		Avoid	1		150.660762	-24.211872	0.000000	David Gatfield	Within	RoW	325707		Difficult	
332	0.40	0.40	Unknown	No	No cone	No	Yes	No	1739		Avoid	1		150.660720	-24.211968	0.000000	David Gatfield	Within	RoW	325697		Difficult	
333	0.60	0.40	Unknown	No	No cone	No	Yes	No	1738		Translocate	1		150.660740	-24.211970	0.000000	David Gatfield	Within	RoW	325699		Difficult	
334	0.30	0.30	Unknown	No	No cone	No	No	No	1733		Translocate	1		150.660700	-24.211935	0.000000	David Gatfield	Within	RoW	325698		Difficult	
335	0.60	0.60	Unknown	No	No cone	No	No	No	1747		Translocate	1		150.661072	-24.211475	0.000000	David Gatfield	Within	RoW	325759		Difficult	
336	0.50	0.40	Unknown	No	No cone	No	Yes	No	1741		Avoid	1		150.660760	-24.211932	0.000000	David Gatfield	Within	RoW	325703			
337	0.20	0.20	Unknown	No	No cone	No	Yes	No	1731	341	Translocate	1		150.660713	-24.211938	0.000000	David Gatfield	Within	RoW	325699			
338	1.30	0.80	Unknown	No	No cone	No	Yes	No	1745		Translocate	1		150.660715	-24.211665	0.000000	David Gatfield	Outside	Outside	325717			
339	0.30	0.30	Unknown	No	No cone	No	Yes	No	1736		Translocate	1		150.660728	-24.211907	0.000000	David Gatfield	Within	RoW	325702			
340	0.40	0.40	Unknown	No	No cone	No	No	No	1735		Translocate	2	2 plants from same point	150.660728	-24.211927	0.000000	David Gatfield	Within	RoW	325701			
341	4.60	0.00	Female	Yes	No cone	No	Yes	No	1730		Translocate	3	seedling growing from base	150.660723	-24.211913	0.000000	David Gatfield	Within	RoW	325701		Difficult	
342	0.80	0.60	Unknown	No	No cone	No	Yes	No	1729		Translocate	1		150.660702	-24.211837	0.000000	David Gatfield	Within	RoW	325705		Difficult	
343	1.20	0.80	Unknown	No	No cone	No	Yes	No	1744		Translocate	1		150.660707	-24.211758	0.000000	David Gatfield	Within	RoW	325710			
344	0.40	0.20	Unknown	No	No cone	No	Yes	No	1744		Translocate	1		150.660742	-24.211945	0.000000	David Gatfield	Within	RoW	325701			
345	0.50	0.20	Unknown	No	No cone	No	Yes	No	1737		Translocate	1		150.660733	-24.211928	0.000000	David Gatfield	Within	RoW	325701		Difficult	Rocky
346	2.00	0.40	Unknown	No	No cone	No	Yes	No	1761		Translocate	1		150.662125	-24.210825	0.000000	David Gatfield	Within	RoW	325888			
347	0.40	0.30	Unknown	No	No cone	No	No	No	1762		Avoid	1		150.662165	-24.210795	0.000000	David Gatfield	Within	RoW	325893			
348	0.70	0.30	Unknown	No	No cone	No	Yes	Yes	1771		Translocate	1		150.663248	-24.209680	0.000000	David Gatfield	Within	RoW	326057			Rocky
349	1.60	0.50	Unknown	No	No cone	No	Yes	No	1775		Translocate	1		150.663678	-24.209263	0.000000	David Gatfield	Within	RoW	326120			
350	1.40	0.40	Unknown	No	No cone	No	Yes	No	1758		Translocate	1		150.661872	-24.210955	0.000000	David Gatfield	Within	RoW	325859			
351	0.60	0.60	Unknown	No	No cone	No	No	No	1790		Avoid	1		150.664790	-24.208248	0.000000	David Gatfield	Within	RoW	326279			
352	0.80	0.70	Unknown	No	No cone	No	No	No	1782		Translocate	1		150.664568	-24.208582	0.000000	David Gatfield	Within	RoW	326238			

353	1.20	0.80	Unknown	No	No cone	No	Yes	No	1767		Translocate	1		150.663037	-24.209842	0.000000	David Gatfield	Within	RoW	326029			
354	0.40	0.10	Unknown	No	No cone	No	Yes	No	1752		Translocate	1		150.661597	-24.211262	0.000000	David Gatfield	Within	RoW	325816			
355	1.80	0.30	Female	No	No cone	No	Yes	No	1794		Avoid	4	3 growing from base	150.664832	-24.208180	0.000000	David Gatfield	Within	RoW	326287			
356	0.40	0.40	Unknown	No	No cone	No	No	No	1765		Translocate	1		150.662025	-24.210673	0.000000	David Gatfield	Within	RoW	325890			
357	0.60	0.50	Unknown	No	No cone	No	Yes	No	1764		Avoid	1		150.662237	-24.210753	0.000000	David Gatfield	Within	RoW	325902		Difficult	
358	0.50	0.50	Unknown	No	No cone	No	No	Yes	1774		Translocate	1		150.663698	-24.209353	0.000000	David Gatfield	Within	RoW	326115			
359	1.80	0.40	Unknown	No	No cone	No	Yes	No	1759		Avoid	1		150.661968	-24.211005	0.000000	David Gatfield	Within	RoW	325863			
360	1.70	0.40	Unknown	No	No cone	No	Yes	No	1757		Avoid	1		150.661568	-24.211408	0.000000	David Gatfield	Outside	Outside	325804		Difficult	
361	1.40	0.80	Unknown	No	No cone	No	Yes	No	1750		Translocate	1		150.661610	-24.211145	0.000000	David Gatfield	Within	RoW	325825			
362	1.00	0.30	Unknown	No	No cone	No	Yes	No	1751		Translocate	1		150.661608	-24.211248	0.000000	David Gatfield	Within	RoW	325818			
363	1.00	0.60	Unknown	No	No cone	No	Yes	No	1763		Avoid	1		150.662200	-24.210753	0.000000	David Gatfield	Within	RoW	325899		Difficult	
364	1.10	0.50	Unknown	No	No cone	No	No	No	1756		Avoid	1		150.661535	-24.211345	0.000000	David Gatfield	Within	RoW	325805			
365	1.70	0.60	Unknown	No	No cone	No	Yes	No	1760		Avoid	1		150.661918	-24.210800	0.000000	David Gatfield	Within	RoW	325873			
366	1.60	0.60	Female	Yes	No cone	Yes	Yes	Yes	1768		Translocate	1		150.663197	-24.209745	0.000000	David Gatfield	Within	RoW	326048			Rocky
367	0.70	0.70	Unknown	No	No cone	No	No	No	1766		Translocate	1		150.662113	-24.210655	0.000000	David Gatfield	Within	RoW	325899			
368	1.60	0.40	Unknown	No	No cone	No	Yes	No	1769		Translocate	1		150.663217	-24.209768	0.000000	David Gatfield	Within	RoW	326048			
369	0.90	0.60	Unknown	No	No cone	No	Yes	No	1753		Translocate	1		150.661683	-24.211272	0.000000	David Gatfield	Outside	Outside	325822			
370	0.70	0.30	Unknown	No	No cone	No	Yes	No	1754		Avoid	1		150.661722	-24.211217	0.000000	David Gatfield	Within	RoW	325829			
371	0.60	0.60	Unknown	No	No cone	No	No	No	1773		Translocate	1		150.663703	-24.209362	0.000000	David Gatfield	Within	RoW	326115			
372	1.00	0.70	Unknown	No	No cone	No	Yes	No	1776		Translocate	1		150.663708	-24.209215	0.000000	David Gatfield	Within	RoW	326126			
373	0.70	0.30	Unknown	No	No cone	No	Yes	No	1770		Translocate	1		150.663180	-24.209767	0.000000	David Gatfield	Within	RoW	326045			
374	1.40	0.90	Unknown	No	No cone	No	No	No	1749		Translocate	1		150.661312	-24.211392	0.000000	David Gatfield	Within	RoW	325784			
375	0.40	0.40	Unknown	No	No cone	No	Yes	No	1755		Avoid	1		150.661643	-24.211300	0.000000	David Gatfield	Outside	Outside	325817			
375	0.40	0.40	Unknown	No	No cone	No	No	No	608		Translocate	1	poor	150.730058	-24.132138	0.000000	David Gatfield	Within	RoW	338882	Poor	Difficult	Soil
376	0.25	0.25	Unknown	No	No cone	No	Yes	No	1789		Avoid	1		150.664763	-24.208228	0.000000	David Gatfield	Within	RoW	326278			
377	0.40	0.40	Unknown	No	No cone	No	No	No	470		Translocate	1	h 0.4; c 0.4m	150.665066	-24.207954	0.000000	Ausecology	Within	RoW	326322	Good	Easy	Soil
378	0.50	0.50	Unknown	No	No cone	No	No	No	1796		Avoid	1		150.664898	-24.208122	0.000000	David Gatfield	Within	RoW	326297			
379	0.70	0.50	Unknown	No	No cone	No	Yes	No	1788		Avoid	1		150.664758	-24.208225	0.000000	David Gatfield	Within	RoW	326278			
380	0.60	0.40	Unknown	No	No cone	No	Yes	Yes	1797		Translocate	1		150.664922	-24.208118	0.000000	David Gatfield	Within	RoW	326299			
381	0.60	0.50	Unknown	No	No cone	No	Yes	No	1799		Translocate	1		150.664953	-24.208043	0.000000	David Gatfield	Outside	Outside	326306			
382	0.50	0.50	Unknown	No	No cone	No	No	No	1798		Translocate	1		150.664920	-24.208100	0.000000	David Gatfield	Within	RoW	326300			
383	1.50	0.50	Unknown	No	No cone	No	Yes	No	1786		Avoid	1		150.664710	-24.208280	0.000000	David Gatfield	Within	RoW	326271			
384	0.40	0.20	Unknown	No	No cone	No	Yes	No	1793		Avoid	1		150.664787	-24.208135	0.000000	David Gatfield	Outside	Outside	326287			
385	3.20	0.70	Female	Yes on ground	No cone	No	No	No	1780		Translocate	1		150.663877	-24.209283	0.000000	David Gatfield	Within	RoW	326135			
386	1.10	0.40	Unknown	No	No cone	No	Yes	No	1782		Avoid	1		150.664188	-24.208698	0.000000	David Gatfield	Outside	Outside	326200			
387	0.40	0.40	Unknown	No	No cone	No	Yes	No	1792		Avoid	1		150.664780	-24.208112	0.000000	David Gatfield	Outside	Outside	326288			
388	1.20	0.60	Unknown	No	No cone	No	Yes	No	1785		Translocate	1		150.664632	-24.208375	0.000000	David Gatfield	Within	RoW	326258			
389	0.50	0.50	Unknown	No	No cone	No	Yes	No	1795		Translocate	1		150.664815	-24.208240	0.000000	David Gatfield	Within	RoW	326282			
390	0.50	0.50	Unknown	No	No cone	No	Yes	No	1778		Translocate	1		150.663832	-24.209280	0.000000	David Gatfield	Within	RoW	326131			
391	0.40	0.40	Unknown	No	No cone	No	No	No	1779	385	Translocate	1		150.663818	-24.209258	0.000000	David Gatfield	Within	RoW	326132			
392	0.60	0.50	Unknown	No	No cone	No	Yes	No	1791		Translocate	1		150.664845	-24.208190	0.000000	David Gatfield	Within	RoW	326288			
393	0.30	0.30	Unknown	No	No cone	No	No	No	1777			1		150.663777	-24.209318	0.000000	David Gatfield	Within	RoW	326124			Rocky
394	0.50	0.50	Unknown	No	No cone	No	Yes	No	1787		Avoid	1		150.664725	-24.208257	0.000000	David Gatfield	Within	RoW	326273			
395	1.10	0.60	Unknown	No	No cone	No	Yes	No	1784		Translocate	1		150.664523	-24.208498	0.000000	David Gatfield	Within	RoW	326241			
396	0.75	0.40	Unknown	No	No cone	No	No	No	475		Avoid	1		150.725878	-24.137355	0.000000	David Gatfield	Outside	Outside	338134		Difficult	Soil
397	1.20	0.40	Female	Yes	No cone	Yes	No	No	474		Translocate	1	1 seedling at base	150.725832	-24.137600	0.000000	David Gatfield	Within	RoW	338113		Moderate	Soil
398	1.50	0.40	Unknown	No	No cone	No	No	Yes	477		Translocate	1	Fair	150.726312	-24.137035	0.000000	David Gatfield	Within	RoW	338191	Fair	Moderate	Soil
399	0.10	0.10	Unknown	No	No cone	No	No	No	356		Translocate	1		150.726228	-24.137125	0.000000	David Gatfield	Within	RoW	338178		Difficult	Soil
400	0.50	0.50	Unknown	No	No cone	No	No	No	478		Translocate	1	Good	150.726107	-24.137292	0.000000	David Gatfield	Within	RoW	338156	Good	Difficult	Soil
401	1.60	0.50	Unknown	No	No cone	No	No	No	479		Translocate	1	Fair	150.726632	-24.136830	0.000000	David Gatfield	Within	RoW	338230	Fair	Moderate	Soil
402	0.60	0.55	Unknown	No	No cone	No	No	No	480		Translocate	1	Good	150.726625	-24.136907	0.000000	David Gatfield	Within	RoW	338224	Good	Moderate	Soil
403	1.60	0.50	Male	No	0.2	Yes	No	No	482		Avoid	1	Good; cone died	150.726818	-24.137000	0.000000	David Gatfield	Outside	Outside	338232	Good	Easily Accessed	Soil
404	1.60	0.30	Male	No	No cone	Yes	No	No	483		Translocate	1	Good; cone recently died	150.726897	-24.136545	0.000000	David Gatfield	Within	RoW	338272	Good	Difficult	Soil
405	1.00	1.00	Unknown	No	No cone	No	No	No	484		Translocate	1	Good	150.726818	-24.136612	0.000000	David Gatfield	Within	RoW	338261	Good	Difficult	Soil
406	1.60	0.50	Unknown	No	No cone	No	No	No	485		Translocate	1	Good	150.726533	-24.136742	0.000000	David Gatfield	Outside	Outside	338229	Good	Moderate	Soil
407	0.50	0.50	Unknown	No	No cone	No	No	No	486		Translocate	1	Good	150.726680	-24.136697	0.000000	David Gatfield	Within	RoW	338244	Good	Difficult	Soil
408	0.30	0.30	Unknown	No	No cone	No	No	No	487		Translocate	1	Good	150.726682	-24.136668	0.000000	David Gatfield	Within	RoW	338246	Good	Difficult	Soil
409	0.90	0.30	Unknown	No	No cone	No	No	No	488		Translocate	1	Good;	150.726813	-24.136535	0.000000	David Gatfield	Within	RoW	338266	Good	Difficult	Soil
410	0.20	0.20	Unknown	No	No cone	No	No	No	489		Translocate	1	Good	150.727867	-24.135632	0.000000	David Gatfield	Within	RoW	338413	Good	Moderate	Soil
411	1.00	0.80	Unknown	No	No cone	No	No	No	490		Translocate	1	Good	150.727872	-24.135682	0.000000	David Gatfield	Within	RoW	338410	Good	Moderate	Soil
412	1.60	0.50	Unknown	No	No cone	Yes	No	Yes	49		Translocate	1	Good	150.727910	-24.135688	0.000000	David Gatfield	Within	RoW	338412	Good	Moderate	Soil
413	0.50	0.50	Unknown	No	No cone	No	No	No	492		Translocate	1	Fair	150.727985	-24.135680	0.000000	David Gatfield	Within	RoW	338419	Fair	Moderate	Soil
414	1.70	0.50	Female	Yes	No cone	No	No	No	493		Translocate	5	Good; 4 seedling at base	150.728028	-24.135665	0.000000	David Gatfield	Within	RoW	338423	Good	Moderate	Soil
415	0.30	0.30	Unknown	No	No cone	No	No	No	494	414	Translocate	9	Good; clump nine seedlings	150.728075	-24.135665	0.000000	David Gatfield	Within	RoW	338427	Good	Moderate	Soil
416	0.50	0.50	Unknown	No	No cone	No	No	No	270		Translocate	1		150.728142	-24.135560	0.000000	Ausecology	Within	RoW	338439	Fair	Difficult	Rock
417	0.50	0.50	Unknown	No	No cone	No	No	Yes	266		Translocate	1		150.728128	-24.135555	0.000000	Ausecology	Within	RoW	338439	Good	Difficult	Rock
418	0.20	0.20	Unknown	No	No cone	No	No	No	264		Translocate	1		150.728079	-24.135596	0.000000	Ausecology	Within	RoW	338432	Good	Difficult	Rock
419	0.30	0.30	Unknown	No	No cone	No	No	Yes	262		Translocate	1		150.728057	-24.135581	0.000000	Ausecology	Within	RoW	338431	Fair	Difficult	Rock
420	0.30	0.30	Unknown	No	No cone	No	No	No	243		Translocate	1		150.726703	-24.136742	0.000000	Ausecology	Within	RoW	338242	Good	Easy	Clay/Silt
421	0.50	0.50	Unknown	No	No cone	No	No	No	265		Translocate	1		150.728117	-24.135595	0.000000	Ausecology	Within	RoW	338435	Fair	Difficult	Rock
422	0.40	0.40	Unknown	No	No cone	No	No	Yes	254		Translocate	1		150.728139	-24.135633	0.000000	Ausecology	Outside	Outside	338434	Good	Difficult	Clay/Silt
423	0.40	0.40	Unknown	No	No cone	No	No	No	260		Translocate	1		150.728083	-24.135582	0.000000	Ausecology	Within	RoW	338433	Poor	Difficult	Rock
424	0.40	0.40	Unknown	No	No cone	No	No	No	268		Translocate	1		150.728127	-24.135556	0.000000	Ausecology	Within	RoW	338439	Good	Difficult	Rock

425	0.30	0.30	Unknown	No	No cone	No	No	No	244		Translocate	1		150.726706	-24.136759	0.000000	Ausecology	Within	RoW	338241	Good	Easy	
426	0.30	0.30	Unknown	No	No cone	No	No	No	257		Translocate	1		150.728100	-24.135576	0.000000	Ausecology	Within	RoW	338435	Fair	Difficult	Rock
427	0.50	0.50	Unknown	No	No cone	Yes	No	No	255		Translocate	1		150.728137	-24.135591	0.000000	Ausecology	Within	RoW	338437		Difficult	Clay/Silt
428	0.30	0.30	Unknown	No	No cone	No	No	Yes	250	411	Translocate	1		150.728051	-24.135678	0.000000	Ausecology	Within	RoW	338424	Good	Easy	Clay/Silt
429	0.50	0.50	Unknown	No	No cone	No	No	No	246		Translocate	1		150.727597	-24.135988	0.000000	Ausecology	Within	RoW	338366	Fair	Easy	Clay/Silt
430	0.50	0.40	Unknown	No	No cone	No	No	No	253		Translocate	1		150.728122	-24.135615	0.000000	Ausecology	Within	RoW	338434	Fair	Easy	Clay/Silt
431	1.00	0.00	Unknown	No	No cone	No	No	No	258		Translocate	1	possible dead	150.728108	-24.135587	0.000000	Ausecology	Within	RoW	338435	Poor	Difficult	Rock
432	0.50	0.50	Unknown	No	No cone	No	No	Yes	256	444	Translocate	1		150.728117	-24.135581	0.000000	Ausecology	Within	RoW	338436	Good	Difficult	Rock
