TECHNICAL MEMORANDUM	
TO:	Logan Water Infrastructure Alliance
PREPARED BY:	Jessica Gorring
REVIEWED BY:	Pratik Solanki
DATE:	18/10/2017
SUBJECT:	Ecology Advice for LS304

1 Overview

An ecological field survey of the proposed LS304 – FC2 to Cedar Grove Project (LS304 Project) (Refer to **Appendix B** for alignment surveyed) was completed by two Logan Water Infrastructure Alliance (LoganWIA) personnel on 6 September 2017, 27 September 2017 and 4 October 2017. The assessment covered the full alignment that traverse the following Lots:

- 156/SL11068
- 157/SL11068
- 299/S311316
- 168/SL11068
- 169/SL11068
- 23/SP142997
- 24/SP142997
- 1/RP49296
- 3/RP49296
- 3/RP45236
- 907/SP281066

PLANS AND DOCUMENTS referred to in the PDA DEVELOPMENT APPROVAL

Approval no: DEV2018/925

Date: 27 September 2018

Queensland Government

The LS304 Project and surrounding area were surveyed, with all vegetated areas traversed on foot and cleared areas either driven or walked. With the only exception being areas that could not be access or areas that were unsafe.

The aim of the assessment was to assess the likelihood of occurrence of Matters of National Environmental Significance (MNES) listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), threatened species listed under the provisions of the *Nature Conservation Act 1992* (NC Act). The field surveys targeted threatened species and ecological communities identified by desktop assessment as potentially occurring within the LS304 Project.

The results of this field survey will inform construction design to avoid and mitigate impacts to ecologically sensitive areas.

It is understood that the LS304 Project is a small portion of a wider project that is to have a wastewater conveyance system from Greenbank to Cedar Grove (refer to **Appendix C**).

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2 Previous Surveys of Alignment

A previous ecological survey was conducted in January 2017. During the survey the following environment factors where confirmed:

- Koala usage of the site (low)
- Fauna habitat present
- *Melaleuca irbyana* located close to the alignment

Refer to Ecology Advice for LS007 – FC2 to Cedar Grove, 20 March 2017, prepared by Sophie Cowie, in **Appendix A**.

3 Field Survey Methods

Two Environment Staff from LoganWIA, one being an Ecologist and other being Environmental Lead, conducted surveys along the alignment (**Appendix B**). These surveys are in addition to the surveys conducted in January of 2017 referred in Section 2. The detailed of the timing and surveyed locations is provided in **Table 1**.

Table 3-1 Survey Effort

Date	Survey Techniques	Lots Surveyed
6 September 2017	Vegetation Assessment – Secondary and Quaternary level Koala Spot Assessment Technique Observations	156/SL11068 157/SL11068 299/S311316 168/SL11068 168/SL11068 23/SP142997 24/SP142997 1/RP49296
27 September 2017	Spotlighting Survey Observations	156/SL11068 157/SL11068 299/S311316 168/SL11068 168/SL11068 23/SP142997 24/SP142997 1/RP49296
4 October 2017	Vegetation Assessment – Quaternary Level Koala Spot Assessment Technique Spotlighting Survey Observations	3/RP49296 3/RP45236 907/SP281066

4 Field Survey Results

4.1 Koala Spot Assessment Technique (Koala SAT)

The Koala SAT utilised the techniques detailed in Phillips and Callagham 2011. The activity score for each SAT site was based on East Coast (low population density) values. **Table 2** below detailed the results of the Koala SAT sites.

Table 4-1 Koala SAT details and results

SAT No.	GPS	Lot on Plan	Date of Survey	Evidence Type	SAT Koala Usage Score
1	-27.8405, 152.9453	168/SL11068	6 September 2017	Scratches	(6.66%) Normal
2	-27.8368, 152.9328	24/SP142997	6 September 2017	Scratches and Scats	(10%) Normal
3	-27.8357, 152.9305	1/RP49296	6 September 2017	Scats	(10%) Normal
4	-27.8451, 152.9600	156/SL11068	6 September 2017	Scratches and Scat	(13%) High
5	-27.8414, 152.9468	299/S311316	6 September 2017	Scratches and Scats	(10%) Normal
6	-27.8202, 152.9417	907/SP281066	4 October 2017	Nil	(0%) Low
7	-27.8347, 152.9273	3/RP49296	4 October 2017	Scat	(3.33%) Normal

4.2 Spotlighting

The clear majority of the LS304 Project was spotlighted over the course of two evenings (27 September and 6 October 2017). The only areas not traversed by spotlighting were areas identified as being a safety risk or where access could not be achieved. Spotlighting efforts covered over 28.5 km and involved 13 man hours over the two evenings. **Table 3** details the survey results of spotlighting.

Table 4-2 Spotlighting Survey Results

Species	GPS	Lot Plan	Date of Survey	Evidence Type
Grey-headed Flying Fox	-27.8451 152.9599	156/SL11068	27 September 2017	Observations of at least 4 individuals
Grey-headed Flying Fox	-27.8457 152.9594	156/SL11068	27 September 2017	Observations of at least 12 individuals
Grey-headed Flying Fox	-27.8417 152.9470	299/S311316	27 September 2017	Observations of at least 4 individuals
Grey-headed Flying Fox	-27.8413 152.9445	168/SL11068	27 September 2017	Observation of at least 2 individuals
Grey-headed Flying Fox	-27.8389 152.9391	23/SP142997	27 September 2017	Observation of at least 2 individuals
Grey-headed Flying Fox	-27.8369 152.9324	24/SP142997	27 September 2017	Observations of at least 4 individuals
Grey-headed Flying Fox	-27.8339 152.9279	3/RP49296	4 October 2017	Observation of at least 15 individuals
Grey-headed Flying Fox	-27.8331 152.9285	3/RP49296	4 October 2017	Observation of at least 4 individuals
Grey-headed Flying Fox	-27.8311 152.9307	3/RP45236	4 October 2017	Observation of at least 2 individuals
Grey-headed Flying Fox	-27.8207 152.9413	907/SP281066	4 October 2017	Observation of at least 2 individuals
Grey-headed Flying Fox	-27.8207 152.9415	907/SP281066	4 October 2017	Observation of at least 2 individuals
Grey-headed Flying Fox	-27.8148 152.9433	907/SP281066	4 October 2017	Observation of at least 4 individuals
Green Tree Frog	N/A	Entire Alignment	27 September 2017 4 October 2017	Heard calling
Eastern Sedge Frog	N/A	Entire Alignment	27 September 2017 4 October 2017	Heard calling
Cooper-backed Brood Frog	N/A	3/RP49296	4 October 2017	Heard calling
Scarlet Sided Pobblebonk	-27.8321 152.8321	3/RP45236	4 October 2017	Observation
Squirrel Glider	-27.8330 152.9285	3/RP49296	4 October 2017	Observation Single individual foraging

5 Commonwealth Environment Protection and Biodiversity Conservation Act 1999

5.1 Desktop Assessment Results

An EPBC Referral is required where an action, considered at its broadest scope, is likely to result in a significant impact to any Matters of National Environment Significance (MNES).