433	0.60	0.60	Unknown	No	No cone	No	No	No	247		Translocate	1		150.727602	-24.135985	0.000000	Ausecology	Within	RoW	338367	Fair	Easy	Clay/Silt
434	0.30	0.30	Unknown	No	No cone	No	No	No	261		Translocate	1		150.728080	-24.135578	0.000000	Ausecology	Within	RoW	338433	Poor	Difficult	Rock
435	1.00	1.00	Unknown	No	No cone	No	No	No	245		Translocate	1		150.727302	-24.136383	0.000000	Ausecology	Within	RoW	338315	Good	Easy	Clay/Silt
436	0.50	0.50	Unknown	Yes	No cone	No	No	No	259		Translocate	1		150.728098	-24.135572	0.000000	Ausecology	Within	RoW	338435	Fair	Difficult	Rock
437	0.20	0.20	Unknown	No	No cone	No	No	No	267		Translocate	1		150.728123	-24.135563	0.000000	Ausecology	Within	RoW	338438	Good	Difficult	Rock
439	0.40	0.40	Unknown	No	No cone	No	No	No	252		Translocate	1		150.728072	-24.135647	0.000000	Ausecology	Within	RoW	338428	Fair	Easy	Clay/Silt
440	0.60	0.60	Unknown	No	No cone	No	No	No	263		Translocate	1		150.728063	-24.135585	0.000000	Ausecology	Within	RoW	338432	Fair	Difficult	Rock
441	0.50	0.50	Unknown	No	No cone	No	No	No	495		Translocate	1	Good	150.727995	-24.135610	0.000000	David Gatfield	Within	RoW	338425	Good	Moderate	Soil
442	0.40	0.40	Unknown	No	No cone	No	No	No	496		Translocate	1	Good	150.728023	-24.135585	0.000000	David Gatfield	Within	RoW	338429	Good	Easily Accessed	Soil
443	2.00	0.40	Unknown	No	No cone	No	No	No	497		Translocate	1	Fair	150.727993	-24.135525	0.000000	David Gatfield	Within	RoW	338431	Fair	Moderate	Soil
444	2.40	0.40	Unknown	No	No cone	No	No	No	498		Translocate	4	Good; 3 seedling at base	150.728108	-24.135528	0.000000	David Gatfield	Within	RoW	338439	Good	Moderate	Soil
445	0.20	0.20	Unknown	No	No cone	No	No	No	499	444	Translocate	7	Good; clump 7 seedling	150.728110	-24.135517	0.000000	David Gatfield	Within	RoW	338440	Good	Moderate	Soil
446	0.15	0.15	Unknown	No	No cone	No	No	No	502	444	Translocate	2	Good; 2 seedling	150.728118	-24.135530	0.000000	David Gatfield	Within	RoW	338440	Good	Moderate	Soil
447	0.15	0.15	Unknown	No	No cone	No	No	No	501	444	Translocate	7	Good; 7 seedling	150.728083	-24.135505	0.000000	David Gatfield	Within	RoW	338439	Good	Moderate	Soil
448	0.50	0.50	Unknown	No	No cone	No	No	No	500	444	Translocate	1	Good	150.728127	-24.135530	0.000000	David Gatfield	Within	RoW	338441	Good	Moderate	Soil
449	0.15	0.15	Unknown	No	No cone	No	No	No	503	444	Translocate	5	Good; 5 seedling	150.728107	-24.135563	0.000000	David Gatfield	Within	RoW	338437	Good	Moderate	Soil
450	0.20	0.20	Unknown	No	No cone	No	No	No	504	444	Translocate	5	Good; 5 seedling	150.728087	-24.135545	0.000000	David Gatfield	Within	RoW	338436	Good	Moderate	Soil
451	0.20	0.20	Unknown	No	No cone	No	No	No	505	444	Translocate	1	Good	150.728127	-24.135537	0.000000	David Gatfield	Within	RoW	338440	Good	Difficult	Soil
452	0.50	0.40	Unknown	No	No cone	No	No	No	506		Translocate	1	Good	150.728057	-24.135542	0.000000	David Gatfield	Within	RoW	338434	Good	Moderate	Soil
453	0.50	0.50	Unknown	No	No cone	No	No	No	50		Translocate	1	Good	150.728082	-24.135497	0.000000	David Gatfield	Within	RoW	338440	Good	Moderate	Soil
453	1.00	0.20	Unknown	No	No cone	Yes	No	No	519		Translocate	1	Fair	150.728137	-24.135408	0.000000	David Gatfield	Within	RoW	338450	Fair	Moderate	Soil
454	1.60	0.40	Male	No	0.2	No	No	No	508		Translocate	1	Fair; cone recently died	150.728102	-24.135463	0.000000	David Gatfield	Within	RoW	338444	Fair	Difficult	Soil
455	0.80	0.30	Unknown	No	No cone	No	No	No	509		Translocate	1	Fair	150.728082	-24.135492	0.000000	David Gatfield	Within	RoW	338440	Fair	Difficult	Soil
456	1.00	0.40	Unknown	No	No cone	No	No	Yes	510		Translocate	1	Fair	150.728127	-24.135427	0.000000	David Gatfield	Within	RoW	338448	Fair	Difficult	
457	1.20	0.40	Unknown	No	No cone	No	No	No	511		Translocate	1	Good	150.728115	-24.135455	0.000000	David Gatfield	Within	RoW	338445	Good	Moderate	Soil
458	1.20	0.20	Unknown	No	No cone	No	No	No	512		Translocate	1	Fair	150.728168	-24.135467	0.000000	David Gatfield	Within	RoW	338448	Fair	Difficult	Soil
460	1.40	0.30	Unknown	No	No cone	No	No	No	514		Translocate	1	Fair	150.728187	-24.135460	0.000000	David Gatfield	Within	RoW	338450	Fair	Difficult	Soil
461	0.20	0.20	Unknown	No	No cone	No	No	No	294		Translocate	1		150.728357	-24.135326	0.000000	Ausecology	Within	RoW	338463	Good	Difficult	Soil
462	0.50	0.50	Unknown	No	No cone	No	No	No	283		Translocate	1		150.728236	-24.135501	0.000000	Ausecology	Within	RoW	338451	Fair	Difficult	Soil
463	0.20	0.20	Unknown	No	No cone	No	No	Yes	269		Translocate	1	growing in rock crevasse	150.728120	-24.135560	0.000000	Ausecology	Within	RoW	338438	Good	Difficult	Rock
464	0.60	0.60	Unknown	No	No cone	No	No	No	271		Translocate	1		150.728143	-24.135577	0.000000	Ausecology	Within	RoW	338438	Fair	Difficult	Rock
465	0.40	0.40	Unknown	No	No cone	No	No	No	273		Translocate	1		150.728162	-24.135582	0.000000	Ausecology	Within	RoW	338439	Fair	Difficult	Rock
466	0.30	0.30	Unknown	No	No cone	No	No	No	301		Translocate	1		150.728257	-24.135111	0.000000	Ausecology	Within	RoW	338483	Good	Difficult	Soil
467	1.20	0.40	Unknown	No	No cone	No	No	No	290		Translocate	1		150.728320	-24.135436	0.000000	Ausecology	Within	RoW	338462	Good	Difficult	Soil
468	1.20	0.50	Unknown	No	No cone	No	No	Yes	281		Translocate	1		150.728236	-24.135506	0.000000	Ausecology	Within	RoW	338451	Good	Difficult	Rock
469	0.50	0.50	Unknown	No	No cone	No	No	No	280		Translocate	1		150.728220	-24.135544	0.000000	Ausecology	Within	RoW	338447	Fair	Difficult	Rock
470	1.00	0.30	Unknown	No	No cone	No	No	No	275		Translocate	1		150.728176	-24.135520	0.000000	Ausecology	Within	RoW	338445	Fair	Difficult	Clay/Silt
471	0.70	0.70	Unknown	No	No cone	No	No	Yes	300		Translocate	1		150.728336	-24.135054	0.000000	Ausecology	Within	RoW	338489	Good	Difficult	Soil
472	0.20	0.20	Unknown	No	No cone	No	No	No	305		Translocate	1		150.728309	-24.134707	0.000000	Ausecology	Within	RoW	338527	Good	Difficult	Soil
473	0.30	0.30	Unknown	No	No cone	No	No	No	285		Translocate	1		150.728293	-24.135513	0.000000	Ausecology	Outside	Outside	338455	Good	Difficult	Soil
474	1.30	0.50	Unknown	No	No cone	No	No	No	279		Translocate	1		150.728241	-24.135568	0.000000	Ausecology	Outside	Outside	338446	Fair	Difficult	Soil
475	0.50	0.50	Unknown	No	No cone	No	No	No	276		Translocate	1		150.728148	-24.135520	0.000000	Ausecology	Within	RoW	338443	Fair	Difficult	Rock
476	0.60	0.60	Unknown	No	No cone	No	No	No	299		Translocate	1		150.728276	-24.135083	0.000000	Ausecology	Within	RoW	338486	Good	Difficult	Soil
477	0.30	0.30	Unknown	No	No cone	No	No	Yes	289		Translocate	1		150.728274	-24.135465	0.000000	Ausecology	Within	RoW	338457	Good	Difficult	Soil
478	0.60	0.60	Unknown	No	No cone	No	No	No	288		Translocate	1		150.728265	-24.135450	0.000000	Ausecology	Within	RoW	338457	Good	Difficult	Soil
479	0.10	0.10	Unknown	No	No cone	No	No	No	308		Translocate	1		150.728286	-24.134689	0.000000	Ausecology	Within	RoW	338529	Good	Difficult	Soil
480	1.40	0.40	Unknown	No	No cone	No	No	No	278		Translocate	1		150.728203	-24.135583	0.000000	Ausecology	Outside	Outside	338442	Fair	Difficult	Soil
481	1.00	0.50	Unknown	No	No cone	No	No	No	292		Translocate	1		150.728331	-24.135379	0.000000	Ausecology	Within	RoW	338463	Good	Difficult	Soil
482	0.50	0.50	Unknown	Yes	No cone	No	No	No	287		Translocate	1		150.728281	-24.135444	0.000000	Ausecology	Within	RoW	338459	Good	Difficult	Soil
483	0.30	0.30	Unknown	No	No cone	No	No	No	272		Translocate	1		150.728158	-24.135562	0.000000	Ausecology	Within	RoW	338441	Fair	Difficult	Rock
484	0.10	0.10	Unknown	No	No cone	No	No	No	309		Translocate	1		150.728306	-24.134706	0.000000	Ausecology	Within	RoW	338527	Good	Difficult	Soil
485	0.40	0.40	Unknown	No	No cone	No	No	No	277		Translocate	1		150.728198	-24.135518	0.000000	Ausecology	Within	RoW	338447	Poor	Difficult	Clay/Silt
486	0.30	0.30	Unknown	No	No cone	No	No	No	293		Translocate	1		150.728349	-24.135320	0.000000	Ausecology	Within	RoW	338463	Good	Difficult	Soil
487	1.00	0.30	Unknown	No	No cone	No	No	No	286		Translocate	1		150.728293	-24.135511	0.000000	Ausecology	Outside	Outside	338455	Good	Difficult	Soil
488	2.00	0.60	Male	No	No cone	No	No	Yes	304		Translocate	1		150.728316	-24.134727	0.000000	Ausecology	Within	RoW	338525	Good	Difficult	Soil
489	0.20	0.20	Unknown	No	No cone	No	No	Yes	310		Translocate	1		150.728307	-24.134715	0.000000	Ausecology	Within	RoW	338526	Good	Difficult	Soil
490	0.40	0.40	Unknown	No	No cone	No	No	No	282		Translocate	1		150.728234	-24.135498	0.000000	Ausecology	Within	RoW	338451	Good	Difficult	Rock
491	0.40	0.40	Unknown	No	No cone	No	No	No	291		Translocate	1		150.728271	-24.135435	0.000000	Ausecology	Within	RoW	338459	Fair	Difficult	Soil
492	0.30	0.30	Unknown	No	No cone	No	No	Yes	286		Translocate	1		150.728276	-24.135480	0.000000	Ausecology	Within	RoW	338456	Good	Difficult	Soil
493	0.20	0.20	Unknown	No	No cone	No	No	No	306		Translocate	1		150.728313	-24.134711	0.000000	Ausecology	Within	RoW	338527	Good	Difficult	Soil
494	0.10	0.10	Unknown	No	No cone	No	No	No	311		Translocate	5	5 individuals with many seed propogating	150.728302	-24.134722	0.000000	Ausecology	Within	RoW	338525	Good	Difficult	Rock
495	0.40	0.40	Unknown	No	No cone	No	No	No	284		Translocate	1		150.728281	-24.135522	0.000000	Ausecology	Outside	Outside	338453	Fair	Difficult	Soil
498	0.30	0.30	Unknown	No	No cone	No	No	No	307		Translocate	1		150.728320	-24.134694	0.000000	Ausecology	Within	RoW	338528	Fair	Difficult	Soil
499	1.60	0.40	Unknown	No	No cone	No	No	Yes	274		Translocate	1		150.728183	-24.135559	0.000000	Ausecology	Within	RoW	338443	Good	Difficult	Rock
500	0.40	0.40	Unknown	No	No cone	No	No	No	312		Translocate	1		150.728297	-24.134702	0.000000	Ausecology	Within	RoW	338528	Poor	Difficult	Soil
501	1.60	0.20	Unknown	No	No cone	No	No	Yes	516		Translocate	1	Fair	150.728107	-24.135393	0.000000	David Gatfield	Within	RoW	338449	Fair	Difficult	Soil

502	1.50	0.30	Unknown	No	No cone	No	No	Yes	515		Translocate	1	Fair	150.728068	-24.135392	0.000000	David Gatfield	Within	RoW	338446	Fair	Difficult	Soil
503	1.70	0.40	Unknown	No	No cone	Yes	No	No	517		Translocate	1	Fair	150.728052	-24.135398	0.000000	David Gatfield	Within	RoW	338445	Fair	Difficult	Soil
504	0.50	0.50	Unknown	No	No cone	No	No	No	518		Translocate	1	Good	150.728038	-24.135447	0.000000	David Gatfield	Within	RoW	338440	Good	Difficult	Soil
506	0.50	0.50	Unknown	No	No cone	No	No	No	520		Translocate	1	Good	150.727958	-24.135582	0.000000	David Gatfield	Within	RoW	338424	Good	Moderate	Soil
507	1.90	0.40	Female	No	No cone	No	No	No	521		Translocate	4	Good; 3 seedling at base	150.728190	-24.135345	0.000000	David Gatfield	Within	RoW	338459	Good	Moderate	Soil
508	0.20	0.20	Unknown	No	No cone	No	No	No	522	507	Translocate	5	Good; 5 seedling	150.728170	-24.135373	0.000000	David Gatfield	Within	RoW	338455	Good	Moderate	Soil
509	0.10	0.10	Unknown	No	No cone	No	No	No	523	507	Translocate	1	Good	150.728100	-24.135355	0.000000	David Gatfield	Within	RoW	338451	Good	Moderate	Soil
510	0.10	0.10	Unknown	No	No cone	No	No	Yes	524		Translocate	1	Good	150.728115	-24.135327	0.000000	David Gatfield	Within	RoW	338455	Good	Moderate	Soil
511	0.20	0.20	Unknown	No	No cone	No	No	No	525	507	Translocate	8	Good; 8 seedling	150.728112	-24.135342	0.000000	David Gatfield	Within	RoW	338453	Good	Moderate	Soil
512	0.30	0.30	Unknown	No	No cone	No	No	No	526		Translocate	1	Good	150.728070	-24.135282	0.000000	David Gatfield	Outside	Outside	338454	Good	Moderate	Soil
514	1.00	0.50	Unknown	No	No cone	Yes	No	Yes	528		Translocate	1	Good; surrounded by lantana	150.728013	-24.135343	0.000000	David Gatfield	Outside	Outside	338446	Good	Difficult	Soil
515	0.30	0.30	Unknown	No	No cone	No	No	No	529		Translocate	1	Fair	150.728113	-24.135238	0.000000	David Gatfield	Within	RoW	338471	Fair	Moderate	Soil
516	3.50	0.50	Unknown	No	No cone	No	No	No	530		Translocate	1	Fair	150.728132	-24.135203	0.000000	David Gatfield	Within	RoW	338475	Fair	Difficult	Soil
517	1.50	0.50	Unknown	No	No cone	No	No	No	531		Translocate	1	Fair; covered in lantana	150.728100	-24.135162	0.000000	David Gatfield	Within	RoW	338480	Fair	Difficult	Soil
518	2.00	0.60	Female	Yes	No cone	No	No	No	532		Translocate	1	Good	150.728102	-24.135165	0.000000	David Gatfield	Within	RoW	338479	Good		Soil
519	3.00	0.40	Unknown	No	No cone	No	No	Yes	505		Translocate	1	Good	150.727965	-24.135527	0.000000	David Gatfield	Within	RoW	338428	Good	Moderate	Soil
520	0.40	0.40	Unknown	No	No cone	No	No	No	534		Translocate	1	Fair	150.728287	-24.135428	0.000000	David Gatfield	Within	RoW	338460	Fair	Moderate	Soil
521	0.50	0.50	Unknown	No	No cone	No	No	No	534		Translocate	3	Fair; 2 seedling at base	150.728267	-24.135400	0.000000	David Gatfield	Within	RoW	338461	Fair	Difficult	Soil
522	0.20	0.20	Unknown	No	No cone	No	No	No	536		Translocate	1	Good	150.728292	-24.135420	0.000000	David Gatfield	Within	RoW	338461	Good	Difficult	Soil
523	0.20	0.20	Unknown	No	No cone	No	No	No	537		Translocate	1	Fair	150.728252	-24.135407	0.000000	David Gatfield	Within	RoW	338459	Fair	Moderate	Soil
524	0.50	0.50	Unknown	No	No cone	No	No	No	538		Translocate	1	poor	150.728293	-24.135492	0.000000	David Gatfield	Outside	Outside	338456	Poor	Difficult	Soil
525	2.00	0.40	Unknown	No	No cone	No	No	Yes	53		Translocate	1	Good	150.728353	-24.135302	0.000000	David Gatfield	Within	RoW	338463	Good	Moderate	Soil
526	2.50	0.50	Unknown	No	No cone	No	No	No	540		Translocate	1	Fair	150.728345	-24.135303	0.000000	David Gatfield	Within	RoW	338463	Fair	Moderate	Soil
527	1.00	0.30	Unknown	No	No cone	No	No	No	541		Translocate	1	poor	150.728382	-24.135293	0.000000	David Gatfield	Within	RoW	338463	Poor	Moderate	Soil
528	1.00	0.20	Unknown	No	No cone	Yes	No	No	542		Translocate	1	poor	150.728302	-24.135260	0.000000	David Gatfield	Within	RoW	338466	Poor	Moderate	Soil
529	1.60	0.40	Female	No	No cone	No	No	No	543		Translocate	1	Fair	150.728272	-24.135168	0.000000	David Gatfield	Within	RoW	338477	Fair	Moderate	Soil
530	4.50	0.50	Female	Yes	No cone	No	No	Yes	544		Translocate	1	Good	150.728268	-24.135150	0.000000	David Gatfield	Within	RoW	338479	Good	Moderate	Soil
531	0.30	0.30	Unknown	No	No cone	No	No	No	545		Translocate	1	Good	150.728215	-24.135132	0.000000	David Gatfield	Within	RoW	338482	Good	Moderate	Soil
532	0.10	0.10	Unknown	No	No cone	No	No	No	546		Translocate	1	Fair	150.728263	-24.135230	0.000000	David Gatfield	Within	RoW	338470	Fair	Difficult	Soil
533	0.20	0.20	Unknown	No	No cone	No	No	No	547		Translocate	1	Good	150.728243	-24.135167	0.000000	David Gatfield	Within	RoW	338477	Good	Difficult	Soil
534	2.50	0.30	Unknown	No	No cone	No	No	No	550		Translocate	1	Fair	150.728147	-24.134985	0.000000	David Gatfield	Within	RoW	338499	Fair	Moderate	Soil
535	0.60	0.30	Unknown	No	No cone	No	No	Yes	549		Translocate	1	Good	150.728172	-24.134985	0.000000	David Gatfield	Within	RoW	338498	Good	Moderate	Soil
536	1.00	0.40	Unknown	No	No cone	No	No	No	548		Translocate	1	Fair	150.728208	-24.135067	0.000000	David Gatfield	Within	RoW	338489	Fair	Difficult	Soil
537	1.00	0.80	Unknown	No	No cone	No	No	No	51		Translocate	1	Good	150.728163	-24.134767	0.000000	David Gatfield	Within	RoW	338522	Good	Moderate	Soil
538	0.60	0.50	Unknown	No	No cone	No	No	No	552		Translocate	1	Good	150.728142	-24.134688	0.000000	David Gatfield	Within	RoW	338531	Good	Moderate	Soil
539	0.40	0.40	Unknown	No	No cone	No	No	No	553		Translocate	1	Good	150.728385	-24.133915	0.000000	David Gatfield	Within	RoW	338622	Good	Easily Accessed	Soil
540	0.50	0.50	Unknown	No	No cone	No	No	No	554		Translocate	1	Fair	150.728478	-24.134057	0.000000	David Gatfield	Within	RoW	338612	Fair	Moderate	Soil
541	1.50	0.40	Unknown	No	No cone	No	No	No	555		Translocate	1	Fair	150.728577	-24.134167	0.000000	David Gatfield	Outside	Outside	338606	Fair	Difficult	Soil
542	1.00	0.00	Unknown	No	No cone	No	No	No	556		Translocate	1	poor	150.728528	-24.134187	0.000000	David Gatfield	Outside	Outside	338601	Poor	Difficult	Soil
543	0.40	0.40	Unknown	No	No cone	No	No	No	561		Translocate	1	Good	150.728355	-24.133473	0.000000	David Gatfield	Outside	Outside	338664	Good	Difficult	Soil
544	0.40	0.40	Unknown	No	No cone	Yes	No	Yes	564		Translocate	1	Good	150.728817	-24.133502	0.000000	David Gatfield	Within	RoW	338688	Good	Moderate	Soil
544	0.40	0.40	Unknown	No	No cone	No	No	No	565		Translocate	1	Good	150.728855	-24.133478	0.000000	David Gatfield	Within	RoW	338692	Good		Soil
545	2.50	0.40	Unknown	No	No cone	Yes	No	Yes	566		Translocate	1	Good	150.728842	-24.133520	0.000000	David Gatfield	Within	RoW	338688	Good	Moderate	Soil
546	0.40	0.40	Unknown	No	No cone	No	No	No	654	560	Translocate	1		150.730726	-24.131843	0.000000	Ausecology	Within	RoW	338955	Fair	Difficult	Soil
547	0.20	0.20	Unknown	No	No cone	No	No	No	357		Translocate	1		150.730621	-24.131904	0.000000	Ausecology	Within	RoW	338943	Good	Difficult	Soil
548	0.20	0.20	Unknown	No	No cone	No	No	No	638	560	Translocate	2	1 seedlings	150.730743	-24.131839	0.000000	Ausecology	Within	RoW	338957	Good	Difficult	Soil
549	1.00	0.50	Unknown	No	No cone	No	No	No	319		Translocate	1		150.728798	-24.133511	0.000000	Ausecology	Within	RoW	338686	Good	Difficult	Soil
550	0.70	0.40	Unknown	No	No cone	No	No	Yes	318		Translocate	1		150.728774	-24.133541	0.000000	Ausecology	Within	RoW	338682	Fair	Difficult	Soil
551	0.50	0.50	Unknown	No	No cone	No	No	No	639	560	Translocate	1		150.730749	-24.131851	0.000000	Ausecology	Within	RoW	338957	Good	Difficult	Soil
552	0.20	0.20	Unknown	No	No cone	No	No	No	345		Translocate	1		150.730110	-24.132330	0.000000	Ausecology	Within	RoW	338872	Good	Easy	Clay/Silt
553	0.50	0.50	Unknown	No	No cone	No	No	No	330		Translocate	1		150.728766	-24.133319	0.000000	Ausecology	Within	RoW	338697	Good	Difficult	Soil
554	0.50	0.50	Unknown	No	No cone	No	No	No	320		Translocate	1		150.728789	-24.133505	0.000000	Ausecology	Within	RoW	338685	Fair	Difficult	Soil
555	0.70	0.70	Unknown	No	No cone	No	No	No	65	560	Translocate	1		150.730734	-24.131840	0.000000	Ausecology	Within	RoW	338956	Good	Difficult	Soil
556	0.80	0.80	Unknown	No	No cone	No	No	No	360		Translocate	1		150.730772	-24.131794	0.000000	Ausecology	Within	RoW	338962	Good	Difficult	Soil
557	0.20	0.20	Unknown	No	No cone	No	No	No	653	560	Translocate	1		150.730723	-24.131828	0.000000	Ausecology	Within	RoW	338956	Fair	Difficult	Soil
558	0.10	0.10	Unknown	No	No cone	No	No	No	329		Translocate	1		150.728767	-24.133315	0.000000	Ausecology	Within	RoW	338697	Fair	Difficult	Soil
559	0.60	0.60	Unknown	No	No cone	No	No	No	337		Translocate	1		150.728943	-24.133166	0.000000	Ausecology	Within	RoW	338721	Fair	Difficult	Soil
560	5.00	1.00	Female	Yes	No cone	No	No	No	358		Translocate	6	5 seedlings at base	150.730746	-24.131795	0.000000	Ausecology	Within	RoW	338960	Good	Difficult	Soil
561	0.50	0.50	Unknown	No	No cone	No	No	No	644	560	Translocate	1		150.730728	-24.131865	0.000000	Ausecology	Within	RoW	338954	Good	Difficult	Soil
562	0.10	0.10	Unknown	No	No cone	No	No	No	356		Translocate	1		150.730553	-24.131938	0.000000	Ausecology	Within	RoW	338935	Fair	Difficult	Clay/Silt
563	0.50	0.50	Unknown	No	No cone	No	No	No	328		Translocate	1		150.728768	-24.133309	0.000000	Ausecology	Within	RoW	338697	Good	Difficult	Soil
564	0.60	0.60	Unknown	No	No cone	No	No	No	338		Translocate	1		150.728934	-24.133206	0.000000	Ausecology	Within	RoW	338718	Fair	Difficult	Soil
565	0.40	0.40	Unknown	No	No cone	No	No	No	350		Translocate	1		150.730153	-24.132146	0.000000	Ausecology	Within	RoW	338889	Good	Difficult	Rock
566	1.00	1.00	Unknown	No	No cone	No	No	No	643	560	Translocate	1		150.730723	-24.131861	0.000000	Ausecology	Within	RoW	338954	Good	Difficult	Soil
567	1.00	0.00	Unknown	No	No cone	No	No	No	354		Translocate	1		150.730339	-24.132047	0.000000	Ausecology	Within	RoW	338910	Poor	Difficult	Rock
568	0.70	0.50	Unknown	No	No cone	No	No	No	640	560	Translocate	1		150.730729	-24.131848	0.000000	Ausecology	Within	RoW	338955	Good	Difficult	Soil
569	0.40	0.40	Unknown	No	No cone	No	No	No	343		Translocate	1		150.730118	-24.132334	0.000000	Ausecology	Within	RoW	338873	Good	Easy	Clay/Silt
570	0.50	0.50	Unknown	No	No cone	No	No	No	349		Translocate	1		150.730116	-24.132134	0.000000	Ausecology	Within	RoW	338887	Good	Difficult	Rock
571	0.50	0.50	Unknown	No	No cone	No	No	No	658	560	Translocate	1		150.730738	-24.131834	0.000000	Ausecology	Within	RoW	338957	Fair	Difficult	Soil
572	1.30	0.54	Unknown	No	No cone	No	No	No	353		Translocate	1		150.730244	-24.132070	0.000000	Ausecology	Within	RoW	338901	Poor	Difficult	Clay/Silt
573	0.60	0.60	Unknown	No	No cone	No	No	No	336		Translocate	1		150.728978	-24.133179	0.000000	Ausecology	Within	RoW	338723	Good	Difficult	Soil
574	0.80	0.80	Unknown	No	No cone	No	No	No	335		Translocate	1		150.728923	-24.133223	0.000000	Ausecology	Within	RoW	338716	Fair	Difficult	Soil
575	0.30	0.30	Unknown	No	No cone	No	No	No	344		Translocate	1		150.730103	-24.132337	0.000000	Ausecology	Within	RoW	338871	Good	Easy	Clay/Silt
577	0.10	0.10	Unknown	No	No cone	No	No	No	346		Translocate	1		150.730127	-24.132333	0.000000	Ausecology	Within	RoW	338874	Good	Easy	Clay/Silt

578	1.10	1.00	Unknown	No	No cone	No	No	No	334		Translocate	1		150.728786	-24.133374	0.000000	Ausecology	Within	RoW	338694	Fair	Difficult	Soil
579	0.50	0.40	Unknown	No	No cone	No	No	No	324		Translocate	1		150.728725	-24.133328	0.000000	Ausecology	Outside	Outside	338693	Fair	Difficult	Soil
580	0.10	0.10	Unknown	No	No cone	No	No	No	314		Translocate	1		150.728295	-24.134706	0.000000	Ausecology	Within	RoW	338527	Good	Difficult	Soil
581	0.50	0.50	Unknown	No	No cone	No	No	No	331		Translocate	1		150.728774	-24.133331	0.000000	Ausecology	Within	RoW	338696	Good	Difficult	Soil
582	3.40	1.20	Female	Yes	No cone	No	No	No	327		Translocate	1	seed on ground propo	150.728768	-24.133323	0.000000	Ausecology	Within	RoW	338697	Good	Difficult	Soil
583	0.30	0.30	Unknown	No	No cone	No	No	No	333		Translocate	1		150.728802	-24.133347	0.000000	Ausecology	Within	RoW	338697	Fair	Difficult	Soil
585	0.20	0.20	Unknown	No	No cone	No	No	No	315		Translocate	1		150.728275	-24.134706	0.000000	Ausecology	Within	RoW	338528	Good	Difficult	Soil
586	0.10	0.10	Unknown	No	No cone	No	No	No	347		Translocate	1		150.730134	-24.132316	0.000000	Ausecology	Within	RoW	338875	Good	Easy	Clay/Silt
587	0.20	0.20	Unknown	Yes	No cone	No	No	No	657	560	Translocate	1		150.730737	-24.131837	0.000000	Ausecology	Within	RoW	338957	Good	Difficult	Soil
588	1.00	1.00	Unknown	No	No cone	No	No	No	332		Translocate	1		150.728793	-24.133339	0.000000	Ausecology	Within	RoW	338697	Good	Difficult	Soil
589	0.40	0.30	Unknown	No	No cone	No	No	No	325		Translocate	1		150.728762	-24.133341	0.000000	Ausecology	Within	RoW	338695	Fair	Difficult	Soil
590	2.00	0.40	Unknown	No	No cone	No	No	No	316			1		150.728277	-24.134708	0.000000	Ausecology	Within	RoW	338527	Good		
591	0.30	0.30	Unknown	No	No cone	No	No	No	348		Translocate	1		150.730112	-24.132283	0.000000	Ausecology	Within	RoW	338876	Good	Easy	Clay/Silt
592	0.10	0.10	Unknown	Yes	No cone	No	No	No	326		Translocate	1		150.728771	-24.133336	0.000000	Ausecology	Within	RoW	338696	Good	Difficult	Soil
593	0.20	0.20	Unknown	No	No cone	No	No	No	641	560	Translocate	1		150.730731	-24.131849	0.000000	Ausecology	Within	RoW	338955	Good	Difficult	Soil
594	0.40	0.40	Unknown	No	No cone	No	No	No	322		Translocate	1		150.728723	-24.133357	0.000000	Ausecology	Within	RoW	338691	Fair	Difficult	Soil
595	0.60	0.60	Unknown	No	No cone	No	No	No	351		Translocate	1		150.730158	-24.132131	0.000000	Ausecology	Within	RoW	338890	Poor	Difficult	Rock
596	0.10	0.10	Unknown	No	No cone	No	No	No	359		Translocate	3	group of 3 individuals	150.730764	-24.131794	0.000000	Ausecology	Within	RoW	338962	Good	Difficult	Soil
597	2.40	0.80	Unknown	No	No cone	No	No	No	352		Translocate	1		150.730178	-24.132125	0.000000	Ausecology	Within	RoW	338892	Good	Difficult	Rock
598	0.40	0.40	Unknown	No	No cone	No	No	No	642	560	Translocate	1		150.730728	-24.131861	0.000000	Ausecology	Within	RoW	338954	Good	Difficult	Soil
599	0.10	0.10	Unknown	No	No cone	No	No	No	321		Translocate	1		150.728793	-24.133471	0.000000	Ausecology	Within	RoW	338688	Good	Difficult	Soil
600	0.40	0.40	Unknown	No	No cone	No	No	No	317			1		150.728211	-24.134634	0.000000	Ausecology	Within	RoW	338536	Good		
601	5.00	0.20	Unknown	No	No cone	No	No	No	562		Avoid	1	Fair	150.728765	-24.133637	0.000000	David Gatfield	Within	RoW	338674	Fair	Difficult	Soil
602	0.50	0.50	Unknown	No	No cone	No	No	No	563		Translocate	1	Good	150.728798	-24.133597	0.000000	David Gatfield	Within	RoW	338680	Good	Difficult	Soil
604	1.60	0.50	Unknown	No	No cone	No	No	Yes	567		Translocate	1	Good	150.728875	-24.133518	0.000000	David Gatfield	Within	RoW	338691	Good	Moderate	Soil
605	1.50	0.60	Unknown	No	No cone	No	No	Yes	557		Translocate	1	Good	150.728703	-24.133838	0.000000	David Gatfield	Outside	Outside	338644	Good	Difficult	Soil
606	0.40	0.40	Unknown	No	No cone	No	No	No	569		Translocate	1	Good	150.728868	-24.133475	0.000000	David Gatfield	Within	RoW	338694	Good	Moderate	Soil
607	0.10	0.10	Unknown	No	No cone	No	No	No	568		Translocate	1	Good	150.728883	-24.133543	0.000000	David Gatfield	Within	RoW	338690	Good	Moderate	Soil
608	0.30	0.30	Unknown	No	No cone	No	No	No	579		Translocate	1	Good	150.728922	-24.133355	0.000000	David Gatfield	Within	RoW	338706	Good	Moderate	Soil
609	0.50	0.40	Unknown	No	No cone	No	No	No	570		Translocate	1	Fair	150.728925	-24.133473	0.000000	David Gatfield	Within	RoW	338698	Fair	Moderate	Soil
610	1.20	0.80	Unknown	No	No cone	No	No	No	571		Translocate	1	Good	150.728940	-24.133437	0.000000	David Gatfield	Within	RoW	338702	Good	Moderate	Soil
611	0.20	0.20	Unknown	No	No cone	No	No	No	572		Translocate	1	Good	150.728928	-24.133457	0.000000	David Gatfield	Within	RoW	338700	Good	Moderate	Soil
670	0.20	0.20	Unknown	No	No cone	No	No	No	646		Translocate	1	Good	150.730185	-24.132087	0.000000	David Gatfield	Within	RoW	338896	Good	Difficult	Soil
612	0.40	0.40	Unknown	No	No cone	No	No	No	573		Translocate	1	Good	150.728900	-24.133427	0.000000	David Gatfield	Within	RoW	338700	Good	Moderate	Soil
613	0.50	0.50	Unknown	No	No cone	No	No	No	574		Translocate	1	Good	150.728853	-24.133413	0.000000	David Gatfield	Within	RoW	338697	Good	Easily Accessed	Soil
614	0.30	0.30	Unknown	No	No cone	No	No	No	575		Translocate	1	Good	150.728860	-24.133390	0.000000	David Gatfield	Within	RoW	338699	Good	Moderate	Soil
615	0.30	0.30	Unknown	No	No cone	No	No	No	576		Translocate	1	Good	150.728860	-24.133350	0.000000	David Gatfield	Within	RoW	338702	Good	Easily Accessed	Soil
616	0.50	0.50	Unknown	No	No cone	No	No	Yes	577		Translocate	1	Good	150.728850	-24.133370	0.000000	David Gatfield	Within	RoW	338700	Good	Moderate	Soil
617	0.40	0.40	Unknown	No	No cone	No	No	No	578		Translocate	1	Fair	150.728850	-24.133372	0.000000	David Gatfield	Within	RoW	338700	Fair	Moderate	Soil
618	1.50	0.70	Unknown	No	No cone	No	No	No	580		Translocate	1	Good	150.728907	-24.133343	0.000000	David Gatfield	Within	RoW	338706	Good	Moderate	Soil
619	0.30	0.30	Unknown	No	No cone	No	No	No	581		Translocate	1	Good	150.729018	-24.133305	0.000000	David Gatfield	Within	RoW	338717	Good		Soil
620	0.50	0.50	Unknown	No	No cone	No	No	No	580		Translocate	1	Fair	150.728968	-24.133328	0.000000	David Gatfield	Within	RoW	338712	Fair		Soil
621	0.75	0.50	Unknown	No	No cone	No	No	No	583		Translocate	1	Good	150.729033	-24.133398	0.000000	David Gatfield	Within	RoW	338712	Good	Easily Accessed	Soil
622	0.50	0.50	Unknown	No	No cone	No	No	Yes	584		Translocate	1	Good	150.729037	-24.133427	0.000000	David Gatfield	Within	RoW	338710	Good	Easily Accessed	Soil
623	0.50	0.50	Unknown	No	No cone	No	No	No	585		Translocate	1	Good	150.728995	-24.133493	0.000000	David Gatfield	Outside	Outside	338702	Good		Soil
624	0.30	0.30	Unknown	No	No cone	No	No	No	586		Translocate	1	Good	150.729048	-24.133342	0.000000	David Gatfield	Within	RoW	338717	Good	Easily Accessed	Soil
625	0.50	0.40	Unknown	No	No cone	No	No	No	587		Translocate	1	Good	150.729017	-24.133242	0.000000	David Gatfield	Within	RoW	338722	Good	Moderate	Soil
626	0.50	0.50	Unknown	No	No cone	No	No	No	588		Translocate	1	Good	150.729002	-24.133248	0.000000	David Gatfield	Within	RoW	338720	Good	Moderate	Soil
627	1.60	0.30	Unknown	No	No cone	No	No	No	589		Translocate	1	Good	150.729090	-24.133243	0.000000	David Gatfield	Within	RoW	338728	Good	Difficult	Soil
628	1.90	0.00	Unknown	No	No cone	No	No	No	590		Translocate	1	poor	150.729135	-24.133255	0.000000	David Gatfield	Within	RoW	338730	Poor	Difficult	Soil
629	0.50	0.50	Unknown	No	No cone	No	No	No	591		Translocate	1	Good	150.729093	-24.133232	0.000000	David Gatfield	Within	RoW	338729	Good	Difficult	Soil
630	0.30	0.30	Unknown	No	No cone	No	No	No	592		Translocate	1	Good	150.729123	-24.133077	0.000000	David Gatfield	Within	RoW	338742	Good	Difficult	Soil
631	1.80	0.50	Unknown	No	No cone	No	No	No	593		Translocate	1	Good	150.729030	-24.133098	0.000000	David Gatfield	Within	RoW	338733	Good	Moderate	Soil