There has been several EPBC Referrals within the surrounding are to the proposed project. These submissions have included several ecological values as being recorded within the surrounding area that trigger referral. A review of these submissions found the following relevant ecological information.

Table 5-1 Details of other EPBC Referral Submissions

EPBC Referral No.	Proponent	Description of activity	Ecological Values Triggered	Decision
2014/7319	Pacific International Development Corporation Pty Ltd	15.6 linear hectares of vegetation for the construction of 7km of external corridor Road.	*Melaleuca irbyana* individuals not the community Koala	Not a controlled action
2016/7817	Mirvac Queensland Pty Ltd	Development of a master planned residential community within the Greater Flagstone Priority Development Area	Koala Grey headed Flying fox	Controlled Action
2016/7772	Pacific International Development Corporation Pty Ltd	Construction and operation of a master planned multi-use residential development within the Greater Flagstone Priority Development Area	Koala *Melaleuca irbyana* individuals not the community Grey Headed Flying fox	Controlled Action
2015/7530	Pioneer Fortune Pty Ltd	To construct and operate a master planned residential development in the Greater Flagstone Priority Development Area	Koala *Melaleuca irbyana* individuals not the community	Controlled Action
2014/7206	PEET Flagstone City Pty Ltd	To construct a mixed-use development (including residential, commercial and community developments and associated infrastructure) on 1,245.26 ha site at Flagstone	Spotted Tail Quoll Koala	Controlled Action

Based on a review of the ecological documentation that are provided as part of the referrals mention in **Table 4** it is considered highly likely that the LS304 Project would impact on at least one Matter of National Environmental Significance (MNES).

5.2 Koala

Evidence of Koalas was detected throughout the LS304 Project. As a result, a significance impact assessment and assessment against the Koala referral guidelines was trigger. Part of this assessment includes the investigation into sightings, mortality rates and other population details were practical.

A Koala observation was recorded in 2011 near Blacksmith Court (north of the LS304 Project), source and full credits to the Australian Koala Foundation, Koala Map viewed 10 October 2017.

There are numerous sightings between 2011-2015 for Koalas located to the East of the Mount Lindesay Highway and a few records within the Cedar Grove township area (south-east of the LS304 Project), source and full credits to Koala Tracker.

Figure 1 shows the records obtained by Logan City Council from a variety of sources, unfortunately there is no metadata to accompany these records so that date and nature of these sightings is unknown.

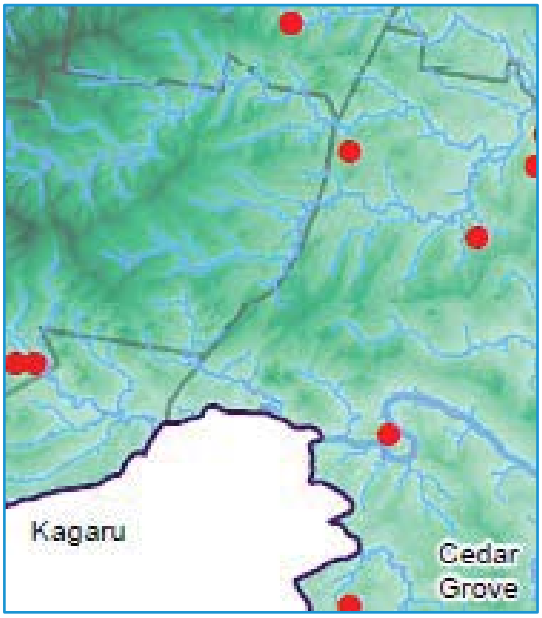

Figure 1 Logan City Council Koala Sightings within proximity to the project

5.2.1 Survey Results Koala

Refer to **Figure 2** below that provides a geographical reference of Koala activity levels throughout the LS304 Project.

Figure 2 Locations of Koala SAT and their active score (Red - High, Orange – Normal, Yellow – Low)

The activity level is highest in the areas of continuous habitat and along the riparian zone of the Logan River. The distribution of the activity levels is consistent with normal koala usage as Koala prefer continuous habitat and have a preference for the riparian zones. The areas showing the higher Koala usage were observed as having very large, mature koala feed trees.

5.2.2 Koala Referral Guideline Assessment

An assessment of the potential impact on Koala habitat within the LS304 Project, was conducted in accordance with the EPBC Act referral guidelines for the vulnerable Koala 'Koala referral guidelines' (Department of the Environment, 2013).

In reference to the Koala referral guidelines primary and secondary Koala food trees are considered those species listed in the NSW Office of Environment and Heritage's (OEH) Koala habitat and feed trees. The list provided by OEH includes the primary and secondary food trees for the North Coast, which is considered applicable to South East Queensland.

Refer to OEH website: http://www.environment.nsw.gov.au/animals/Koalahabitat.htm#north.

An assessment in accordance with the Koala referral guidelines has been prepared in Table 5 to provide preliminary advice as to whether the Project may impact habitat critical to the survival of the Koala, and as to whether a significant impact assessment to inform a potential referral to Department of the Environment and Energy (DoEE) is required.