632	2.20	0.40	Unknown	No	No cone	No	No	No	594		Translocate	1	Good	150.729033	-24.133073	0.000000	David Gatfield	Within	RoW	338735	Good	Moderate	Soil
633	0.60	0.60	Unknown	No	No cone	No	No	No	595		Translocate	1	Good	150.729183	-24.133038	0.000000	David Gatfield	Within	RoW	338749	Good	Easily Accessed	Soil
634	0.50	0.00	Unknown	No	No cone	No	No	No	596		Translocate	1	poor	150.729210	-24.133113	0.000000	David Gatfield	Within	RoW	338746	Poor	Easily Accessed	Soil
635	0.40	0.40	Unknown	No	No cone	No	No	No	600		Translocate	1	Good	150.729258	-24.132920	0.000000	David Gatfield	Within	RoW	338764	Good	Difficult	Soil
636	2.00	0.30	Female	Yes	No cone	No	No	No	603		Translocate	1	Good	150.730137	-24.132297	0.000000	David Gatfield	Within	RoW	338877	Good	Difficult	Soil
637	4.00	0.50	Unknown	No	No cone	No	No	No	601		Translocate	1	Good	150.729662	-24.132612	0.000000	David Gatfield	Within	RoW	338817	Good	Difficult	Soil
638	6.00	0.50	Unknown	No	No cone	No	No	No	602		Translocate	1	Good	150.729610	-24.132605	0.000000	David Gatfield	Within	RoW	338814	Good	Difficult	Soil
639	0.50	0.50	Unknown	No	No cone	No	No	No	604		Translocate	1	Fair	150.730122	-24.132110	0.000000	David Gatfield	Within	RoW	338889	Fair	Difficult	Soil
640	0.50	0.50	Unknown	No	No cone	No	No	No	605		Translocate	1	Good	150.730170	-24.132102	0.000000	David Gatfield	Within	RoW	338893	Good	Difficult	Soil
641	7.00	0.60	Unknown	No	No cone	No	No	No	606		Translocate	1	Good	150.730188	-24.132072	0.000000	David Gatfield	Within	RoW	338897	Good		Soil
642	0.50	0.50	Unknown	No	No cone	No	No	No	607		Translocate	1	Good	150.730145	-24.132068	0.000000	David Gatfield	Within	RoW	338894	Good	Difficult	Soil
643	0.40	0.40	Unknown	No	No cone	No	No	No	608		Translocate	1	poor	150.730135	-24.132055	0.000000	David Gatfield	Outside	Outside	338894	Poor	Difficult	Soil
644	0.50	0.50	Unknown	No	No cone	No	No	No	609		Translocate	1	Fair	150.730110	-24.132057	0.000000	David Gatfield	Outside	Outside	338892	Fair	Difficult	Soil
645	0.60	0.40	Unknown	No	No cone	No	No	No	610		Translocate	1	Fair	150.730197	-24.132088	0.000000	David Gatfield	Within	RoW	338896	Fair	Difficult	Soil
647	1.00	0.50	Unknown	No	No cone	No	No	No	612		Translocate	1	Fair	150.730180	-24.132065	0.000000	David Gatfield	Within	RoW	338897	Fair	Difficult	Rocky

648	1.50	0.30	Unknown	No	No cone	No	No	Yes	613		Translocate	1	Good	150.730393	-24.131945	0.000000	David Gatfield	Within	RoW	338922	Good	Difficult	Soil
649	2.50	0.50	Unknown	No	No cone	No	No	No	614		Translocate	1	Good	150.730342	-24.131870	0.000000	David Gatfield	Outside	Outside	338923	Good	Difficult	Soil
650	1.00	1.00	Unknown	No	No cone	No	No	No	615		Translocate	1	Good	150.730402	-24.131873	0.000000	David Gatfield	Within	RoW	338928	Good	Difficult	Soil
651	0.75	0.75	Unknown	No	No cone	No	No	No	616		Translocate	1	Good	150.730732	-24.131827	0.000000	David Gatfield	Within	RoW	338957	Good	Difficult	Soil
652	0.20	0.20	Unknown	No	No cone	No	No	No	617		Translocate	3	Good; 3 seedling	150.730815	-24.131828	0.000000	David Gatfield	Within	RoW	338963	Good	Difficult	Soil
653	0.20	0.20	Unknown	No	No cone	No	No	No	618		Translocate	1	Good	150.730742	-24.131823	0.000000	David Gatfield	Within	RoW	338958	Good	Difficult	Soil
654	0.50	0.50	Unknown	No	No cone	No	No	No	619		Translocate	1		150.730765	-24.131811	0.000000	Ausecology	Within	RoW	338961	Fair	Difficult	Soil
655	0.20	0.20	Unknown	No	No cone	No	No	No	620		Translocate	1		150.730772	-24.131804	0.000000	Ausecology	Within	RoW	338962	Fair	Difficult	Soil
656	0.20	0.20	Unknown	Yes	No cone	No	No	No	625	560	Translocate	4	4 seedlings	150.730747	-24.131823	0.000000	Ausecology	Within	RoW	338958	Good	Difficult	Soil
657	0.40	0.40	Unknown	No	No cone	No	No	No	628	560	Translocate	1		150.730743	-24.131828	0.000000	Ausecology	Within	RoW	338958	Good	Difficult	Soil
658	0.50	0.50	Unknown	No	No cone	No	No	No	651	560	Translocate	1		150.730701	-24.131854	0.000000	Ausecology	Within	RoW	338953	Fair	Difficult	Soil
659	0.20	0.20	Unknown	No	No cone	No	No	No	645	560	Translocate	1		150.730734	-24.131873	0.000000	Ausecology	Within	RoW	338954	Good	Difficult	Soil
660	0.50	0.50	Unknown	No	No cone	No	No	No	634	560	Translocate	2	2 seedlings	150.730739	-24.131831	0.000000	Ausecology	Within	RoW	338957	Good	Difficult	Soil
661	0.20	0.20	Unknown	No	No cone	No	No	No	633	560	Translocate	1		150.730754	-24.131831	0.000000	Ausecology	Within	RoW	338958	Good	Difficult	Soil
662	0.20	0.20	Unknown	No	No cone	No	No	No	637	560	Translocate	2	2 seedlings	150.730749	-24.131844	0.000000	Ausecology	Within	RoW	338957	Good	Difficult	Soil
663	0.30	0.30	Unknown	No	No cone	No	No	No	622	560	Translocate	1		150.730763	-24.131802	0.000000	Ausecology	Within	RoW	338961	Good	Difficult	Soil
664	1.00	0.75	Unknown	No	No cone	No	No	Yes	647	560	Translocate	1	new growth	150.730724	-24.131873	0.000000	Ausecology	Within	RoW	338953	Good	Difficult	Soil
665	0.20	0.20	Unknown	No	No cone	No	No	No	635		Translocate	8	8 seedlings	150.730741	-24.131826	0.000000	Ausecology	Within	RoW	338958	Good	Difficult	Soil
666	0.20	0.20	Unknown	No	No cone	No	No	No	636	560	Translocate	5	5 seedlings	150.730755	-24.131838	0.000000	Ausecology	Within	RoW	338958	Good	Difficult	Soil
667	0.20	0.20	Unknown	No	No cone	No	No	No	627	560	Translocate	1		150.730772	-24.131816	0.000000	Ausecology	Within	RoW	338961	Good	Difficult	Soil
668	0.10	0.10	Unknown	No	No cone	No	No	No	624	560	Translocate	2	2 seedlings	150.730750	-24.131817	0.000000	Ausecology	Within	RoW	338959	Good	Difficult	Soil
669	1.00	1.00	Unknown	No	No cone	No	No	No	648	560	Translocate	1		150.730722	-24.131861	0.000000	Ausecology	Within	RoW	338954	Good	Difficult	Soil
670	0.60	0.60	Unknown	No	No cone	No	No	No	646	560	Translocate	1		150.730709	-24.131871	0.000000	Ausecology	Within	RoW	338952	Good	Difficult	Soil
671	0.20	0.20	Unknown	No	No cone	No	No	No	621	560	Translocate	1		150.730774	-24.131801	0.000000	Ausecology	Within	RoW	338962	Good	Difficult	Soil
672	0.10	0.10	Unknown	No	No cone	No	No	No	623	560	Translocate	1		150.730755	-24.131802	0.000000	Ausecology	Within	RoW	338961	Good	Difficult	Soil
673	0.20	0.20	Unknown	No	No cone	No	No	No	626	560	Translocate	1		150.730739	-24.131817	0.000000	Ausecology	Within	RoW	338958	Good	Difficult	Soil
674	0.20	0.20	Unknown	No	No cone	No	No	No	629	560	Translocate	1		150.730732	-24.131824	0.000000	Ausecology	Within	RoW	338957	Good	Difficult	Soil
675	0.20	0.20	Unknown	No	No cone	No	No	No	630	560	Translocate	3	3 seedlings	150.730729	-24.131819	0.000000	Ausecology	Within	RoW	338957	Good	Difficult	Soil
676	0.20	0.20	Unknown	No	No cone	No	No	No	631	560	Translocate	1		150.730725	-24.131820	0.000000	Ausecology	Within	RoW	338957	Good	Difficult	Soil
677	0.30	0.30	Unknown	No	No cone	No	No	No	0	560	Translocate	4	4 seedlings	150.730733	-24.131835	0.000000	Ausecology	Within	RoW	338956	Good	Difficult	Soil
678	0.20	0.20	Unknown	No	No cone	No	No	No	652	560	Translocate	1		150.730709	-24.131827	0.000000	Ausecology	Within	RoW	338955	Good	Difficult	Soil
679	0.60	0.40	Unknown	No	No cone	No	No	No	1819		Avoid	1	Fair	150.668285	-24.205415	0.000000	David Gatfield	Within	RoW	326833	Fair	Moderate	
680	0.30	0.30	Unknown	No	No cone	No	No	No	688		Translocate	1		150.668325	-24.205431	0.000000	Ausecology	Within	RoW	326837	Good	Easy	Soil
681	0.90	0.50	Unknown	No	No cone	No	No	No	686		Translocate	1		150.668324	-24.205419	0.000000	Ausecology	Within	RoW	326837	Good	Easy	Soil
682	0.70	0.50	Unknown	No	No cone	No	No	No	684		Translocate	1		150.668337	-24.205420	0.000000	Ausecology	Within	RoW	326838	Good	Easy	Soil
683	2.00	0.70	Unknown	No	No cone	No	No	No	666		Translocate	1		150.668145	-24.205398	0.000000	Ausecology	Within	RoW	326818	Good	Easy	Soil
684	2.80	0.80	Female	Yes	No cone	No	No	No	667		Translocate	1		150.668188	-24.205414	0.000000	Ausecology	Within	RoW	326823	Good	Easy	Soil
685	2.80	0.60	Unknown	No	No cone	No	No	No	668		Translocate	1		150.668186	-24.205402	0.000000	Ausecology	Within	RoW	326823	Good	Easy	Soil
686	0.70	0.70	Unknown	No	No cone	No	No	No	662		Translocate	1		150.730690	-24.131634	0.000000	Ausecology	Within	RoW	338967	Fair	Easy	Soil
687	0.15	0.15	Unknown	No	No cone	No	No	No	660		Translocate	1		150.730762	-24.131664	0.000000	Ausecology	Within	RoW	338971	Good	Difficult	Soil
688	0.30	0.30	Unknown	No	No cone	No	Yes	No	1807		Translocate	1		150.668268	-24.205452	0.000000	David Gatfield	Within	RoW	326831		Moderate	
689	0.20	0.20	Unknown	No	No cone	No	No	No	1806		Translocate	1		150.668275	-24.205440	0.000000	David Gatfield	Within	RoW	326832		Moderate	
690	0.40	0.40	Unknown	No	No cone	No	No	No	1811		Translocate	1	Fair	150.668293	-24.205437	0.000000	David Gatfield	Within	RoW	326834	Fair	Moderate	
691	0.70	0.70	Unknown	No	No cone	No	No	No	710		Translocate	1		150.668341	-24.205497	0.000000	Ausecology	Within	RoW	326838	Good	Easy	Soil
692	0.15	0.15	Unknown	No	No cone	No	No	No	659	560	Translocate	1		150.730782	-24.131774	0.000000	Ausecology	Within	RoW	338965	Fair	Difficult	Soil
693	0.40	0.40	Unknown	No	No cone	No	No	No	690		Translocate	1		150.668304	-24.205442	0.000000	Ausecology	Within	RoW	326835	Good	Easy	Soil
694	1.50	0.40	Unknown	No	No cone	No	No	No	665		Translocate	1		150.730978	-24.131449	0.000000	Ausecology	Within	RoW	339003	Good	Easy	Soil
695	0.40	0.40	Unknown	No	No cone	No	No	No	664		Translocate	1		150.730644	-24.131595	0.000000	Ausecology	Outside	Outside	338966	Good	Easy	Soil
696	4.80	0.60	Unknown	No	No cone	No	No	No	1803		Translocate	1		150.668308	-24.205428	0.000000	David Gatfield	Within	RoW	326835			Soil
697	0.20	0.20	Unknown	No	No cone	No	No	No	649	560	Translocate	1		150.730705	-24.131870	0.000000	Ausecology	Within	RoW	338952	Good	Difficult	Soil
698	0.30	0.30	Unknown	No	No cone	No	No	No	687		Translocate	1		150.668315	-24.205425	0.000000	Ausecology	Within	RoW	326836	Good	Easy	Soil
699	1.00	0.50	Unknown	No	No cone	No	No	No	685		Translocate	1		150.668315	-24.205402	0.000000	Ausecology	Within	RoW	326836	Good	Easy	Soil
700	0.80	0.80	Unknown	No	No cone	No	No	No	661		Translocate	1		150.730797	-24.131612	0.000000	Ausecology	Within	RoW	338977	Good	Easy	Soil
701	0.20	0.20	Unknown	No	No cone	No	No	No	650	560	Translocate	1		150.730700	-24.131863	0.000000	Ausecology	Within	RoW	338952	Good	Difficult	Soil
702	0.10	0.10	Unknown	No	No cone	No	No	No	1812		Translocate	1	Good	150.668248	-24.205442	0.000000	David Gatfield	Within	RoW	326829	Good	Moderate	
704	0.50	0.50	Unknown	No	No cone	No	No	No	663		Translocate	1		150.730726	-24.131596	0.000000	Ausecology	Within	RoW	338973	Good	Easy	Soil
705	0.30	0.30	Unknown	No	No cone	No	No	No	675		Translocate	1		150.668200	-24.205432	0.000000	Ausecology	Within	RoW	326824	Good	Easy	Soil
706	0.70	0.70	Unknown	No	No cone	No	No	No	691		Translocate	1		150.668168	-24.205447	0.000000	Ausecology	Within	RoW	326821	Good	Easy	Soil
707	0.50	0.50	Unknown	No	No cone	No	No	No	672		Translocate	1		150.668207	-24.205409	0.000000	Ausecology	Within	RoW	326825	Good	Easy	Soil
708	0.30	0.30	Unknown	No	No cone	No	No	No	711		Translocate	1		150.668458	-24.205483	0.000000	Ausecology	Within	RoW	326850	Good	Easy	Soil
709	0.30	0.30	Unknown	No	No cone	No	Yes	No	1808		Translocate	1	Fair	150.668267	-24.205435	0.000000	David Gatfield	Within	RoW	326831	Fair	Moderate	
710	0.40	0.40	Unknown	No	No cone	No	No	No	709		Translocate	1		150.668287	-24.205473	0.000000	Ausecology	Within	RoW	326833	Good	Easy	Soil
711	0.50	0.25	Unknown	No	No cone	No	No	No	689		Translocate	1		150.668285	-24.205439	0.000000	Ausecology	Within	RoW	326833	Fair	Easy	Soil
712	1.30	0.70	Unknown	No	No cone	No	No	No	683		Translocate	1		150.668346	-24.205418	0.000000	Ausecology	Within	RoW	326839	Good	Easy	Soil
713	0.30	0.30	Unknown	No	No cone	No	No	No	706		Translocate	3	3 seedlings	150.668282	-24.205460	0.000000	Ausecology	Within	RoW	326832	Good	Easy	Soil
714	0.50	0.50	Unknown	No	No cone	No	No	No	704		Translocate	1		150.668286	-24.205461	0.000000	Ausecology	Within	RoW	326833	Good	Easy	Soil
715	0.80	0.50	Unknown	No	No cone	No	No	No	699		Avoid	1		150.668265	-24.205469	0.000000	Ausecology	Within	RoW	326831	Good	Easy	Soil
716	0.50	0.50	Unknown	No	No cone	No	No	No	676		Translocate	1		150.668182	-24.205428	0.000000	Ausecology	Within	RoW	326822	Good	Easy	Soil
717	0.50	0.50	Unknown	No	No cone	No	No	No	682		Translocate	1		150.668368	-24.205428	0.000000	Ausecology	Within	RoW	326841	Good	Easy	Soil
718	0.75	0.65	Unknown	No	No cone	No	No	No	702		Avoid	1		150.668273	-24.205464	0.000000	Ausecology	Within	RoW	326831	Good	Easy	Soil
719	0.60	0.60	Unknown	No	No cone	No	No	No	705		Translocate	1		150.668271	-24.205459	0.000000	Ausecology	Within	RoW	326831	Good	Easy	Soil
720	0.30	0.30	Unknown	No	No cone	No	No	No	713		Translocate	1		150.668461	-24.205470	0.000000	Ausecology	Within	RoW	326851	Fair	Easy	Soil
721	1.00	0.60	Unknown	No	No cone	No	No	No	677		Translocate	1		150.668171	-24.205436	0.000000	Ausecology	Within	RoW	326821	Good	Easy	Soil
722	0.50	0.50	Unknown	No	No cone	No	No	No	681		Translocate	1		150.668395	-24.205420	0.000000	Ausecology	Within	RoW	326844	Good	Easy	Soil
723	0.75	0.60	Unknown	No	No cone	No	No	No	701		Avoid	1		150.668277	-24.205464	0.000000	Ausecology	Within	RoW	326832	Good	Easy	Soil

724	0.70	0.70	Unknown	No	No cone	No	No	No	707		Translocate	1		150.668292	-24.205466	0.000000	Ausecology	Within	RoW	326833	Good	Easy	Soil
725	0.50	0.30	Unknown	No	No cone	No	No	No	708		Translocate	1		150.668293	-24.205458	0.000000	Ausecology	Within	RoW	326834	Good	Easy	Soil
726	0.50	0.50	Unknown	No	No cone	No	No	No	680		Translocate	1		150.668400	-24.205418	0.000000	Ausecology	Within	RoW	326844	Good	Easy	Soil
727	0.50	0.50	Unknown	No	No cone	No	No	No	673		Translocate	1		150.668192	-24.205412	0.000000	Ausecology	Within	RoW	326823	Good	Easy	Soil
728	0.75	0.75	Unknown	No	No cone	No	No	No	695		Avoid	1		150.668139	-24.205502	0.000000	Ausecology	Outside	Outside	326818	Good	Easy	Soil
729	0.40	0.40	Unknown	No	No cone	No	No	No	714		Avoid	1		150.668452	-24.205520	0.000000	Ausecology	Outside	Outside	326850	Good	Difficult	Soil
730	1.80	0.60	Unknown	No	No cone	No	No	No	712		Avoid	1		150.668469	-24.205478	0.000000	Ausecology	Within	RoW	326851	Good	Easy	Soil
731	0.50	0.50	Unknown	No	No cone	No	No	No	679		Translocate	1		150.668402	-24.205420	0.000000	Ausecology	Within	RoW	326845	Good	Easy	Soil
732	0.30	0.30	Unknown	No	No cone	No	No	No	696		Avoid	2	2 seedlings	150.668228	-24.205507	0.000000	Ausecology	Outside	Outside	326827	Good	Easy	Soil