Table 5-2 Koala habitat assessment in accordance with the Koala referral guidelines

Attribute	Score	Assessment against coastal habitat characteristics
Koala occurrence	+2 (High)	There are numerous historical records of Koalas within and moving through the LS304 Project. The Koala SAT for the LS304 Project found evidence of Koala in the southern extent and evidence along the west-east section of the alignment.
Vegetation composition	+2 (High)	The LS304 Project area supports reasonable number of primary Koala food tree species (OEH, 2016), such as: > Queensland Blue Gum (*E. tereticornis*) Secondary Koala food tress were also recoded within the LS304 Project. > Gum-topped Box (*E. moluccana*) It is considered likely that more primary and secondary Koala food trees will occur within the wider the area.
Habitat connectivity	+2 (High)	Area is part of a contiguous landscape >500 ha. The habitat has been heavily impact by development in the northern extent of the LS304 Project, however even in this heavily impacted area there are several retained corridors connecting to the boarder corridor located to the west.
Key existing threats	+1 (Medium)	There are no records of koalas been killed within the surrounding area due to either vehicle strike or dog attack. There was a Koala SAT location that did score a 0. The surrounding area to the project is currently been rapidly developed into a residential community. This development will in turn lead to higher vehicle usage of the currently quiet roads and will also result in an increased density of dogs within the area as the development progresses.
Recovery value	+2 (High)	The LS304 Project currently intersects with habitat that is a considered to fit the attribute s of both Koala Habitat and Interim recovery objectives. The watercourse crossing are areas of riparian vegetation that have been retained in order to provide a corridor within the landscape to allow for Koala movement through the development to areas of boarded habitat.
Score	**9**	The LS304 Project is considered to contain habitat critical to the survival of the Koala, due to: recent records in the Project area presence of primary and secondary Koala feed trees habitat is part of a contiguous landscape >500 ha potential adverse effects on habitat that may be important for achieving interim recovery objectives (i.e. slight reduction of habitat [primary and secondary feed trees], and reduced Koala movement and habitat connectivity). The wider project is considered likely to have additional areas of koala habitat and therefore the clearing of habitat critical to the survival of the koala will increase.

5.2.3 Koala Significance Impact Assessment

The Koala is listed as Vulnerable under the EPBC Act. The following assessment has been undertaken following the Matters of National Environmental Significance, Significant Impact Guidelines 1.1 (Department of the Environment 2013).

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:

Lead to a long-term decrease in the size of an important population of a species

Under the EPBC Act, an important population is defined as:

- *likely to be key source populations either for breeding or dispersal*
- *likely to be necessary for maintaining genetic diversity, and/or*
- *at or near the limit of the species range.*

Lead to a long-term decrease in the size of an important population of the species

Given the yet to be quantified, but potentially small area of Koala habitat to be impacted by the LS304 Project, it is unlikely it will lead to a long term decrease in the size of an important population. Furthermore, considering the known locations of Koala populations and Koala breeding ecology, the population of Koalas within the immediate Project area and areas of potential disturbance is unlikely to be an 'important population'.

This is based upon the Project area and areas of potential disturbance not being at the limit of the species distribution range, and unlikely to support an important population that would depend on the Project area for breeding and dispersal, or maintaining genetic diversity. Therefore, an 'important population' is unlikely to permanently reside in the areas of disturbance and the Project is unlikely to lead to a long-term decrease of an important population of the species.

Reduce the area of occupancy of an important population

Not applicable as an 'important population' is unlikely to exist in the immediate area and areas of potential disturbance.

Given the yet to be quantified, but potentially small area of Koala habitat to be impacted by the LS304 Project, it is unlikely the project will reduce the area of occupancy of an important population.

Fragment an existing important population into two or more populations

Not applicable as an 'important population' is unlikely to exist in the immediate Project area and areas of potential disturbance.

A large portion of the LS304 Project has been previously cleared by Residential development. These develops have however left corridors of riparian vegetation. The LS304 Project will currently impact upon these corridors. It is recommended that clearing of these corridors is avoided so not to fragment the landscape any further.

Adversely affect habitat critical to the survival of a species

Given the yet to be quantified, but potentially small area of Koala habitat to be impacted by the LS304 Project, and measures to avoid impacts to primary or secondary feed trees, it is unlikely the Project will adversely affect habitat critical to the survival of the species.

Disrupt the breeding cycle of an important population

Not applicable as an 'important population' is unlikely to exist in the immediate Project area and areas of potential disturbance.

Given the yet to be quantified, but potentially small area of Koala habitat to be impacted by the Project, and limited impacts to primary or secondary feed trees within areas of potential disturbance, it is unlikely the project will disrupt the breeding cycle of an important population.

Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline

Given the yet to be quantified, but potentially small area of Koala habitat to be impacted by the LS304 Project, and limited impacts to primary or secondary feed trees, and the availability of these habitat resources in the locality it is unlikely the project will modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat

The small, but yet to be determined, amount of Koala habitat to be potentially impacted is in a disturbed condition and is subject to weed and pest invasion. The Project is unlikely to contribute towards increases in invasive species which are harmful to the Koala, particularly if a weed management plan is implemented prior to, during, and post construction.

Introduce disease that may cause the species to decline

Chlamydia is a bacterial infection which affects almost all Koalas in South East Queensland. Sexually transmitted, but typically harmless in population with limited resources, usually manifests in times of stress. The disease weakens the immune system, making them vulnerable and causes various problems, including blindness and female infertility, which is a contributing factor to current decline in Koala numbers. It is unlikely that this disease or others would be increased by the LS304 Project. In addition, the potentially small area of Koala habitat being impacted by the LS304 Project, the introduction of a disease and/or stress as a result of habitat removal and construction is unlikely.

Interfere substantially with the recovery of the species

According to the EPBC Act referral guidelines for the Vulnerable Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) (Department of the Environment 2014), impacts which that are likely to substantially interfere with the recovery of the Koala may include:

- *introducing or increasing Koala fatalities in habitat critical to the survival of the Koala, due to dog attacks, to a level that is likely to result in multiple, ongoing mortalities*
- *introducing or increasing Koala fatalities in habitat critical to the survival of the Koala, due to vehicle-strikes, to a level that is likely to result in multiple, ongoing mortalities*
- *facilitating the introduction or spread of disease or pathogens to an area, for example Chlamydia or Phytophthora cinnamomi to habitat critical to the survival of the Koala, that are likely to significantly reduce the reproductive output of female Koalas or reduce the carrying capacity of the habitat*
- *creating a barrier to movement between or within habitat critical to the survival of the Koala that is likely to result in a long-term reduction in genetic fitness or access to habitat critical to the survival of the Koala*
- *changing hydrology, which degrades habitat critical to the survival of the Koala, to the extent that the carrying capacity of the habitat is reduced in the long term.*

The LS304 Project is not anticipated to increase vehicle usage or dog activity within its footprint. As stated above it is unlikely that disease or stress resulting in disease will result from the LS304 Project.

The LS304 Project will not create a physical movement barrier in the landscape but depending on the level of clearing around the riparian corridors it may increase the need for koalas to come to ground. However, the Koalas will not be crossing a road way or the like, it will simply be a green space. It is noted however that this green space will exist in a residential landscape and there will be the possibly for dog interaction. However, this is not something that the LS304 Project can control. It may potential be able to assist in management of interaction via assistance into community awareness education programs.

5.3 Grey- headed Flying-fox

A review of the Australian Government Department of the Environment National Flying-fox monitoring viewer has shown two Grey-headed Flying-fox camps located within proximity to the project (Refer to **Figure 3**). Neither Camp is identified as a Nationally Important Flying-fox camp.

One Camp is located off Homestead Drive and is known as the Flagstone Camp (464), the co-ordinates of this camp are -27.8147, 152.963. The second camp is located off Oak Tree Court and is known as the Cedar Grove Camp (148), the co-ordinated for this camp are -27.8544, 152.9809. Both Camps have recorded usage by the Grey-headed Flying-fox and Black Flying-fox (Refer to **Figure 4**).

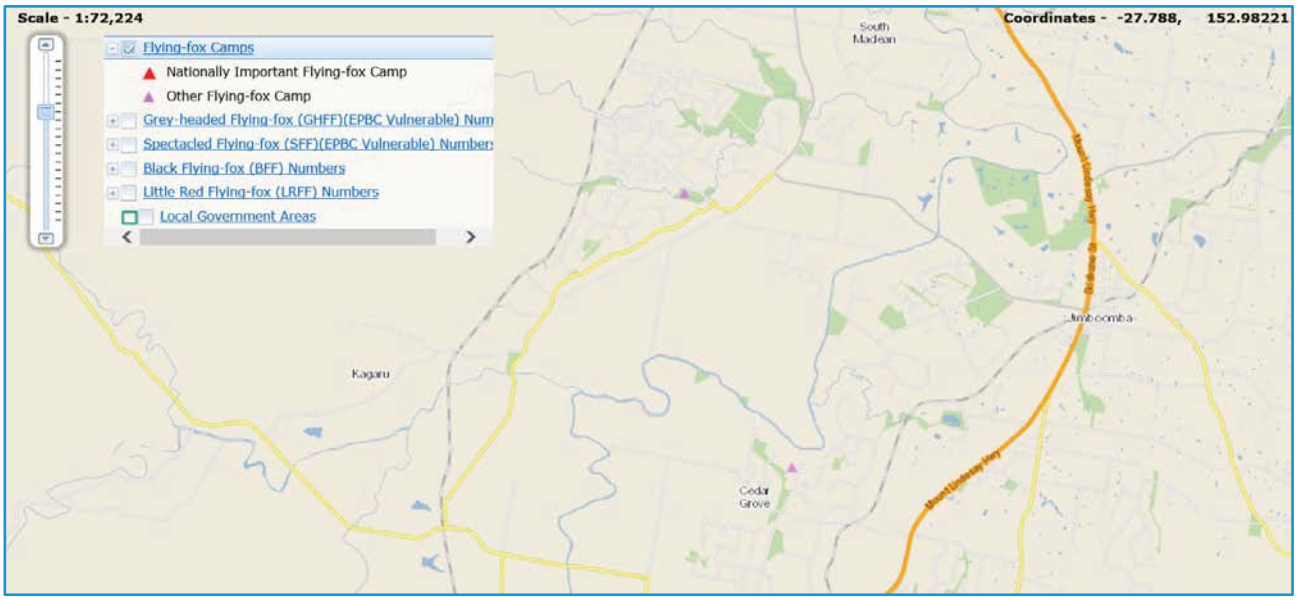

Figure 3 Flying-fox Camp locations

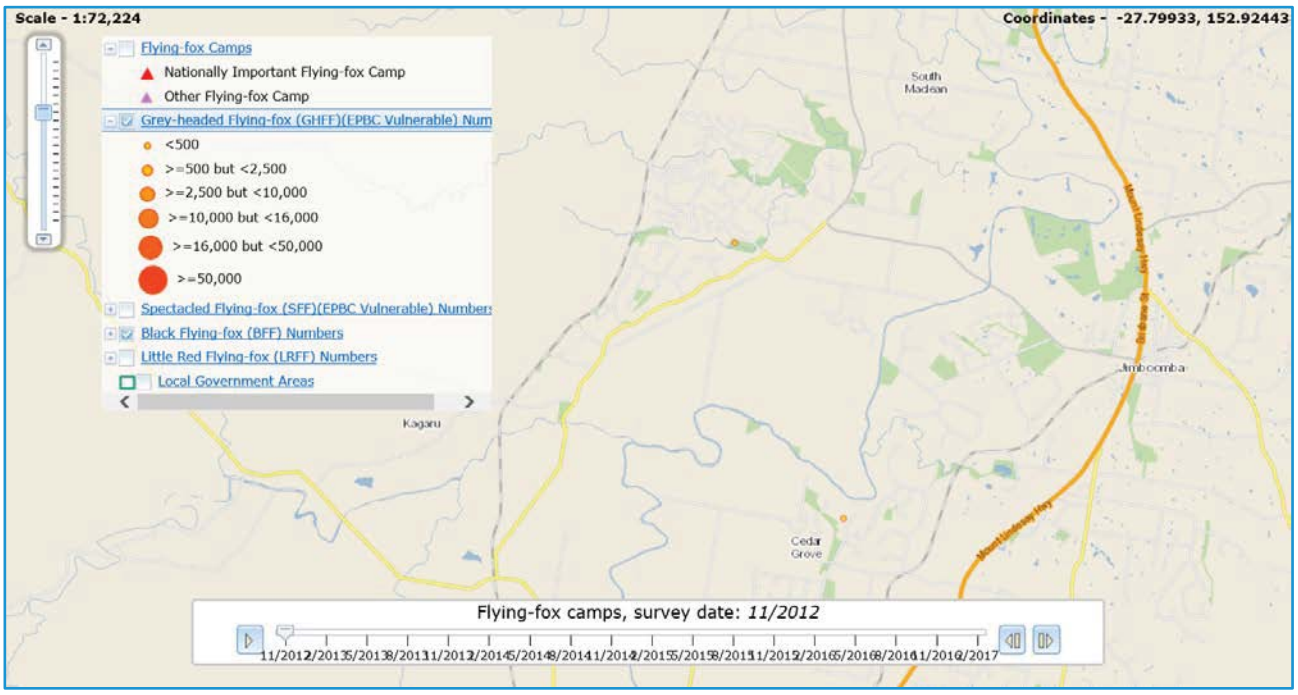

Figure 4 Estimated numbers of Grey-headed Flying-fox at each camp

Figure 5 below shows the camp monitoring results for a period between November 2012 – August 2013, the camp has consistently remained a small camp of approximately 499 Grey-headed Flying-fox individuals. The figure below shows no counts for the years after 2015, it should not be assumed that the camp is no longer

used as there are several factors that impact the ability of the National Flying-fox Monitoring Program (NFFMP) to monitor all camps across Australia. The NFFMP is a collaboration between all levels of government, CSIRO, and volunteers and the limiting factors can be included remoteness, ability of qualified collectors and funding.