733	0.50	0.50	Unknown	No	No cone	No	No	No	694		Translocate	1		150.668210	-24.205467	0.000000	Ausecology	Within	RoW	326825	Good	Easy	Soil
734	1.60	0.30	Unknown	No	No cone	No	No	No	716		Translocate	1		150.668531	-24.205448	0.000000	Ausecology	Within	RoW	326858	Good	Easy	Soil
735	0.30	0.30	Unknown	No	No cone	No	No	No	703		Avoid	1		150.668274	-24.205469	0.000000	Ausecology	Within	RoW	326832	Good	Easy	Soil
736	0.70	0.70	Unknown	No	No cone	No	No	No	674		Translocate	1		150.668194	-24.205424	0.000000	Ausecology	Within	RoW	326823	Good	Easy	Soil
737	0.50	0.50	Unknown	No	No cone	No	No	No	678		Translocate	1		150.668242	-24.205438	0.000000	Ausecology	Within	RoW	326828	Good	Easy	Soil
738	0.30	0.30	Unknown	No	No cone	No	No	No	697		Avoid	1		150.668245	-24.205497	0.000000	Ausecology	Within	RoW	326829	Good	Easy	Soil
739	0.50	0.50	Unknown	No	No cone	No	No	No	698		Avoid	1		150.668275	-24.205500	0.000000	Ausecology	Within	RoW	326832	Good	Easy	Soil
740	1.00	0.30	Unknown	No	No cone	No	No	No	715		Avoid	1		150.668518	-24.205511	0.000000	Ausecology	Outside	Outside	326856	Good	Difficult	Soil
741	0.30	0.30	Unknown	No	No cone	No	No	No	1809		Translocate	1	Good	150.668280	-24.205445	0.000000	David Gatfield	Within	RoW	326832	Good	Moderate	
742	1.00	0.70	Unknown	No	No cone	No	Yes	No	1802		Translocate	1		150.668210	-24.205402	0.000000	David Gatfield	Within	RoW	326825		Moderate	
743	0.50	0.50	Unknown	No	No cone	No	Yes	No	1801		Translocate	1		150.668145	-24.205273	0.000000	David Gatfield	Within	RoW	326819		Moderate	
744	0.30	0.30	Unknown	No	No cone	No	No	No	693		Translocate	1		150.668173	-24.205441	0.000000	Ausecology	Within	RoW	326821	Good	Easy	Soil
745	0.50	0.50	Unknown	No	No cone	No	No	No	692		Translocate	1		150.668167	-24.205448	0.000000	Ausecology	Within	RoW	326821	Good	Easy	Soil
746	0.30	0.30	Unknown	No	No cone	No	No	No	1805		Translocate	1		150.668268	-24.205462	0.000000	David Gatfield	Within	RoW	326831		Moderate	Soil
747	0.80	0.60	Unknown	No	No cone	No	Yes	No	1800		Translocate	1		150.667995	-24.205243	0.000000	David Gatfield	Within	RoW	326803			
748	0.30	0.30	Unknown	No	No cone	No	No	No	1810		Avoid	1	Fair	150.668277	-24.205428	0.000000	David Gatfield	Within	RoW	326832	Fair	Moderate	Soil
749	0.40	0.40	Unknown	No	No cone	No	No	No	1804		Translocate	1		150.668285	-24.205453	0.000000	David Gatfield	Within	RoW	326833		Difficult	Soil
750	0.70	0.20	Unknown	No	No cone	No	No	No	671		Translocate	1		150.668203	-24.205395	0.000000	Ausecology	Within	RoW	326824	Good	Easy	Soil
751	1.50	0.50	Unknown	No	No cone	No	Yes		1824		Avoid	1	Fair	150.668338	-24.205203	0.000000	David Gatfield	Outside	Outside	326838	Fair	Difficult	
752	0.50	0.50	Unknown	No	No cone	No	No	No	1818		Avoid	1	Fair	150.668298	-24.205427	0.000000	David Gatfield	Within	RoW	326834	Fair	Moderate	
753	0.10	0.10	Unknown	No	No cone	No	No	No	1821		Translocate	1	Good	150.668298	-24.205447	0.000000	David Gatfield	Within	RoW	326834	Good	Moderate	
754	0.40	0.40	Unknown	No	No cone	No	No	No	1816		Translocate	1		150.668305	-24.205440	0.000000	David Gatfield	Within	RoW	326835		Moderate	
755	0.60	0.50	Unknown	No	No cone	No	No	No	1820		Avoid	1	Fair	150.668375	-24.205337	0.000000	David Gatfield	Within	RoW	326842	Fair		
756	1.20	0.50	Unknown	No	No cone	No	Yes	No	183		Translocate	1	Fair	150.668377	-24.205270	0.000000	David Gatfield	Within	RoW	326842	Fair	Moderate	
757	0.40	0.40	Unknown	No	No cone	No	Yes	No	1827		Avoid	1	Fair	150.668610	-24.205315	0.000000	David Gatfield	Within	RoW	326866	Fair	Moderate	
758	0.30	0.30	Unknown	No	No cone	No	No	No	1831		Avoid	1	Good	150.668592	-24.205425	0.000000	David Gatfield	Within	RoW	326864	Good	Moderate	
759	0.30	0.30	Unknown	No	No cone	No	No	No	1815		Avoid	1		150.668297	-24.205433	0.000000	David Gatfield	Within	RoW	326834		Moderate	
760	0.20	0.20	Unknown	No	No cone	No	No	No	1836		Translocate	4	Good, 4 seedling growing from same burnt base	150.668658	-24.205383	0.000000	David Gatfield	Within	RoW	326871	Good	Moderate	
761	0.80	0.70	Unknown	No	No cone	No	No	No	1828		Translocate	1		150.668633	-24.205420	0.000000	David Gatfield	Within	RoW	326868		Moderate	
762	0.40	0.30	Unknown	No	No cone	No	Yes	No	1822		Avoid	1		150.668425	-24.205425	0.000000	David Gatfield	Within	RoW	326847		Moderate	
763	0.40	0.40	Unknown	No	No cone	No	No	No	1814		Translocate	1	Good	150.668272	-24.205430	0.000000	David Gatfield	Within	RoW	326831	Good	Moderate	
764	1.20	0.60	Unknown	No	No cone	No	Yes	No	1825		Translocate	1	Fair	150.668597	-24.205302	0.000000	David Gatfield	Within	RoW	326864	Fair	Moderate	
765	0.40	0.40	Unknown	No	No cone	No	No	No	1817		Translocate	1	Good	150.668313	-24.205405	0.000000	David Gatfield	Within	RoW	326836	Good	Moderate	
766	0.60	0.40	Unknown	No	No cone	No	Yes	No	1829		Translocate	1	Fair	150.668598	-24.205327	0.000000	David Gatfield	Within	RoW	326865	Fair	Moderate	
767	1.30	0.40	Unknown	No	No cone	No	Yes	No	1826		Translocate	1		150.668592	-24.205333	0.000000	David Gatfield	Within	RoW	326864		Moderate	
768	0.40	0.40	Unknown	No	No cone	No	No	No	1813		Avoid	1	Fair	150.668255	-24.205402	0.000000	David Gatfield	Within	RoW	326830	Fair	Moderate	
769	0.40	0.40	Unknown	No	No cone	No	No	No	1830		Avoid	4	Good, 4 seedling growing from same base	150.668587	-24.205457	0.000000	David Gatfield	Within	RoW	326863	Good	Easily Accessed	
770	0.50	0.50	Unknown	No	No cone	No	Yes	No	1844		Translocate	1	Fair	150.668742	-24.205408	0.000000	David Gatfield	Within	RoW	326879	Fair	Moderate	
771	4.50	0.50	Unknown	No	No cone	No	No	No	1837		Translocate	1	Good	150.668677	-24.205395	0.000000	David Gatfield	Within	RoW	326873	Good	Moderate	
773	1.00	0.60	Unknown	No	No cone	No	No	Yes	1843		Translocate	1		150.668885	-24.205402	0.000000	David Gatfield	Within	RoW	326894		Moderate	
774	0.40	0.40	Unknown	No	No cone	No	No	No	1835		Translocate	1	Good	150.668613	-24.205392	0.000000	David Gatfield	Within	RoW	326866	Good	Moderate	
775	0.50	0.50	Unknown	No	No cone	No	No	No	1845		Translocate	1	Fair	150.668732	-24.205418	0.000000	David Gatfield	Within	RoW	326878	Fair	Moderate	
776	1.30	0.50	Unknown	No	No cone	No	Yes	No	1841		Translocate	1	Fair	150.668835	-24.205385	0.000000	David Gatfield	Within	RoW	326889	Fair	Moderate	
772	1.00	0.40	Unknown	No	No cone	No	Yes	Yes	1847		Translocate	1		150.668750	-24.205455	0.000000	David Gatfield	Within	RoW	326880		Moderate	Rocky
777	0.50	0.50	Unknown	No	No cone	No	No	No	1834		Translocate	1	Good	150.668610	-24.205390	0.000000	David Gatfield	Within	RoW	326866	Good	Moderate	
778	0.40	0.40	Unknown	No	No cone	No	No	No	1833		Translocate	1	Good	150.668633	-24.205425	0.000000	David Gatfield	Within	RoW	326868	Good	Moderate	
779	0.60	0.60	Unknown	No	No cone	No	Yes	No	1842		Translocate	1	Fair	150.668812	-24.205372	0.000000	David Gatfield	Within	RoW	326886	Fair	Moderate	
780	0.40	0.40	Unknown	No	No cone	No	Yes	No	1846		Translocate	1	Fair	150.668765	-24.205452	0.000000	David Gatfield	Within	RoW	326881	Fair	Moderate	
781	1.50	0.30	Unknown	No	No cone	No	No	No	1838		Translocate	1	Good	150.668738	-24.205375	0.000000	David Gatfield	Within	RoW	326879	Good	Moderate	
782	0.30	0.30	Unknown	No	No cone	No	Yes	No	1848		Translocate	1	Fair	150.668775	-24.205437	0.000000	David Gatfield	Within	RoW	326883	Fair	Moderate	
783	0.40	0.40	Unknown	No	No cone	No	No	No	1832		Translocate	1	Good	150.668607	-24.205417	0.000000	David Gatfield	Within	RoW	326865	Good	Moderate	
784	0.50	0.20	Unknown	No	No cone	No	No	Yes	1839		Translocate	1		150.668738	-24.205407	0.000000	David Gatfield	Within	RoW	326879		Moderate	
785	0.50	0.50	Unknown	No	No cone	No	Yes	No	1840		Translocate	1		150.668828	-24.205423	0.000000	David Gatfield	Within	RoW	326888		Moderate	
786	1.70	0.60	Unknown	No	No cone	No	No	No	768		Translocate	1		150.670255	-24.205233	0.000000	Ausecology	Within	RoW	327032	Good	Easy	Soil
787	0.70	0.70	Unknown	No	No cone	No	No	No	757		Translocate	1		150.670118	-24.205313	0.000000	Ausecology	Outside	Outside	327016	Good	Easy	Soil
788	0.70	0.70	Unknown	No	No cone	No	No	No	740		Translocate	1		150.668661	-24.205442	0.000000	Ausecology	Within	RoW	326871	Fair	Easy	Soil
789	0.40	0.40	Unknown	No	No cone	No	No	No	726		Translocate	1		150.668637	-24.205456	0.000000	Ausecology	Within	RoW	326868	Good	Easy	Soil
790	0.20	0.20	Unknown	No	No cone	No	No	No	717		Translocate	4	4 seedlings	150.668533	-24.205434	0.000000	Ausecology	Within	RoW	326858	Good	Easy	Soil
791	0.20	0.20	Unknown	No	No cone	No	No	No	760	792	Translocate	1		150.670107	-24.205318	0.000000	Ausecology	Outside	Outside	327015	Good	Easy	Soil
792	2.60	0.60	Female	No	No cone	No	No	No	758		Translocate	1		150.670121	-24.205309	0.000000	Ausecology	Outside	Outside	327016	Good	Easy	Soil
793	0.50	0.50	Unknown	No	No cone	No	No	No	741		Translocate	1		150.668668	-24.205441	0.000000	Ausecology	Within	RoW	326872	Fair	Easy	Soil
794	0.50	0.50	Unknown	No	No cone	No	No	No	724		Translocate	2	2 seedlings	150.668647	-24.205448	0.000000	Ausecology	Within	RoW	326869	Good	Easy	Soil
795	0.70	0.70	Unknown	No	No cone	No	No	No	718		Translocate	1		150.668543	-24.205463	0.000000	Ausecology	Within	RoW	326859	Good	Easy	Soil
796	0.70	0.70	Unknown	No	No cone	No	No	No	755		Translocate	1		150.669859	-24.205345	0.000000	Ausecology	Within	RoW	326990	Good	Easy	Soil
797	0.60	0.60	Unknown	No	No cone	No	No	No	762	792	Translocate	1		150.670122	-24.205316	0.000000	Ausecology	Outside	Outside	327016	Good	Easy	Soil

798	0.60	0.50	Unknown	No	No cone	No	No	No	745		Translocate	1		150.668663	-24.205481	0.000000	Ausecology	Within	RoW	326871	Good	Easy	Soil	
799	0.30	0.30	Unknown	No	No cone	No	No	No	735		Translocate	4	4 seedlings	150.668644	-24.205443	0.000000	Ausecology	Within	RoW	326869	Good	Easy	Soil	
800	0.30	0.30	Unknown	No	No cone	No	No	No	719		Translocate	1		150.668570	-24.205471	0.000000	Ausecology	Within	RoW	326862	Good	Easy	Soil	
801	0.70	0.60	Unknown	No	No cone	No	No	No	756		Translocate	1		150.669962	-24.205358	0.000000	Ausecology	Outside	Outside	326999	Good	Easy	Soil	
802	0.50	0.50	Unknown	No	No cone	No	No	No	759	792	Translocate	1		150.670110	-24.205322	0.000000	Ausecology	Outside	Outside	327015	Good	Easy	Soil	
803	1.20	0.50	Unknown	No	No cone	No	No	No	747		Translocate	1		150.669409	-24.205484	0.000000	Ausecology	Within	RoW	326947	Good	Easy	Soil	
804	0.30	0.30	Unknown	No	No cone	No	No	No	734		Translocate	4	4 seedlings	150.668645	-24.205444	0.000000	Ausecology	Within	RoW	326869	Good	Easy	Soil	
805	1.00	0.40	Unknown	No	No cone	No	No	No	720		Avoid	1		150.668539	-24.205519	0.000000	Ausecology	Outside	Outside	326858	Good	Difficult	Soil	
807	0.10	0.10	Unknown	No	No cone	No	No	No	761	792	Translocate	1		150.670107	-24.205313	0.000000	Ausecology	Outside	Outside	327015	Good	Easy	Soil	
808	2.00	0.40	Unknown	No	No cone	No	No	No	748		Translocate	1		150.669453	-24.205392	0.000000	Ausecology	Within	RoW	326951	Good	Easy	Soil	
809	0.30	0.30	Unknown	No	No cone	No	No	No	733		Translocate	3	2 seedlings	150.668647	-24.205446	0.000000	Ausecology	Within	RoW	326869	Good	Easy	Soil	
810	0.30	0.30	Unknown	No	No cone	No	No	No	721		Translocate	1		150.668617	-24.205459	0.000000	Ausecology	Within	RoW	326866	Good	Easy	Soil	
811	0.60	0.50	Unknown	No	No cone	No	No	No	746		Translocate	1		150.668659	-24.205482	0.000000	Ausecology	Within	RoW	326871	Good	Easy	Soil	
812	0.10	0.10	Unknown	No	No cone	No	No	No	763	792	Translocate	1		150.670122	-24.205327	0.000000	Ausecology	Outside	Outside	327016	Good	Easy	Soil	
813	2.40	0.40	Unknown	No	No cone	No	No	No	749		Translocate	1		150.669478	-24.205432	0.000000	Ausecology	Within	RoW	326954	Good	Easy	Soil	
814	0.30	0.30	Unknown	No	No cone	No	No	No	736		Translocate	1		150.668639	-24.205441	0.000000	Ausecology	Within	RoW	326869	Good	Easy	Soil	
815	0.60	0.60	Unknown	No	No cone	No	No	No	722		Translocate	1		150.668633	-24.205444	0.000000	Ausecology	Within	RoW	326868	Good	Easy	Soil	
816	0.50	0.50	Unknown	No	No cone	No	No	No	742		Translocate	1		150.668663	-24.205457	0.000000	Ausecology	Within	RoW	326871	Good	Easy	Soil	
817	0.60	0.30	Unknown	No	No cone	No	No	No	764	792	Avoid	1		150.670127	-24.205330	0.000000	Ausecology	Outside	Outside	327016	Good	Easy	Soil	
818	3.00	0.40	Female	Yes	No cone	No	No	No	750		Translocate	1		150.669580	-24.205422	0.000000	Ausecology	Within	RoW	326960	Good	Easy	Soil	
819	0.40	0.30	Unknown	No	No cone	No	No	No	737		Translocate	3	2 seedlings	150.668632	-24.205436	0.000000	Ausecology	Within	RoW	326868	Good	Easy	Soil	
820	0.30	0.30	Unknown	No	No cone	No	No	No	723		Translocate	1		150.668633	-24.205451	0.000000	Ausecology	Within	RoW	326868	Good	Easy	Soil	
821	0.50	0.50	Unknown	No	No cone	No	No	No	744		Translocate	1		150.668642	-24.205466	0.000000	Ausecology	Within	RoW	326869	Good	Easy	Soil	
822	0.60	0.60	Unknown	No	No cone	No	No	No	765	792	Translocate	2	2 plants	150.670132	-24.205326	0.000000	Ausecology	Outside	Outside	327017	Good	Easy	Soil	
823	0.60	0.60	Unknown	No	No cone	No	No	No	751		Translocate	4	4 heads	150.669598	-24.205411	0.000000	Ausecology	Within	RoW	326962	Good	Easy	Soil	
824	0.50	0.50	Unknown	No	No cone	No	No	No	738		Translocate	1		150.668654	-24.205446	0.000000	Ausecology	Within	RoW	326870	Good	Easy	Soil	
825	0.30	0.30	Unknown	No	No cone	No	No	No	724		Translocate	1		150.668647	-24.205463	0.000000	Ausecology	Within	RoW	326869	Good	Easy	Soil	
826	0.70	0.30	Unknown	No	No cone	No	No	No	743		Translocate	1		150.668666	-24.205454	0.000000	Ausecology	Within	RoW	326871	Good	Easy	Soil	
827	0.15	0.15	Unknown	No	No cone	No	No	No	767	792	Translocate	1		150.670129	-24.205316	0.000000	Ausecology	Outside	Outside	327017	Good	Easy	Soil	
828	0.60	0.60	Unknown	No	No cone	No	No	No	752		Translocate	1		150.669593	-24.205425	0.000000	Ausecology	Within	RoW	326961	Good	Easy	Soil	
829	0.50	0.50	Unknown	No	No cone	No	No	No	739		Translocate	1	one plant with multiple head	150.668656	-24.205447	0.000000	Ausecology	Within	RoW	326870	Good	Easy	Soil	
830	0.50	0.50	Unknown	No	No cone	No	No	No	725		Translocate	1		150.668648	-24.205456	0.000000	Ausecology	Within	RoW	326870	Good	Easy	Soil	
831	1.20	0.50	Unknown	No	No cone	No	No	No	753		Translocate	1		150.669651	-24.205445	0.000000	Ausecology	Within	RoW	326966	Good	Easy	Soil	
832	0.30	0.30	Unknown	No	No cone	No	No	No	766	792	Translocate	1		150.670133	-24.205325	0.000000	Ausecology	Outside	Outside	327017	Good	Easy	Soil	
833	0.10	0.10	Unknown	No	No cone	No	No	Yes	1861		Translocate	1	Good	150.669753	-24.205150	0.000000	David Gatfield	Within	RoW	326987	Good	Moderate		