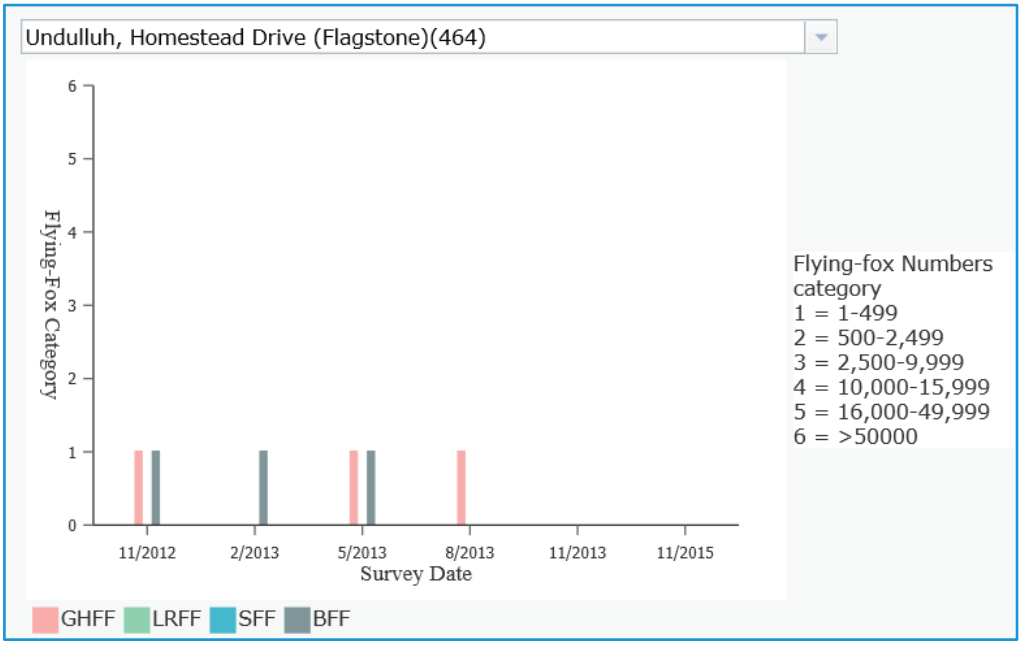

Figure 5 Flagstone Camp monitoring results

Figure 6 below shows the Cedar Grove camp monitoring results for a period between November 2012 – November 2016. This camp has shown an increase in individuals over the years from approximately 499-upwards of 2,499 Grey-headed Flying-fox individuals. The figure below shows no counts for the years after 2016, as mentioned above it should not be assumed that the camp is no longer in use.

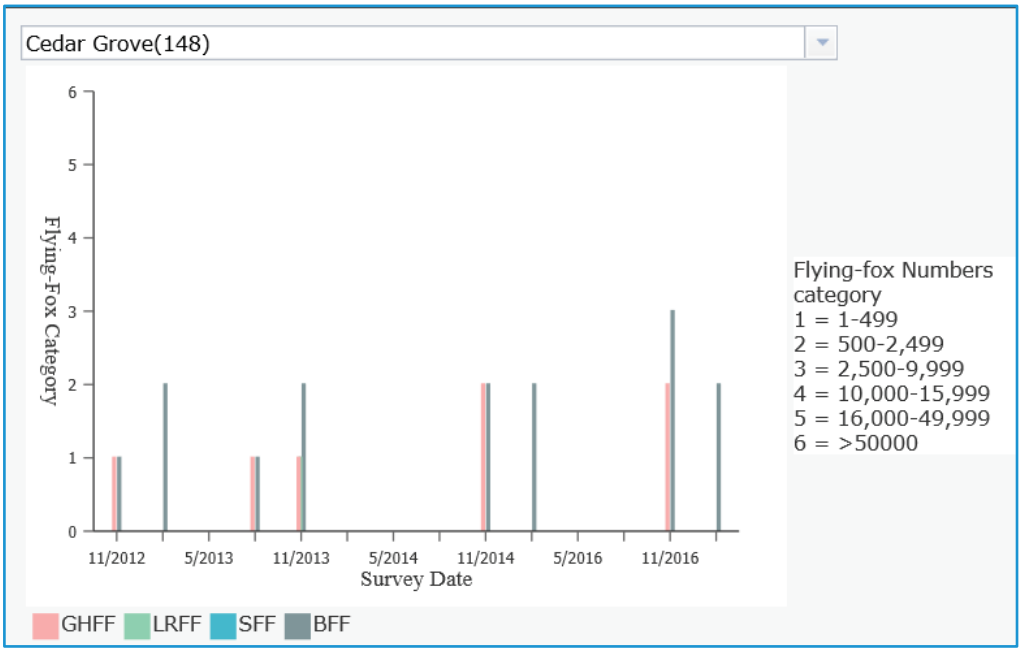

Figure 6 Cedar Grove monitoring results

5.3.1 Survey Results Grey-headed Flying-fox

Refer to **Figure 7** below that provides a geographical reference of Koala activity levels throughout the LS304 Project.