834	1.70	0.40	Unknown	Yes	No cone	No	Yes	No	1885		Translocate	1		150.671303	-24.204600	0.000000	David Gatfield	Within	RoW	327156		Difficult		
835	1.40	0.40	Unknown	No	No cone	No	Yes	No	1874		Avoid	1	Fair	150.670568	-24.205165	0.000000	David Gatfield	Outside	Outside	327065	Fair	Moderate		
836	0.30	0.00	Unknown	No	No cone	No	Yes		1850		Translocate	1	poor	150.668782	-24.205507	0.000000	David Gatfield	Outside	Outside	326883	Poor	Moderate	Rocky	
837	0.80	0.50	Unknown	No	No cone	No	Yes	No	1856		Translocate	1	Good	150.668688	-24.205428	0.000000	David Gatfield	Within	RoW	326874	Good	Moderate		
838	1.70	0.40	Unknown	No	No cone	No	Yes	No	1860		Translocate	1	Fair	150.669698	-24.205155	0.000000	David Gatfield	Outside	Outside	326981	Fair	Moderate		
839	0.40	0.40	Unknown	No	No cone	No	Yes	No	1871		Avoid	1	Fair	150.670418	-24.205207	0.000000	David Gatfield	Outside	Outside	327049	Fair	Moderate		
840	1.00	0.40	Unknown	No	No cone	No	Yes	No	1863		Translocate	1		150.670047	-24.205078	0.000000	David Gatfield	Within	RoW	327018		Moderate		
841	1.20	0.60	Unknown	No	No cone	No	Yes	No	1877		Translocate	1		150.670162	-24.204988	0.000000	David Gatfield	Within	RoW	327032		Moderate		
842	0.40	0.40	Unknown	No	No cone	Yes	No	No	1858		Avoid	1	Good	150.668853	-24.205418	0.000000	David Gatfield	Within	RoW	326890	Good	Moderate		
843	1.60	0.60	Unknown	No	No cone	No	Yes	No	1857		Translocate	1	Fair	150.668647	-24.205457	0.000000	David Gatfield	Within	RoW	326869	Fair	Moderate		
844	0.40	0.40	Unknown	No	No cone	No	No	No	1882		Translocate	1	Good	150.670950	-24.204762	0.000000	David Gatfield	Within	RoW	327116	Good	Moderate		
845	1.80	0.70	Unknown	No	No cone	No	Yes	No	7865		Translocate	1	Fair	150.670432	-24.205168	0.000000	David Gatfield	Within	RoW	327051	Fair	Moderate		
846	2.70	0.50	Unknown	No	No cone	No	Yes	No	1888		Translocate	1	Fair	150.671065	-24.204913	0.000000	David Gatfield	Within	RoW	327122	Fair	Moderate		
847	0.40	0.40	Unknown	No	No cone	No	No	No	1855		Translocate	1	poor	150.668723	-24.205407	0.000000	David Gatfield	Within	RoW	326877	Poor	Moderate		
848	1.10	0.40	Unknown	No	No cone	No	No	No	1891		Translocate	1	Fair	150.671548	-24.204675	0.000000	David Gatfield	Within	RoW	327177	Fair	Moderate		
849	0.50	0.50	Unknown	No	No cone	No	No	No	1881		Translocate	1		150.670830	-24.204932	0.000000	David Gatfield	Within	RoW	327098		Easily Accessed		
850	0.60	0.60	Unknown	No	No cone	No	No	No	1866		Translocate	1	Good	150.670493	-24.205122	0.000000	David Gatfield	Within	RoW	327059	Good			
851	1.40	0.70	Unknown	No	No cone	No	Yes	No	1879			1	Fair	150.670077	-24.205018	0.000000	David Gatfield	Within	RoW	327023	Fair	Moderate	Rocky	
852	0.50	0.50	Unknown	No	No cone	No	No	No	1854		Translocate	1	Good	150.668750	-24.205402	0.000000	David Gatfield	Within	RoW	326880	Good	Moderate		
853	1.20	0.80	Unknown	No	No cone	No	Yes	No	1864		Avoid	1	Fair	150.670075	-24.204957	0.000000	David Gatfield	Outside	Outside	327025	Fair	Moderate		
854	2.00	0.60	Unknown	No	No cone	No	Yes	No	1889		Avoid	1	Fair	150.671043	-24.204950	0.000000	David Gatfield	Outside	Outside	327118	Fair	Moderate		
855	1.70	0.80	Unknown	No	No cone	No	Yes	No	1883		Translocate	1		150.670957	-24.204715	0.000000	David Gatfield	Within	RoW	327118		Moderate		
856	1.60	0.70	Unknown	No	No cone	No	No	No	791		Avoid	1		150.671484	-24.204818	0.000000	Ausecology	Outside	Outside	327165	Good	Easy	Soil	
857	0.30	0.30	Unknown	No	No cone	No	No	No	1852		Translocate	1	Fair	150.668762	-24.205437	0.000000	David Gatfield	Within	RoW	326881	Fair	Moderate	Rocky	
858	0.40	0.40	Unknown	No	No cone	No	No	No	1853		Translocate	1	Fair	150.668757	-24.205428	0.000000	David Gatfield	Within	RoW	326881	Fair	Moderate		
859	0.70	0.50	Unknown	No	No cone	Yes	Yes	No	1867		Translocate	1	Good	150.670440	-24.205113	0.000000	David Gatfield	Within	RoW	327054	Good	Moderate		
860	0.60	0.60	Unknown	No	No cone	No	Yes	No	1869		Avoid	1		150.670352	-24.205198	0.000000	David Gatfield	Within	RoW	327043		Moderate		
861	0.35	0.35	Unknown	No	No cone	No	Yes	No	1851		Translocate	1	Fair	150.668775	-24.205393	0.000000	David Gatfield	Within	RoW	326883	Fair	Moderate		
862	0.60	0.60	Unknown	No	No cone	No	Yes	No	1868		Translocate	1	Fair	150.670525	-24.205103	0.000000	David Gatfield	Within	RoW	327063	Fair	Moderate		
863	0.60	0.60		No	No cone	No	No	Yes	1859		Translocate	1		150.669550	-24.205335	0.000000	David Gatfield	Within	RoW	326961		Moderate		
864	1.40	0.70	Unknown	No	No cone	No	Yes	No	1886		Translocate	1		150.671247	-24.204813	0.000000	David Gatfield	Within	RoW	327143		Moderate		
865	0.60	0.30	Unknown	No	No cone	Yes	Yes	Yes	1875		Avoid	1		150.670487	-24.204982	0.000000	David Gatfield	Within	RoW	327064		Moderate		
866	0.90	0.80	Unknown	No	No cone	No	Yes	No	1878		Translocate	1	Fair	150.670087	-24.204988	0.000000	David Gatfield	Outside	Outside	327025	Fair	Moderate		
867	1.20	0.60	Unknown	No	No cone	No	No	No	1849		Translocate	1	Fair	150.668738	-24.205507	0.000000	David Gatfield	Outside	Outside	326879	Fair	Moderate		
868	1.20	0.80	Unknown	No	No cone	No	Yes	No	1880		Translocate	1	Fair	150.670693	-24.204893	0.000000	David Gatfield	Within	RoW	327087	Fair	Moderate		
898	0.40	0.40	Unknown	No	No cone	No	No	No	1890		Translocate	1	Good	150.671395	-24.204750	0.000000	David Gatfield	Within	RoW	327159	Good	Moderate		
869	0.50	0.50	Unknown	No	No cone	No	Yes	No	1870		Avoid	1	Fair	150.670370	-24.205207	0.000000	David Gatfield	Outside	Outside	327044	Fair	Moderate		
870	0.70	0.70	Unknown	No	No cone	No	No	No	1862		Translocate	1		150.669750	-24.205133	0.000000	David Gatfield	Outside	Outside	326987		Moderate		
871	1.40	0.50	Unknown	No	No cone	No	Yes	No	1873		Avoid	1	Fair	150.670430	-24.205217	0.000000	David Gatfield	Outside	Outside	327049	Fair	Moderate		

872	0.80	0.80	Unknown	No	No cone	No	Yes	No	1872		Avoid	1	Fair	150.670413	-24.205212	0.000000	David Gatfield	Outside	Outside	327048	Fair	Moderate	
873	0.40	0.40	Unknown	No	No cone	No	No	No	1887		Translocate	1	Good	150.671207	-24.204815	0.000000	David Gatfield	Within	RoW	327139	Good	Moderate	
874	1.20	0.60	Unknown	No	No cone	No	Yes	No	1884		Translocate	1		150.671198	-24.204658	0.000000	David Gatfield	Within	RoW	327144		Moderate	
875	0.80	0.70	Unknown	No	No cone	No	Yes	No	1876		Translocate	1	Fair	150.670315	-24.205000	0.000000	David Gatfield	Within	RoW	327046	Fair	Moderate	
876	0.50	0.50	Unknown	No	No cone	No	No	No	823		Avoid	1		150.672311	-24.204741	0.000000	Ausecology	Outside	Outside	327259	Good	Easy	Soil
877	0.80	0.60	Unknown	No	No cone	No	No	No	801		Avoid	1		150.671819	-24.204743	0.000000	Ausecology	Outside	Outside	327209	Good	Easy	Soil
878	0.60	0.60	Unknown	No	No cone	No	No	No	845		Translocate	1		150.675525	-24.205438	0.000000	Ausecology	Within	RoW	327625	Good	Easy	Soil
879	1.70	0.50	Unknown	No	No cone	No	No	No	800		Avoid	1		150.671814	-24.204768	0.000000	Ausecology	Outside	Outside	327209	Good	Easy	Soil
880	0.60	0.30	Unknown	No	No cone	No	No	No	793		Avoid	1		150.671438	-24.204781	0.000000	Ausecology	Within	RoW	327162	Fair	Easy	Soil
881	0.50	0.50	Unknown	No	No cone	No	No	No	818		Avoid	1		150.672245	-24.204737	0.000000	Ausecology	Within	RoW	327252	Good	Easy	Soil
882	1.50	0.50	Unknown	No	No cone	No	No	No	798		Avoid	1		150.671687	-24.204745	0.000000	Ausecology	Outside	Outside	327196	Good	Easy	Soil
883	1.00	0.70	Unknown	No	No cone	No	No	No	832		Avoid	1		150.674344	-24.204801	0.000000	Ausecology	Outside	Outside	327466	Good	Easy	Soil
884	1.60	0.40	Unknown	No	No cone	No	No	No	799		Avoid	1		150.671708	-24.204776	0.000000	Ausecology	Outside	Outside	327198	Good	Easy	Soil
885	0.60	0.30	Unknown	No	No cone	No	No	No	792		Avoid	1		150.671444	-24.204782	0.000000	Ausecology	Within	RoW	327163	Fair	Easy	Soil
886	1.00	0.60	Unknown	No	No cone	No	No	No	784		Avoid	1		150.670840	-24.205046	0.000000	Ausecology	Outside	Outside	327095	Good	Easy	Soil
887	0.50	0.50	Unknown	No	No cone	No	No	No	816		Avoid	1		150.672240	-24.204745	0.000000	Ausecology	Outside	Outside	327252	Good	Easy	Soil
888	2.00	0.40	Unknown	No	No cone	No	No	No	831		Translocate	1		150.674357	-24.204763	0.000000	Ausecology	Within	RoW	327467	Good	Easy	Soil
889	0.50	0.50	Unknown	No	No cone	No	No	No	814		Avoid	1		150.672231	-24.204770	0.000000	Ausecology	Outside	Outside	327251	Good	Easy	Soil
890	0.80	0.40	Unknown	No	No cone	No	No	No	795		Avoid	1		150.671635	-24.204736	0.000000	Ausecology	Outside	Outside	327190	Good	Easy	Soil
891	0.40	0.40	Unknown	No	No cone	No	No	No	819		Avoid	1		150.672259	-24.204739	0.000000	Ausecology	Within	RoW	327254	Good	Easy	Soil
892	0.30	0.30	Unknown	No	No cone	No	No	No	815		Avoid	1		150.672236	-24.204750	0.000000	Ausecology	Outside	Outside	327252	Good	Easy	Soil
893	0.50	0.50	Unknown	No	No cone	No	No	No	820		Avoid	1		150.672247	-24.204751	0.000000	Ausecology	Outside	Outside	327253	Good	Easy	Soil
894	1.20	0.30	Unknown	No	No cone	No	No	No	796		Avoid	1		150.671660	-24.204711	0.000000	Ausecology	Within	RoW	327193	Fair	Easy	Soil
895	1.20	0.50	Unknown	No	No cone	No	No	No	797		Avoid	1		150.671690	-24.204709	0.000000	Ausecology	Within	RoW	327196	Good	Easy	Soil
896	0.70	0.70	Unknown	No	No cone	No	No	No	1937		Translocate	1		150.675170	-24.205287	0.000000	David Gatfield	Within	RoW	327586		Easily Accessed	
897	1.30	0.50	Unknown	No	No cone	No	No	No	794		Translocate	1		150.671607	-24.204744	0.000000	Ausecology	Outside	Outside	327188	Good	Easy	Soil
899	0.20	0.20	Unknown	No	No cone	No	No	No	790		Avoid	1		150.671034	-24.204988	0.000000	Ausecology	Outside	Outside	327116	Good	Easy	Soil
900	0.10	0.10	Unknown	No	No cone	No	No	No	789		Avoid	1		150.671027	-24.204978	0.000000	Ausecology	Outside	Outside	327116	Good	Easy	Soil
901	0.70	0.50	Unknown	No	No cone	No	No	No	788		Avoid	1		150.670996	-24.204989	0.000000	Ausecology	Outside	Outside	327112	Good	Easy	Soil
902	0.50	0.50	Unknown	No	No cone	No	No	No	781		Avoid	2	2 plants	150.670738	-24.205078	0.000000	Ausecology	Outside	Outside	327084	Good	Easy	Soil
903	0.50	0.50	Unknown	No	No cone	No	No	No	786		Avoid	1		150.670917	-24.205009	0.000000	Ausecology	Outside	Outside	327104	Good	Easy	Soil
904	0.80	0.50	Unknown	No	No cone	No	No	No	777		Avoid	1		150.670699	-24.205115	0.000000	Ausecology	Outside	Outside	327079	Good	Easy	Soil
905	0.20	0.20	Unknown	No	No cone	No	No	No	773	792	Avoid	1		150.670124	-24.205309	0.000000	Ausecology	Outside	Outside	327017	Good	Easy	Soil
906	1.80	0.60	Unknown	No	No cone	No	No	No	787		Avoid	1		150.670999	-24.204955	0.000000	Ausecology	Within	RoW	327114	Good	Easy	Soil
907	0.50	0.50	Unknown	No	No cone	No	No	No	783		Translocate	1		150.670620	-24.205045	0.000000	Ausecology	Within	RoW	327074	Good	Easy	Soil
908	1.00	0.30	Unknown	No	No cone	No	No	No	776		Avoid	1		150.670709	-24.205104	0.000000	Ausecology	Outside	Outside	327080	Fair	Easy	Soil
909	0.15	0.15	Unknown	No	No cone	No	No	No	772	792	Avoid	1		150.670124	-24.205309	0.000000	Ausecology	Outside	Outside	327017	Good	Easy	Soil
910	0.20	0.20	Unknown	No	No cone	No	No	No	770	792	Avoid	2	2 seedlings	150.670132	-24.205315	0.000000	Ausecology	Outside	Outside	327017	Good	Easy	Soil
911	0.50	0.50	Unknown	No	No cone	No	No	No	785		Translocate	1		150.670915	-24.204998	0.000000	Ausecology	Outside	Outside	327104	Good	Easy	Soil
912	0.40	0.40	Unknown	No	No cone	No	No	No	782		Avoid	1		150.670748	-24.205095	0.000000	Ausecology	Outside	Outside	327085	Good	Easy	Soil
913	1.50	0.40	Unknown	No	No cone	No	No	No	775		Avoid	1		150.670718	-24.205095	0.000000	Ausecology	Outside	Outside	327082	Good	Easy	Soil
914	1.00	0.40	Unknown	No	No cone	No	No	No	778		Avoid	1		150.670708	-24.205124	0.000000	Ausecology	Outside	Outside	327080	Good	Easy	Soil
916	1.20	0.50	Unknown	No	No cone	No	No	No	780		Avoid	1		150.670739	-24.205089	0.000000	Ausecology	Outside	Outside	327084	Good	Easy	Soil
917	1.40	0.60	Unknown	No	No cone	No	No	No	779		Avoid	1		150.670732	-24.205103	0.000000	Ausecology	Outside	Outside	327083	Good	Easy	Soil
918	2.00	0.40	Unknown	No	No cone	No	No	No	774		Avoid	1		150.670637	-24.205122	0.000000	Ausecology	Outside	Outside	327073	Good	Easy	Soil
919	0.30	0.30	Unknown	No	No cone	No	No	No	771	792	Avoid	1		150.670130	-24.205310	0.000000	Ausecology	Outside	Outside	327017	Good	Easy	Soil
920	0.30	0.30	Unknown	No	No cone	No	No	No	769		Translocate	1		150.670237	-24.205254	0.000000	Ausecology	Outside	Outside	327030	Good	Easy	Soil
921	1.60	0.50	Unknown	No	No cone	No	Yes	No	1908		Translocate	4	Fair, 4 seedling growing from base	150.672473	-24.204592	0.000000	David Gatfield	Within	RoW	327275	Fair	Moderate	
922	0.80	0.40	Unknown	No	No cone	No	Yes	No	1909		Translocate	1	Fair	150.672573	-24.204582	0.000000	David Gatfield	Within	RoW	327286	Fair		
923	0.60	0.60	Unknown	No	No cone	No	No	No	1914		Translocate	1	Good	150.673153	-24.204675	0.000000	David Gatfield	Within	RoW	327345	Good		
924	0.80	0.80	Unknown	No	No cone	No	No	No	1934		Translocate	1		150.675055	-24.204968	0.000000	David Gatfield	Within	RoW	327554		Moderate	
925	0.70	0.50	Unknown	No	No cone	No	No	No	1910		Translocate	1	Good	150.672390	-24.204688	0.000000	David Gatfield	Within	RoW	327267	Good	Moderate	
926	1.40	0.40	Unknown	No	No cone	No	Yes	No	1893		Translocate	1	Fair	150.671627	-24.204423	0.000000	David Gatfield	Outside	Outside	327189	Fair	Moderate	
927	1.00	0.40	Unknown	No	No cone	No	No	No	1898		Translocate	1	Good	150.671945	-24.204692	0.000000	David Gatfield	Within	RoW	327222	Good	Moderate	
928	1.50	0.60	Unknown	No	No cone	No	Yes	No	1897		Translocate	1	Good	150.671910	-24.204735	0.000000	David Gatfield	Outside	Outside	327218	Good	Moderate	
929	1.80	0.50	Unknown	No	No cone	No	No	No	1906		Avoid	1		150.672412	-24.204473	0.000000	David Gatfield	Within	RoW	327269		Moderate	
930	0.70	0.70	Unknown	No	No cone	No	No	No	1935		Translocate	1		150.675243	-24.205240	0.000000	David Gatfield	Within	RoW	327588		Moderate	
931	1.60	0.40	Unknown	No	No cone	No	Yes	No	1892		Avoid	1	Fair	150.671597	-24.204473	0.000000	David Gatfield	Within	RoW	327186	Fair	Moderate	
932	0.70	0.70	Unknown	No	No cone	No	No	No	1932		Translocate	1	Good	150.674932	-24.204817	0.000000	David Gatfield	Within	RoW	327534	Good	Moderate	
933	1.00	0.60	Unknown	No	No cone	No	No	No	1894		Translocate	1	Fair	150.671745	-24.204667	0.000000	David Gatfield	Within	RoW	327202	Fair	Moderate	
934	0.60	0.30	Unknown	No	No cone	No	No	No	1895		Translocate	1	Good	150.671655	-24.204652	0.000000	David Gatfield	Within	RoW	327192	Good	Moderate	
935	0.60	0.60	Unknown	No	No cone	No	No	No	1925		Translocate	1		150.674578	-24.204750	0.000000	David Gatfield	Within	RoW	327501		Easily Accessed	
936	1.30	0.60	Unknown	No	No cone	No	No	No	1936		Translocate	1		150.675188	-24.205287	0.000000	David Gatfield	Within	RoW	327587		Moderate	
937	1.70	0.80	Unknown	No	No cone	No	Yes	No	1911		Translocate	1	Fair	150.672618	-24.204500	0.000000	David Gatfield	Within	RoW	327290	Fair	Moderate	
938	1.10	0.50	Unknown	No	No cone	No	Yes	No	1896		Avoid	1	Fair	150.671892	-24.204605	0.000000	David Gatfield	Within	RoW	327216	Fair	Moderate	
939	0.80	0.80	Unknown	No	No cone	No	No	No	1933		Translocate	1	Fair	150.675032	-24.204825	0.000000	David Gatfield	Within	RoW	327543	Fair	Moderate	
940	1.70	0.50	Unknown	No	No cone	No	No	No	1924		Translocate	1		150.674420	-24.204683	0.000000	David Gatfield	Within	RoW	327473		Easily Accessed	
941	0.40	0.40	Unknown	No	No cone	No	No	No	1931		Translocate	1		150.674897	-24.204782	0.000000	David Gatfield	Within	RoW	327529		Moderate	
942	1.00	0.60	Unknown	No	No cone	No	No	No	1907		Translocate	1	Good	150.672450	-24.204605	0.000000	David Gatfield	Within	RoW	327273	Good	Moderate	
943	0.50	0.50	Unknown	No	No cone		No	No	1930		Translocate	1		150.674900	-24.204770	0.000000	David Gatfield	Within	RoW	327528		Moderate	
944	1.20	0.60	Unknown	No	No cone	No	Yes	No	1903		Translocate	1	Fair	150.672172	-24.204590	0.000000	David Gatfield	Within	RoW	327245	Fair	Moderate	
945	1.00	0.60	Unknown	No	No cone	No	No	No	1922		Translocate	1	Good	150.674417	-24.204713	0.000000	David Gatfield	Within	RoW	327473	Good	Moderate	

946	0.60	0.60	Unknown	No	No cone	No	No	No	1915		Translocate	1		150.673593	-24.204592	0.000000	David Gatfield	Within	RoW	327389		Easily Accessed	
496	1.80	0.40	Unknown	No	No cone	No	No	No	1938		Translocate	1		150.675273	-24.205415	0.000000	David Gatfield	Outside	Outside	327603		Moderate	
947	0.80	0.50	Unknown	No	No cone	No	Yes	No	1927		Translocate	1	Fair	150.674757	-24.204653	0.000000	David Gatfield	Within	RoW	327509	Fair		
948	0.50	0.50	Unknown	No	No cone	No	No	No	1900		Translocate	1		150.671930	-24.204753	0.000000	David Gatfield	Outside	Outside	327220		Moderate	
949	1.50	0.30	Unknown	No	No cone	No	No	No	1904		Translocate	1	Fair	150.672298	-24.204657	0.000000	David Gatfield	Within	RoW	327258	Fair	Moderate	
950	1.25	0.40	Unknown	No	No cone	No	No	No	1902		Translocate	1	Fair	150.672165	-24.204603	0.000000	David Gatfield	Within	RoW	327244	Fair	Moderate	
951	0.70	1.00	Unknown	No	No cone	No	No	No	1918		Translocate	1		150.673455	-24.204695	0.000000	David Gatfield	Within	RoW	327375		Easily Accessed	
952	0.50	0.50	Unknown	No	No cone	No	No	No	1928		Translocate	1		150.674800	-24.204773	0.000000	David Gatfield	Within	RoW	327521		Moderate	
953	0.90	0.60	Unknown	No	No cone	No	Yes	No	1899		Translocate	1	Good	150.671920	-24.204715	0.000000	David Gatfield	Within	RoW	327219	Good	Moderate	
954	0.50	0.50	Unknown	No	No cone	No	No	No	1919		Translocate	1		150.673357	-24.204712	0.000000	David Gatfield	Within	RoW	327365		Moderate	
955	1.60	0.50	Unknown	No	No cone	No	Yes	No	1905		Translocate	1	Fair	150.672337	-24.204582	0.000000	David Gatfield	Within	RoW	327262	Fair	Moderate	
956	1.60	0.30	Unknown	No	No cone	No		No	802		Avoid	1		150.671968	-24.204760	0.000000	Ausecology	Outside	Outside	327224	Good	Easy	Soil
957	1.00	0.60	Unknown	No	No cone	No	No	No	809		Avoid	1		150.672204	-24.204779	0.000000	Ausecology	Outside	Outside	327248	Good	Easy	Soil
958	0.40	0.20	Unknown	No	No cone	No	No	No	821		Avoid	1		150.672267	-24.204747	0.000000	Ausecology	Outside	Outside	327255	Fair	Easy	Soil
959	1.00	0.60	Unknown	No	No cone	No	No	No	828		Avoid	1		150.673300	-24.204756	0.000000	Ausecology	Outside	Outside	327360	Good	Easy	Soil
960	1.20	0.50	Unknown	No	No cone	No	No	No	834		Translocate	1		150.674657	-24.204753	0.000000	Ausecology	Within	RoW	327508	Good	Easy	Soil
961	1.30	0.50	Unknown	No	No cone	No	No	No	803		Translocate	1		150.672031	-24.204659	0.000000	Ausecology	Within	RoW	327231	Good	Easy	Soil
962	0.50	0.50	Unknown	No	No cone	No	No	No	810		Avoid	1		150.672203	-24.204767	0.000000	Ausecology	Outside	Outside	327248	Good	Easy	Soil
963	0.10	0.10	Unknown	No	No cone	No	No	No	822		Avoid	1		150.672272	-24.204736	0.000000	Ausecology	Within	RoW	327255	Good	Easy	Soil
964	1.50	0.50	Unknown	No	No cone	No	No	No	829		Avoid	1		150.673938	-24.204781	0.000000	Ausecology	Outside	Outside	327425	Good	Easy	Soil
965	1.50	0.50	Unknown	No	No cone	`	No	No	842		Avoid	1		150.674988	-24.205150	0.000000	Ausecology	Within	RoW	327562	Good	Easy	Soil
966	1.20	0.60	Unknown	No	No cone	No	No	No	804		Translocate	1	804	150.672081	-24.204733	0.000000	Ausecology	Within	RoW	327236	Good	Easy	Soil
967	1.00	0.60	Unknown	No	No cone	No	No	No	811		Avoid	1		150.672193	-24.204734	0.000000	Ausecology	Within	RoW	327247	Good	Easy	Soil
968	0.70	0.50	Unknown	No	No cone	No	No	No	824		Avoid	1		150.672904	-24.204748	0.000000	Ausecology	Within	RoW	327319	Good	Easy	Soil
969	0.70	0.70	Unknown	No	No cone	No	No	No	835		Translocate	1		150.674669	-24.204784	0.000000	Ausecology	Within	RoW	327511	Good	Easy	Soil
970	0.50	0.50	Unknown	No	No cone	No	No	No	841		Translocate	1		150.675027	-24.205103	0.000000	Ausecology	Within	RoW	327562	Good	Easy	Soil
971	0.70	0.50	Unknown	No	No cone	No	No	No	805		Avoid	1		150.672147	-24.204747	0.000000	Ausecology	Outside	Outside	327243	Good	Easy	Soil
972	0.30	0.30	Unknown	No	No cone	No	No	No	812		Avoid	1		150.672189	-24.204722	0.000000	Ausecology	Within	RoW	327247	Good	Easy	Soil
973	0.70	0.50	Unknown	No	No cone	No	No	No	825			1		150.673027	-24.204735	0.000000	Ausecology	Within	RoW	327332	Good		
974	1.60	0.70	Unknown	No	No cone	No	No	No	836		Translocate	1		150.674697	-24.204849	0.000000	Ausecology	Within	RoW	327518	Good	Easy	Soil
975	1.70	0.50	Unknown	No	No cone	No	No	No	840		Avoid	1		150.674891	-24.205043	0.000000	Ausecology	Within	RoW	327547	Good	Easy	Soil
976	0.50	0.50	Unknown	No	No cone	No	No	No	806		Avoid	1		150.672137	-24.204753	0.000000	Ausecology	Outside	Outside	327242	Good	Easy	Soil
977	1.00	1.00	Unknown	No	No cone	No	No	No	813		Avoid	1		150.672229	-24.204762	0.000000	Ausecology	Outside	Outside	327251	Good	Easy	Soil
978	1.50	0.80	Unknown	No	No cone	No	No	No	830		Translocate	1		150.674247	-24.204670	0.000000	Ausecology	Within	RoW	327456	Good	Easy	Soil
979	0.70	0.50	Unknown	No	No cone	No	No	No	1939		Translocate	1		150.675438	-24.205445	0.000000	David Gatfield	Within	RoW	327618		Moderate	
980	0.50	0.50	Unknown	No	No cone	No	No	No	838		Translocate	1		150.674724	-24.204917	0.000000	Ausecology	Within	RoW	327525	Good	Easy	Soil
981	0.60	0.40	Unknown	No	No cone	No	No	No	807		Avoid	1		150.672166	-24.204791	0.000000	Ausecology	Outside	Outside	327245	Good	Easy	Soil
982	0.60	0.60	Unknown	No	No cone	No	No	No	817		Avoid	1		150.672236	-24.204744	0.000000	Ausecology	Outside	Outside	327252	Good	Easy	Soil
983	0.60	0.30	Unknown	No	No cone	No	No	No	826		Avoid	1		150.673051	-24.204750	0.000000	Ausecology	Within	RoW	327334	Good	Easy	Soil
984	1.50	0.50	Unknown	No	No cone	No	No	No	839		Avoid	1		150.674831	-24.204997	0.000000	Ausecology	Within	RoW	327539	Good	Easy	Soil
985	1.20	0.60	Unknown	No	No cone	No	No	No	837		Translocate	1		150.674688	-24.204866	0.000000	Ausecology	Within	RoW	327518	Good	Easy	Soil
986	0.60	0.30	Unknown	No	No cone	No	No	No	808		Avoid	1		150.672185	-24.204785	0.000000	Ausecology	Outside	Outside	327246	Good	Easy	Soil
987	0.60	0.60	Unknown	No	No cone	No	No	No	833		Avoid	1		150.674344	-24.204807	0.000000	Ausecology	Outside	Outside	327466	Good	Easy	Soil
988	1.50	0.50	Unknown	No	No cone	No	No	No	827		Avoid	1		150.673071	-24.204760	0.000000	Ausecology	Outside	Outside	327336	Good	Easy	Soil
989	0.40	0.40	Unknown	No	No cone	No	No	No	844		Avoid	1		150.675113	-24.205206	0.000000	Ausecology	Within	RoW	327576	Good	Easy	Soil
990	0.60	0.60	Unknown	No	No cone	No	No	No	837		Translocate	1		150.674674	-24.204846	0.000000	Ausecology	Within	RoW	327516	Good	Easy	Soil
991	0.60	0.60	Unknown	No	No cone	No	No	No	1926		Translocate	1	Fair	150.674690	-24.204708	0.000000	David Gatfield	Within	RoW	327507	Fair	Easily Accessed	
992	0.60	0.60	Unknown	No	No cone	No	Yes	No	1923		Avoid	1	Fair	150.674530	-24.204753	0.000000	David Gatfield	Within	RoW	327485	Fair	Moderate	
993	1.30	0.50	Unknown	No	No cone	No	Yes	No	1929		Translocate	1	Fair	150.674818	-24.204723	0.000000	David Gatfield	Within	RoW	327519	Fair	Moderate	
994	1.10	0.70	Unknown	No	No cone	No	Yes	No	1917		Translocate	1		150.673543	-24.204453	0.000000	David Gatfield	Outside	Outside	327384		Moderate	
995	1.10	0.50	Unknown	No	No cone	No	Yes	No	1920		Translocate	1	Fair	150.674485	-24.204537	0.000000	David Gatfield	Within	RoW	327480	Fair	Easily Accessed	
996	0.50	0.50	Unknown	No	No cone	No	No	No	1912		Translocate	1	Good	150.673052	-24.204673	0.000000	David Gatfield	Within	RoW	327334	Good	Moderate	
997	1.50	0.70	Unknown	No	No cone	No	Yes	No	1901		Translocate	1		150.672113	-24.204588	0.000000	David Gatfield	Within	RoW	327239		Moderate	
998	0.50	0.50	Unknown	No	No cone	No	No	No	1913		Translocate	1	Good	150.673135	-24.204638	0.000000	David Gatfield	Within	RoW	327343	Good	Easily Accessed	
999	1.20	0.90	Unknown	No	No cone	No	No	No	1921		Translocate	1	Good	150.674637	-24.204617	0.000000	David Gatfield	Within	RoW	327497	Good	Easily Accessed	
1000	0.50	0.50	Unknown	No	No cone	No	No	No	1916		Translocate	1	Good	150.673655	-24.204602	0.000000	David Gatfield	Within	RoW	327396	Good	Easily Accessed	
1001	5.00	1.00	Female	Yes	No cone	No	No	No	2371		Translocate	1	fruits on ground; 2371	150.567529	-24.230308	0.000000	Azadeh Nia	Within	RoW	314570	Good	Easy	Sandy
1002	0.30	0.30	Unknown	No	No cone	No	Yes	Yes	2372	1001	Translocate	1	insect attack	150.567533	-24.230317	0.000000	Azadeh Nia	Within	RoW	314570	Good	Easy	Sandy
1003	0.30	0.30	Unknown	No	No cone	No	Yes	Yes	2373	1001	Translocate	1	insect attack	150.567538	-24.230323	0.000000	Azadeh Nia	Within	RoW	314570	Fair	Easy	Sandy
1004	0.30	0.00	Unknown	No	No cone	No	No	No	2374	1001	Translocate	1		150.567536	-24.230335	0.000000	Azadeh Nia	Within	RoW	314570	Poor	Easy	Sandy
1005	0.10	0.10	Unknown	No	No cone	No	No	Yes	2375	1001	Translocate	1		150.567520	-24.230329	0.000000	Azadeh Nia	Within	RoW	314568	Fair	Easy	
1006	0.06	0.06	Unknown	No	No cone	No	No	Yes	2376	1001	Translocate	1		150.567518	-24.230323	0.000000	Azadeh Nia	Within	RoW	314568	Fair	Easy	Sandy
1007	0.02	0.02	Unknown	No	No cone	No	No	Yes	0	1001	Translocate	4	3 seedlings poor con next to it	150.567520	-24.230321	0.000000	Azadeh Nia	Within	RoW	314568	Fair	Easy	
1008	0.50	0.00	Unknown	No	No cone	No	No	No	2377		Translocate	1	possible dead	150.567506	-24.230284	0.000000	Azadeh Nia	Within	RoW	314568	Poor		Sandy
1009	1.50	0.50	Unknown	No	No cone	Yes	Yes	No	2378		Translocate	1	insect attack	150.567511	-24.230281	0.000000	Azadeh Nia	Within	RoW	314568	Fair	Easy	Sandy
1010	1.00	0.30	Unknown	No	No cone	Yes	No	Yes	2381		Translocate	1		150.567511	-24.230279	0.000000	Azadeh Nia	Within	RoW	314569	Poor	Easy	Sandy
1011	1.50	0.70	Unknown	No	No cone	Yes	Yes	No	2382		Translocate	1	insect attack	150.567538	-24.230264	0.000000	Azadeh Nia	Within	RoW	314572	Good	Easy	
1012	1.70	0.70	Unknown	No	No cone	Yes	No	No	2383		Translocate	1		150.567565	-24.230295	0.000000	Azadeh Nia	Within	RoW	314573	Good	Easy	

1013	1.00	0.40	Unknown	No	No cone	No	Yes	No	2384	Translocate	1	insect attack	150.567552	-24.230350	0.000000	Azadeh Nia	Within	RoW	314571	Poor	Easy	
1014	0.50	0.50	Unknown	No	No cone	No	No	No	2390	Translocate	1		150.567625	-24.230244	0.000000	Azadeh Nia	Within	RoW	314581	Good	Easy	
1015	0.40	0.30	Unknown	No	No cone	No	No	No	2393	Translocate	1		150.594997	-24.216405	0.000000	Azadeh Nia	Within	RoW	317912	Good	Difficult	Rock
1017	1.20	0.50	Unknown	No	No cone	No	No	No	2394	Translocate	1		150.595231	-24.216491	0.000000	Azadeh Nia	Within	RoW	317928	Good	Difficult	
1018	0.80	0.50	Unknown	No	No cone	Yes	No	Yes	2395	Translocate	1		150.594999	-24.216519	0.000000	Azadeh Nia	Within	RoW	317906	Poor	Difficult	
1019	2.50	0.40	Unknown	No	No cone	No	No	No	2396	Translocate	1		150.594982	-24.216515	0.000000	Azadeh Nia	Within	RoW	317905	Good	Difficult	Rock
1020	0.70	0.70	Unknown	No	No cone	No	No	No	2397	Translocate	1		150.594989	-24.216513	0.000000	Azadeh Nia	Within	RoW	317905	Good	Difficult	Rock
1021	0.50	0.50	Unknown	No	No cone	No	No	No	2398	Translocate	2	1 seedling at base	150.594995	-24.216512	0.000000	Azadeh Nia	Within	RoW	317906	Fair	Difficult	Rock
1022	0.01	0.01	Unknown	No	No cone	No	No	No	2399	Translocate	6	5 seedl	150.594992	-24.216508	0.000000	Azadeh Nia	Within	RoW	317906	Good	Difficult	Rock
1023	0.03	0.03	Unknown	No	No cone	No	No	No	2400		1		150.594983	-24.216511	0.000000	Azadeh Nia	Within	RoW	317905	Good	Difficult	Rock
1024	0.02	0.02	Unknown	No	No cone	No	No	No	2401	Translocate	1		150.594979	-24.216519	0.000000	Azadeh Nia	Within	RoW	317904	Good		Rock
1025	0.01	0.01	Unknown	No	No cone	No	No	No	2402	Translocate	1		150.594986	-24.216498	0.000000	Azadeh Nia	Within	RoW	317906	Good		Rock
1026	0.01	0.01	Unknown	No	No cone	No	No	No	2405	Translocate	1		150.594980	-24.216519	0.000000	Azadeh Nia	Within	RoW	317904	Fair	Difficult	
1027	0.01	0.01	Unknown	No	No cone	No	No	No	2403		1		150.594974	-24.216510	0.000000	Azadeh Nia	Within	RoW	317904	Poor	Difficult	
1028	0.50	0.50	Female	Yes	No cone	No	No	No	2406	Translocate	1		150.595015	-24.216507	0.000000	Azadeh Nia	Within	RoW	317908	Poor		Rock
1029	0.40	0.30	Unknown	No	No cone	No	No	No	2407	Translocate	1		150.594975	-24.216500	0.000000	Azadeh Nia	Within	RoW	317905	Fair	Difficult	Rock
1030	0.40	0.40	Unknown	No	No cone	No	No	Yes	2408	Translocate	2	2 grows from old base	150.594971	-24.216539	0.000000	Azadeh Nia	Within	RoW	317902	Good	Difficult	Rock
1031	0.90	0.50	Unknown	No	No cone	No	No	No	2409	Translocate	1		150.594918	-24.216492	0.000000	Azadeh Nia	Within	RoW	317900	Good	Difficult	Rock
1032	0.40	0.40	Unknown	No	No cone	No	No	Yes	2380	Translocate	1		150.594910	-24.216485	0.000000	Azadeh Nia	Within	RoW	317900	Fair	Difficult	Rock
1033	0.40	0.40	Unknown	No	No cone	No	No	No	2410	Translocate	1		150.594913	-24.216480	0.000000	Azadeh Nia	Within	RoW	317900	Fair	Difficult	Rock
1034	0.40	0.40	Unknown	No	No cone	No	No	Yes	2411	Translocate	1		150.594892	-24.216489	0.000000	Azadeh Nia	Within	RoW	317898	Good	Difficult	Rock
1035	0.50	0.50	Unknown	No	No cone	No	No	No	2412	Translocate	1		150.594889	-24.216497	0.000000	Azadeh Nia	Within	RoW	317897	Fair	Difficult	Rock
1036	0.30	0.30	Unknown	No	No cone	No	No	Yes	2413	Translocate	2	a base next to it	150.594900	-24.216501	0.000000	Azadeh Nia	Within	RoW	317898	Good	Difficult	Rock