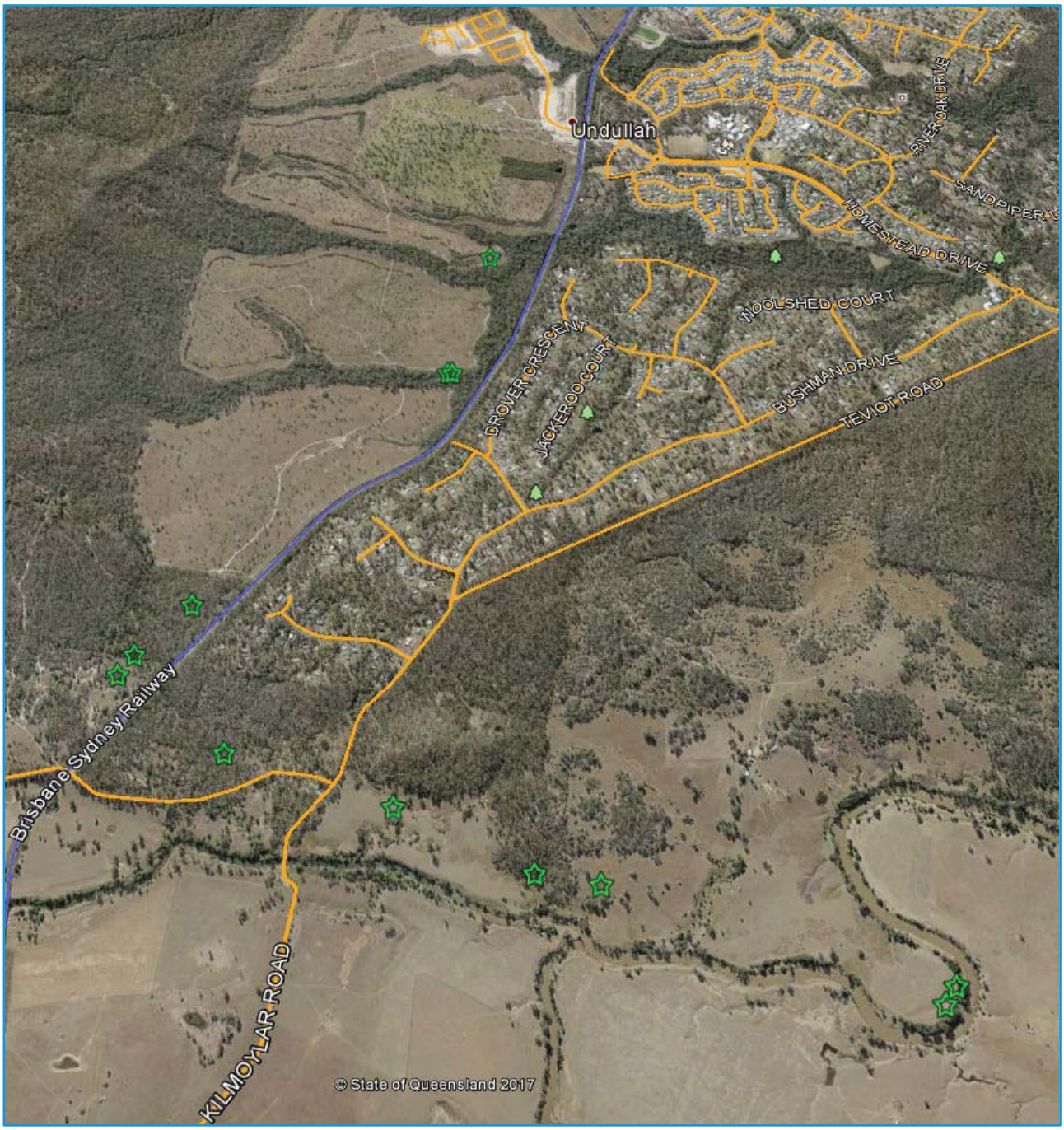

Figure 7 Locations of Grey-headed Flying-fox observations

The Grey-headed Flying-fox was observed foraging throughout the alignment and in some locations in high numbers. The survey was conducted at a time when most of the larger Eucalyptus species were in flower, hence this would account for high level of foraging that was observed. Although in is likely that the numbers are significant less when the Eucalyptus are not in flower, it is important to note the value of these trees in the landscape over seasonal variations.

5.3.2 Grey-headed Flying-fox Significance Impact Assessment

The Grey-headed Flying-fox is listed as Vulnerable under the EPBC Act. The following assessment has been undertaken following the *Matters of National Environmental Significance, Significant Impact Guidelines 1.1*.

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:

Lead to a long-term decrease in the size of an important population of a species

Under the EPBC Act, an important population is defined as:

- *likely to be key source populations either for breeding or dispersal*
- *likely to be necessary for maintaining genetic diversity, and/or*
- *at or near the limit of the species range.*

Lead to a long-term decrease in the size of an important population of the species

The LS304 Project is unlikely to result in long-term decrease in the size of an important population. Grey-headed Flying-foxes are known to travel upwards of 50km in a night to forage when resources are low. There are two historic camps located within close proximity to the LS304 Project but neither of these camps will be directly impacted. In addition, neither of these camps have been identified as a National Important Camp.

Reduce the area of occupancy of an important population

Not applicable as an 'important population' is unlikely to exist in the immediate Project area and areas of potential disturbance.

The Grey-headed Flying-fox is utilizing the LS304 Project as a foraging resource. The Grey-headed Flying-fox has the ability to travel large distances in order to forage and it is likely that this area is one of many in the area.

Fragment an existing important population into two or more populations

Not applicable as an 'important population' is unlikely to exist in the immediate LS304 Project area and areas of potential disturbance.

Adversely affect habitat critical to the survival of a species

Given the yet to be quantified, but potentially small area to be impacted by the LS304 Project, it is unlikely it will adversely affect habitat critical to the survival of the species if appropriate mitigation measures are implemented. Measures should consider minimizing the clearing of any native vegetation, appropriate weed management and retention of significant feed trees.

Disrupt the breeding cycle of an important population

Not applicable as an 'important population' is unlikely to exist in the immediate LS304 Project area and areas of potential disturbance. No camps are located within the LS304 Project.

Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline

Given the yet to be quantified, but potentially small area of habitat to be impacted by the LS304 Project, the availability of habitat resources it is unlikely the project will modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline. It should be noted that appropriate mitigation measures are implemented. Measures should consider minimizing the clearing of any native vegetation, appropriate weed management and retention of significant feed trees.

Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat

The small, but yet to be determined, amount of habitat to be potentially impacted is in a disturbed condition and is subject to weed and pest invasion. The Project is unlikely to contribute towards increases in invasive species which are harmful to the Grey-headed Flying-fox, particularly if a weed management plan is implemented prior to, during, and post construction.

Introduce disease that may cause the species to decline

Hendra and Australian Bat Lyssa Virus are both disease that are known to impact on the Grey-headed Flying-fox. The relationship between these viruses and the Grey-headed Flying-fox are still yet to be fully understood but it is considered likely that stress is a contributing factor.

It is unlikely that this disease or others would be increased by the LS304 Project. In addition, the potentially small area of habitat being impacted by the LS304 Project, the introduction of a disease and/or stress as a result of habitat removal and construction is unlikely.