1037	0.00	0.50	Unknown	No	No cone	Yes	No	No	2414	Translocate	1		150.594914	-24.216506	0.000000	Azadeh Nia	Within	RoW	317899	Fair	Difficult	Rock
1038	0.60	0.60	Unknown	No	No cone	No	No	Yes	2415	Translocate	1		150.594905	-24.216512	0.000000	Azadeh Nia	Within	RoW	317898	Fair	Difficult	Rock
1039	0.40	0.40	Unknown	No	No cone	No	No	No	2416	Translocate	1		150.594908	-24.216527	0.000000	Azadeh Nia	Within	RoW	317897	Good	Difficult	Rock
1040	0.50	0.30	Unknown	Yes	No cone	No	No	No	2417	Translocate	1		150.594860	-24.216529	0.000000	Azadeh Nia	Within	RoW	317893	Good	Difficult	Rock
1041	0.50	0.30	Unknown	No	No cone	No	No	Yes	2418	Translocate	1		150.594859	-24.216541	0.000000	Azadeh Nia	Within	RoW	317892	Good	Difficult	Rock
1042	0.50	0.30	Unknown	No	No cone	No	No	No	2419	Translocate	1		150.594856	-24.216544	0.000000	Azadeh Nia	Within	RoW	317892	Good	Difficult	Rock
1043	0.50	0.40	Unknown	No	No cone	No	No	No	2420	Translocate	1	2 crowns	150.594844	-24.216482	0.000000	Azadeh Nia	Outside	Outside	317894	Fair	Difficult	Rock
1044	1.80	0.40	Unknown	No	No cone	No	No	Yes	2421	Translocate	1		150.594876	-24.216442	0.000000	Azadeh Nia	Outside	Outside	317899	Fair	Difficult	Rock
1045	2.00	0.60	Unknown	No	No cone	No	No	No	2422	Translocate	1		150.594893	-24.216786	0.000000	Azadeh Nia	Outside	Outside	317882	Fair	Difficult	Rock
1046	0.10	0.10	Unknown	No	No cone	No	No	No	2423	Translocate	1		150.594891	-24.216793	0.000000	Azadeh Nia	Outside	Outside	317882	Fair	Difficult	Rock
1047	1.00	0.90	Unknown	No	No cone	No	No	Yes	2424	Translocate	1		150.697746	-24.175034	0.000000	Azadeh Nia	Within	RoW	332580	Good	Easy	Sandy
1048	0.90	0.90	Unknown	No	No cone	No	No	No	2424	Translocate	1		150.697742	-24.175043	0.000000	Azadeh Nia	Within	RoW	332579	Fair	Easy	Sandy
1049	0.70	0.70	Unknown	No	No cone	No	No	No	2424	Translocate	1		150.697732	-24.175035	0.000000	Azadeh Nia	Within	RoW	332580	Fair	Easy	Sandy
1050	0.70	0.70	Unknown	No	No cone	No	No	No	2424	Translocate	1		150.697733	-24.175029	0.000000	Azadeh Nia	Within	RoW	332581	Fair	Easy	Sandy
1051	0.70	0.50	Unknown	No	No cone	Yes	No	Yes	2428	Translocate	1		150.697570	-24.175179	0.000000	Azadeh Nia	Within	RoW	332569	Good	Easy	Sandy
1052	1.00	1.00	Unknown	No	No cone	No	Yes	No	2429	Translocate	1	insect attack	150.697585	-24.175370	0.000000	Azadeh Nia	Within	RoW	332549	Fair	Easy	Sandy
1053	0.70	0.70	Unknown	No	No cone	No	Yes	No	2430	Translocate	1	insect attack	150.697582	-24.175373	0.000000	Azadeh Nia	Within	RoW	332549	Fair	Easy	Sandy
1054	0.60	0.60	Unknown	No	No cone	No	No	No	2431	Translocate	1		150.697588	-24.175387	0.000000	Azadeh Nia	Within	RoW	332547	Fair	Easy	Sandy
1055	0.60	0.60	Unknown	No	No cone	No	No	No	2432	Translocate	1		150.697559	-24.175419	0.000000	Azadeh Nia	Within	RoW	332545	Good	Easy	Sandy
1056	0.50	0.50	Unknown	No	No cone	No	No	No	2433	Translocate	1		150.697563	-24.175417	0.000000	Azadeh Nia	Within	RoW	332545	Fair	Easy	Sandy
1057	0.30	0.30	Unknown	No	No cone	No	No	No	2434	Translocate	4	3 beside it. all of 3 sus dead	150.697606	-24.175520	0.000000	Azadeh Nia	Within	RoW	332528	Fair	Easy	Sandy
1058	1.00	0.60	Unknown	No	No cone	No	No	No	902	Avoid	1		150.681384	-24.205515	0.000000	Ausecology	Outside	Outside	328264	Good	Difficult	Soil
1059	1.00	0.70	Unknown	No	No cone	No	No	No	0	Translocate	1		150.681512	-24.205452	0.000000	Ausecology	Within	RoW	328278	Good	Difficult	Soil
1060	1.00	0.80	Unknown	No	No cone	No	No	No	901	Translocate	1		150.681262	-24.205518	0.000000	Ausecology	Outside	Outside	328252	Good	Difficult	Soil
1061	1.20	0.40	Unknown	No	No cone	No	No	No	900	Translocate	1		150.681260	-24.205517	0.000000	Ausecology	Within	RoW	328251	Good	Difficult	Soil
1062	1.60	0.50	Unknown	No	No cone	No	No	No	899	Translocate	1		150.681263	-24.205440	0.000000	Ausecology	Within	RoW	328253	Good	Easy	Soil
1063	1.60	0.50	Unknown	No	No cone	No	No	No	898	Translocate	1		150.681041	-24.205473	0.000000	Ausecology	Within	RoW	328230	Good	Difficult	Soil
1064	1.50	0.30	Unknown	No	No cone	No	No	No	897	Translocate	1		150.681027	-24.205483	0.000000	Ausecology	Within	RoW	328228	Fair	Difficult	Soil
1065	1.60	0.40	Unknown	No	No cone	No	No	No	893	Translocate	1		150.680921	-24.205387	0.000000	Ausecology	Within	RoW	328219	Good	Difficult	Soil
1066	0.60	0.60	Unknown	No	No cone	No	No	No	894	Translocate	1		150.680955	-24.205311	0.000000	Ausecology	Within	RoW	328223	Good	Difficult	Soil
1067	1.50	0.40	Unknown	No	No cone	No	No	No	892	Translocate	1	3 heads	150.680822	-24.205367	0.000000	Ausecology	Within	RoW	328209	Good	Difficult	Soil
1068	1.60	0.50	Unknown	No	No cone	No	No	No	890	Translocate	1		150.680783	-24.205372	0.000000	Ausecology	Within	RoW	328205	Good	Difficult	Soil
1069	0.30	0.30	Unknown	No	No cone	No	No	No	891	Translocate	1		150.680794	-24.205367	0.000000	Ausecology	Within	RoW	328206	Good	Difficult	Soil
1070	2.00	0.50	Unknown	No	No cone	No	No	No	895	Translocate	1		150.680846	-24.205509	0.000000	Ausecology	Within	RoW	328210	Good	Difficult	Soil
1071	1.60	0.50	Female	Yes	No cone	No	No	No	896	Avoid	1		150.680892	-24.205571	0.000000	Ausecology	Outside	Outside	328214	Good	Difficult	Soil
1072	1.50	0.40	Female	Yes	No cone	No	No	No	880	Avoid	2	2 trunks	150.680665	-24.205644	0.000000	Ausecology	Outside	Outside	328190	Good	Easy	Soil
1073	1.90	0.50	Unknown	No	No cone	No	No	No	878	Avoid	1		150.680633	-24.205608	0.000000	Ausecology	Outside	Outside	328187	Good	Easy	Soil
1074	1.60	0.50	Female	Yes	No cone	No	No	No	879	Avoid	1		150.680621	-24.205626	0.000000	Ausecology	Outside	Outside	328186	Good	Easy	Soil
1075	0.30	0.30	Unknown	No	No cone	No	No	No	2436	Translocate	1		150.680675	-24.205534	0.000000	Azadeh Nia	Within	RoW	328192	Good		
1076	0.40	0.40	Unknown	No	No cone	No	No	No	881	Translocate	1	2 crowns	150.680681	-24.205536	0.000000	Ausecology	Within	RoW	328193	Good	Easy	Soil
1077	1.30	0.30	Unknown	No	No cone	No	No	No	882	Translocate	1		150.680679	-24.205481	0.000000	Ausecology	Within	RoW	328193	Fair	Easy	Soil
1078	1.70	0.00	Unknown	No	No cone	No	No	No	883	Translocate	1		150.680697	-24.205465	0.000000	Ausecology	Within	RoW	328195	Fair	Easy	Soil
1079	1.80	0.50	Unknown	No	No cone	No	No	No	884	Translocate	1		150.680688	-24.205419	0.000000	Ausecology	Within	RoW	328195	Good	Easy	Soil
1080	1.70	0.50	Unknown	No	No cone	No	No	No	887	Translocate	1		150.680711	-24.205403	0.000000	Ausecology	Within	RoW	328197	Good	Easy	Soil
1081	1.60	0.50	Unknown	No	No cone	No	No	No	888	Translocate	1		150.680713	-24.205418	0.000000	Ausecology	Within	RoW	328197	Good	Easy	Soil
1082	1.60	0.50	Unknown	No	No cone	No	No	No	889	Translocate	1		150.680715	-24.205421	0.000000	Ausecology	Within	RoW	328197	Good	Easy	Soil
1083	1.00	0.50	Unknown	No	No cone	No	No	No	886	Translocate	1		150.680708	-24.205382	0.000000	Ausecology	Within	RoW	328197	Good	Easy	Soil
1084	0.50	0.50	Unknown	No	No cone	No	No	No	885	Translocate	1		150.680671	-24.205387	0.000000	Ausecology	Within	RoW	328193	Good	Easy	Soil
1085	0.40	0.40	Unknown	No	No cone	No	No	No	2437	Translocate	1		150.680663	-24.205382	0.000000	Azadeh Nia	Within	RoW	328193		Difficult	Rock
1086	0.40	0.40	Unknown	No	No cone	No	No	No	2438	Translocate	1		150.680663	-24.205382	0.000000	Azadeh Nia	Within	RoW	328193		Difficult	Rock
1087	1.50	0.70	Unknown	No	No cone	No	No	No	876	Translocate	1		150.680578	-24.205407	0.000000	Ausecology	Within	RoW	328184	Good	Easy	Soil
1088	1.20	0.00	Unknown	No	No cone	No	No	No	874	Avoid	1		150.680486	-24.205339	0.000000	Ausecology	Within	RoW	328175	Fair	Easy	Soil

1089	1.60	0.50	Unknown	No	No cone	No	No	No	873		Translocate	1		150.680448	-24.205418	0.000000	Ausecology	Within	RoW	328170	Good	Easy	Soil
1090	1.50	0.50	Unknown	No	No cone	No	No	No	875		Translocate	1		150.680501	-24.205465	0.000000	Ausecology	Within	RoW	328175	Good	Easy	Soil
1091	1.50	0.50	Unknown	No	No cone	No	No	No	877		Translocate	1		150.680530	-24.205574	0.000000	Ausecology	Within	RoW	328177	Good	Easy	Soil
1092	2.00	0.50	Unknown	No	No cone	No	No	No	872		Avoid	1		150.680399	-24.205574	0.000000	Ausecology	Within	RoW	328164	Good	Easy	Soil
1093	0.30	0.30	Unknown	No	No cone	No	No	No	871		Translocate	1		150.680344	-24.205560	0.000000	Ausecology	Within	RoW	328158	Good	Easy	Soil
1094	1.70	0.60	Unknown	No	No cone	No	No	No	870		Avoid	1		150.680302	-24.205565	0.000000	Ausecology	Within	RoW	328154	Good	Easy	Soil
1095	1.70	0.80	Unknown	No	No cone	No	No	No	869		Translocate	1		150.680266	-24.205549	0.000000	Ausecology	Within	RoW	328151	Good	Difficult	Soil
1096	0.30	0.30	Unknown	No	No cone	No	No	No	868		Avoid	1		150.680147	-24.205617	0.000000	Ausecology	Within	RoW	328138	Good	Difficult	Soil
1097	0.15	0.15	Unknown	No	No cone	No	No	No	2339		Translocate	1	2 crown	150.680152	-24.205609	0.000000	Azadeh Nia	Within	RoW	328138	Fair	Difficult	Rock
1098	1.20	0.80	Unknown	No	No cone	No	No	No	867		Avoid	1		150.680087	-24.205608	0.000000	Ausecology	Within	RoW	328132	Good	Difficult	Soil
1099	1.80	0.40	Unknown	No	No cone	No	No	No	866		Avoid	1		150.680051	-24.205632	0.000000	Ausecology	Within	RoW	328128	Good	Difficult	Soil
1100	1.30	0.20	Unknown	No	No cone	No	No	No	865		Avoid	1		150.679924	-24.205640	0.000000	Ausecology	Within	RoW	328115	Fair	Easy	Soil
1101	1.20	0.60	Unknown	No	No cone	No	No	No	863		Avoid	1		150.679816	-24.205684	0.000000	Ausecology	Outside	Outside	328104	Good	Difficult	Soil
1102	0.70	0.50	Unknown	No	No cone	No	No	No	864		Avoid	1		150.679807	-24.205690	0.000000	Ausecology	Outside	Outside	328103	Good	Easy	Soil
1103	1.30	0.40	Unknown	No	No cone	No	No	No	862		Translocate	1		150.679758	-24.205612	0.000000	Ausecology	Within	RoW	328098	Fair	Easy	Soil
1104	0.70	0.60	Unknown	No	No cone	No	No	No	867		Translocate	1		150.679582	-24.205496	0.000000	Ausecology	Within	RoW	328082	Good	Easy	Soil
1105	0.60	0.60	Unknown	No	No cone	No	No	No	858		Translocate	1		150.678424	-24.205591	0.000000	Ausecology	Within	RoW	327964	Good	Difficult	Soil
1106	1.60	0.80	Unknown	No	No cone	No	No	No	859		Translocate	1		150.678449	-24.205567	0.000000	Ausecology	Within	RoW	327967	Good	Difficult	Soil
1107	0.70	0.70	Unknown	No	No cone	No	No	No	860		Translocate	1		150.678570	-24.205551	0.000000	Ausecology	Within	RoW	327979	Good	Difficult	Soil
1108	1.00	0.70	Unknown	No	No cone	No	No	No	857		Translocate	1		150.677190	-24.206008	0.000000	Ausecology	Within	RoW	327828	Good	Difficult	Soil
1109	0.50	0.50	Unknown	No	No cone	No	No	No	856		Translocate	1		150.676783	-24.206202	0.000000	Ausecology	Within	RoW	327781	Good	Easy	Soil
1113	1.20	0.60	Unknown	No	No cone	No	No	No	855		Translocate	1		150.676141	-24.205934	0.000000	Ausecology	Within	RoW	327708	Good	Easy	Soil
1114	0.30	0.30	Unknown	No	No cone	No	No	No	854		Avoid	1		150.675946	-24.205968	0.000000	Ausecology	Within	RoW	327695	Good	Difficult	Soil
1115	2.00	0.30	Unknown	No	No cone	No	No	No	852		Avoid	1		150.675858	-24.205862	0.000000	Ausecology	Within	RoW	327680	Good	Difficult	Soil
1116	1.20	0.60	Unknown	No	No cone	No	No	No	853		Avoid	1		150.675859	-24.205894	0.000000	Ausecology	Within	RoW	327683	Good	Difficult	Soil
1117	2.00	0.50	Unknown	No	No cone	No	No	No	850		Avoid	1		150.675697	-24.205782	0.000000	Ausecology	Outside	Outside	327662	Good	Difficult	Soil
1118	1.20	0.70	Unknown	No	No cone	No	No	No	851		Avoid	1		150.675708	-24.205787	0.000000	Ausecology	Outside	Outside	327663	Good	Difficult	Soil
1119	1.40	0.60	Unknown	No	No cone	No	No	No	849		Translocate	3	3 trunks	150.675723	-24.205640	0.000000	Ausecology	Within	RoW	327654	Good	Easy	Soil
1120	0.30	0.30	Unknown	No	No cone	No	No	No	848		Translocate	1		150.675711	-24.205589	0.000000	Ausecology	Within	RoW	327650	Good	Easy	
1121	1.50	0.40	Unknown	No	No cone	No	No	No	846		Translocate	1		150.675568	-24.205535	0.000000	Ausecology	Within	RoW	327635	Fair	Difficult	Soil
1122	0.50	0.50	Unknown	No	No cone	No	No	No	847		Avoid	1		150.675540	-24.205571	0.000000	Ausecology	Within	RoW	327635	Good	Difficult	Soil
1124	0.10	0.10	Unknown	No	No cone	No	No	No	2443	1123	Translocate	1		150.675741	-24.205443	0.000000	Azadeh Nia	Within	RoW	327642	Good	Difficult	Rock
1148	0.30	0.30	Unknown	No	No cone	No	No	No	2444	1144	Translocate	1		150.678305	-24.205671	0.000000	Azadeh Nia	Within	RoW	327951	Fair	Difficult	Rock
1153	0.50	0.50	Unknown	No	No cone	No	No	No	2445		Translocate	1		150.678592	-24.205743	0.000000	Azadeh Nia	Within	RoW	327979	Good	Difficult	Rock
0	0.10	1.00	Unknown	No	No cone	No		No	4429		Translocate	1	very small, less than 10cm tall; Missed by cycad team; small seedling; Not tagged, but FLAGGED with pink tape	150.633734	-24.217206	0.000000	Ausecology	Within	RoW	322377	Good	Easy	Clay/Silt
0	0.20	1.00	Unknown	No	No cone	No		No	4430		Translocate	1	very small, less than 20cm tall; Missed by cycad team; small seedling; Not tagged, but FLAGGED with pink tape	150.633731	-24.217212	0.000000	Ausecology	Within	RoW	322377	Good	Easy	Clay/Silt
0	1.00	1.00	Unknown	Yes		No		No	0			1	Count 1; outside the study area, for possible route change discussion to avoid more Cycads	150.656723	-24.212029	0.000000	Ausecology	Outside	Outside	325199	Good		
0	1.00	1.00	Unknown	No		No		No	0			3	Count 3; outside the study area, for possible route change discussion to avoid more Cycads	150.656853	-24.211944	0.000000	Ausecology	Outside	Outside	325214	Good		
0	1.00	1.00	Unknown	No		No		No	0			3	Count 3; outside the study area, for possible route change discussion to avoid more Cycads	150.656931	-24.211937	0.000000	Ausecology	Outside	Outside	325222	Fair		
0	1.00	1.00	Unknown	No		No		No	0			1	Count 1; outside the study area, for possible route change discussion to avoid more Cycads	150.657066	-24.211993	0.000000	Ausecology	Outside	Outside	325235	Good		
0	1.00	1.00	Unknown	No		No		No	0			1	Count 1; outside the study area, for possible route change discussion to avoid more Cycads	150.657108	-24.211973	0.000000	Ausecology	Outside	Outside	325239	Good		
0	1.00	1.00	Unknown	No		No		No	0			1	Count 1; outside the study area, for possible route change discussion to avoid more Cycads	150.657179	-24.212044	0.000000	Ausecology	Outside	Outside	325245	Good		
0	0.00	0.00	Unknown	No					0			1	dead	150.634540	-24.217708	0.000000	David Gatfield	Outside	Outside	322472	Dead		
0	1.50	0.75	Unknown	No	No cone	No	No	No	455		Translocate	1	h 1.5m; c 0.75m	150.662989	-24.210170	0.000000	Ausecology	Outside	Outside	326002	Good	Easy	Soil
0	1.50	1.00	Unknown	No	No cone	No	No	No	375		Translocate	1		150.656965	-24.212216	0.000000	Ausecology	Within	RoW	325220	Good	Easy	Soil