Interfere substantially with the recovery of the species

According to the *Draft National Recovery Plan for the Grey-headed Flying-fox (Pteropus policephalus)* (Commonwealth of Australia 2017), identifies the recovery objectives for the Grey-headed may include:

- Identify, protect and enhance native foraging habitat critical to the survival of the Grey-headed Flying-fox
- Camp management
- Monitor population trends
- Increase public awareness and build capacity to co-exist
- Decrease impact to horticulture industry
- Support research
- Reduce impact of electricity lines, and entanglement in barbed wire and netting

The LS304 Project is anticipated to increase the interaction between the Grey-headed Flying-fox and electricity lines. LoganWIA should investigate the need for barbed wire on facilities and if it is required then mitigation measures such as audio or visual devices should be implemented. As the Grey-headed Flying-fox has been observed foraging throughout the LS304 Project priority should be given to minimizing the impact on feed trees (Eucalyptus species).

The other recovery objectives around camp management, increase public awareness, impacts to horticulture industry, population monitoring and supporting research are not things that the LoganWIA can directly contribute.

5.4 Conclusion

Surveys have found two Matters of National Environmental Significance (MNES) listed under the EPBC Act, the Koala and Grey-headed Flying-fox. The Koala usage of the LS304 portion is considered normal for a low population. Regardless of the level of usage the Koala is still known to occur within the LS304 footprint and will likely occur within the wider Project. The LS304 portion may be able to avoid clearing of more than 2 ha but the wider project is highly likely to exceed this threshold. Therefore, it is recommended that the activity be taken to a pre-referral meeting and /or be referred to DoEE as 'Not a Controlled Action'. The EPBC Referral period for assessment by DoEE is 20 business days and costs approximately $6,500.

6 Nature Conservation Act 1992

6.1 Threatened Fauna Species

A single threatened fauna species listed under the NC Act was confirmed during the site inspection. Evidence of Koala was detected at several locations during the SAT surveys. A full list of all native and exotic fauna species detected during the Site inspection is provided as **Appendix D.**

6.2 Animal Breeding Places

During the spotlighting surveys, several colonial breeding species were recorded refer to **Table 6-1**. It should be noted that most of these observations were opportunistic opposed to targeted surveys. It is likely that several other species occur within the vicinity of the project but were not detected during the survey effort.

Table 6-1: Colonial breeding species found during survey

ID	GPS	General Description	Habitat description
Squirrel Glider (*Petaurus norfolcensis*)	-27.8330 152.9285	Single individual observed foraging and feeding on tree gum	Non-remnant vegetation, located within a stand of retained Eucalyptus.
Scarlet-sided Popplebonk (*Limnodynastes terraereginae)*	-27.8321 152.8321	Single individual observed with other individuals heard calling	Remnant – Eucalyptus forest
White-striped Mastiff Bat (Tadarida australis)	Throughout the alignment	Heard flying and foraging throughout the alignment.	Non-remnant vegetation, nearby to a recently cleared stockpile area
Eastern Sedge-frog (*Litroia fallax*)	Throughout the alignment	Heard throughout the alignment	Heard in both Remnant and Non-remnant vegetation.
Copper-backed Brood Frog (*Pseudophryne raveni*)	-27.8347 152.9273	Heard calling	Non-remnant vegetation

6.3 Threatened Flora Species

Three *Melaleuca irbyana* individuals were identified during the site inspection, refer to **Table 6-2**. The closest specimen being recorded approximately ~30m from the proposed alignment. Given that this specimen occurs within 100 m of the proposed alignment, a permit under the NC Act and detailed protected flora survey will be required.

Table 6-2: Survey details of Melaleuca irbyana

ID	GPS	General Description	Habitat description
MI1	-27.8363, 152.9331	Healthy mature individual, located with MI2	Non-remnant vegetation, nearby to a recently cleared stockpile area
MI2	-27.8663, 152.9331	Healthy mature individual, located with MI1	Non-remnant vegetation, nearby to a recently cleared stockpile area
MI3	-27.8370, 152.9331	Health mature individual, nearby to the stand of MI1 and MI2	Non-remnant vegetation, nearby to a recently cleared stockpile area
MI4	-27.8232 152.9348	Single mature individual	Non-remnant vegetation, located as a standalone tree within proposed development area.
MI5	Within a 100 radius from -27.8367 152.9256	Individual not directly observed but confirmation from previous surveys (not LoganWIA related) of its presence	Non-remnant vegetation

No other threatened flora species were detected within the Site. A full list of all native and exotic flora species detected during the Site inspection is provided as **Appendix E**.

7 Recommendations and Further Actions

The following is recommended to avoid and minimise impacts.

- It is understood that LS304 is a small portion of a wider project which concept is conveyance system from Greenbank to Cedar Grove. The overall cumulative impacts of this wider project should be considering in conjunction with results of LS304. Clearing of greater than 2 ha of vegetation may trigger referral under the EPBC Act. Should any more than 2 ha of clearing of koala habitat be required a pre-referral meeting with the Commonwealth Department of the Environment & Energy (DoEE) and referral for the Koala and Grey-headed Flying-fox as 'not a controlled action' is recommended.
- Five *Melaleuca irbyana* individuals were identified during the site inspection and desktop investigation, with the closest specimen approximately ~30m from the proposed alignment. Any specimens that occur within 100 m of the proposed alignment trigger the requirement for a permit under the NC Act and detailed protected flora survey should be undertaken.
- A High-risk species management plan for colonial breeding species managing impacts to Squirrel Gliders, Micro-bat species and Native Frog species should be approved for the project.
- Trenchless technology should be strongly considered for the corridors of riparian vegetation, particularly the Logan River and mapped waterways under the VM Act and *Water Act 2000*.
- Retention of large Eucalypt trees should be a priority to conserve vital foraging resources in the area for both the Koala and Grey-headed Flying-fox.
- Clearing of vegetation overall should be avoided as much as practical.
- Prior to any clearing, clearly delineate areas for retention of vegetation with high visibility flagging tape or equivalent markings.
- Fell vegetation away from any vegetation which is to be retained.
- Clear vegetation in a manner that will prevent damage to vegetation to be retained.
- A suitably qualified fauna spotter catcher should be present to supervise all vegetation clearing.
- Development of a Weed Management Plan for pre-construction, delivery and post-construction.
- Owing to the presence of numerous watercourse crossing within the Site appropriate erosion and sediment control is required. Soil erosion and sediment loss should be managed during site works as per a site-specific Environment Management Plan (Construction) and Erosion Sediment Control Plan.

Appendix A LS007 Ecology Memo

TECHNICAL MEMORANDUM	
TO:	Brendan Lennox
PREPARED BY:	Sophie Cowie
REVIEWED BY:	Pratik Solanki
DATE:	20/03/2017
SUBJECT:	Ecology Advice for LS007 – FC2 to Cedar Grove

Overview

An ecological site inspection of the proposed Flagstone LS007 – FC2 to Cedar Grove project was completed by two Logan Water Infrastructure Alliance (LoganWIA) personnel on 12 January 2017, 19 January 2017 and 25 January 201. The entire proposed alignment was traversed, with all vegetated areas traversed on foot and cleared areas either driven or walked.

The aim of the assessment was to assess the likelihood of occurrence of Matters of National Environmental Significance (MNES) listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), threatened species listed under the provisions of the *Nature Conservation Act 1992* (NC Act), and identify any other ecologically sensitive areas (e.g. wetlands, watercourses, fauna breeding places). The site inspection specially targeted threatened species and ecological communities identified by desktop assessment as potentially occurring within the Site.

The results of this Site assessment will inform construction design to avoid and mitigate impacts to ecologically sensitive areas.

Previous Surveys

A number of previous surveys have been completed within the area over the last 10 years for the proposed PEET development (i.e Lot 907 RP819216). These have including both flora and fauna surveys .Based on publically available information within the EPBC referral documentation for this project, the following ecological constraints have been previously identified within the broader locality of the Site:

- Spot-tailed Quoll (*Dasyurus maculatus maculatusi)* was detected by quoll detection dog in the far north west of the development (along a drainage line near Flagstone Creek and along a rocky ridgeline);
- Koala (*Phascolarctos cinereus*) was identified in low number throughout the area; and
- Individuals of Swamp tea tree (*Melaleuca irbyana*.).

Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*

Desktop Assessment Results

An EPBC Referral is required where an action, considered at its broadest scope, is likely to result in a significant impact to any Matters of National Environment Significance (MNES).

An EPBC Referral (No. 2014/7206) has been submitted to the Commonwealth Department of Environment and Energy (DoEE) for the 1,245.26 ha PEET development located at Flagstone Queensland. This referral includes the following relevant action:

All necessary supporting infrastructure including water supply, sewerage services and storm-water drainage incorporating water sensitive urban design measures that preserve the natural drainage features of the site creeks and drainage lines.

EPBC Referral (No. 2014/7206) identifies Koala as the MNES subject of the referral. The EPBC Act *Significant Impact Guidelines 1.1* state that actions are likely to have a significant impact on a vulnerable species if they adversely affect habitat critical to the survival of the species. With respect to Koala, such impacts include clearing or fragmentation of habitat, and activities that increase the risk of threats to the

species such as dog attack, vehicle strike, or introduction and spread of disease. The *EPBC Act referral guidelines for the vulnerable koala* provides the following advice relating to clearing thresholds that are likely or unlikely to constitute a 'Significant Impact' and thus require referral.

- The loss of 20 hectares or more of high quality habitat critical to the survival (habitat score of ≥ 8) is highly likely to have a significant impact for the purposes of the EPBC Act.
- The loss of two hectares or less of marginal quality habitat critical to the survival (habitat score of 5) is highly unlikely to have a significant impact on the koala for the purposes of the EPBC Act.
- The loss of between 2 and 20 ha of habitat critical to the survival of Koala may have a significant impact on Koala for the purposes of the EPBC Act. Whether this is more likely or unlikely depends on the characteristics of your action.
- A significant impact would be expected if 25 hectares of habitat scoring 6 or 7 was being completely cleared.
- A significant impact would not be expected if 5 hectares of habitat scoring 9 or 10, or 10 hectares scoring 7 or 8, was selectively cleared.

EPBC Referral (No. 2014/7206) indicates that the PEET Site contains Koala habitat with a score of '6' and which is therefore 'critical habitat to the survival of the Koala'.

Field Assessment Results

Five KRAM transects were established in areas of suitable habitat for koala throughout the site. Of the total 43 trees inspected, only one showed evidence of usage by koala (one scat detected).

KRAM Results

Plot No.	Distance	No. of Trees	Scats?
1	12	3	No
	34	5	No
	87	7	No
2	0	3	No
	15	1	No
	62	2	No
3	1	2	No
	21	1	No
	60	1	No
4	45	2	No
	59	2	No
	61	2	No
5	**15**	**4**	**Yes**
	60	5	No
	73	3	No
TOTAL	**15 Plots**	**43 trees**	**1 scat**

EPBC Referral (No. 2014/7206) indicates that a number of surveys within the area have shown similar results. That is, whilst koalas are known to use the area their numbers are low. Despite the low usage of the area, as evidence of koala is known from the site, should clearing of more than 2 ha of be required, it is recommended that the activity be taken to a pre-referral meeting and /or be referred to DoEE as 'Not a Controlled Action'. The EPBC Referral period for assessment by DoEE is 20 business days and costs $6,577.

No other Matters of National Environmental Significance listed under the EPBC Act are expected to be significantly impacted by the proposed activity.

Nature Conservation Act 1992

Desktop Assessment Results

The desktop assessment identified the following threatened species listed under the provisions of the NC Act as potentially occurring within the vicinity of the site based on presence of nearby records:

- Spot-tailed quoll (*Dasyurus maculatus*);
- Powerful Own (*Ninox strenua*);
- Koala (*Phascolarctos cinereus); and*
- Swamp tea tree (*Melaleuca irbyana*).

The Desktop Assessment Results are provided as Appendix A.

Field Assessment Results

Threatened Fauna Species

One threatened fauna species listed under the NC Act was confirmed during the site inspection. Evidence of Koala was detected at one location during the KRAM surveys.

Whilst Quoll and Powerful owl have been recorded within the broader area, suitable habitat to support these species was not detected within the Site. Specially, the site does not contain any suitable rocky escarpments, ledges or cliffs which are favoured by the Spot-tailed quoll, or very large hollows which are required breeding habitat for the Powerful owl.

Animal Breeding Places

A species management program (SMP) authorised by DEHP is required for tampering with animal breeding places. An animal breeding place is a bower, burrow, cave, hollow, nest or other thing that is commonly used by the animal to incubate or rear the animal's offspring'. As per Section 332 of the *Nature Conservation (Wildlife Management Regulation 2006*, an animal breeding includes any place where:

- the animal is preparing, or has prepared, the place for incubating or rearing the animal's offspring; or
- the animal is breeding, or is about to breed, and is physically occupying the place; or
- the animal and the animal's offspring are physically occupying the place, even if the occupation is only periodical; or
- the animal has used the place to incubate or rear the animal's offspring and is of a species generally known to return to the same place to incubate or rear offspring in each breeding season for the animal.

The DEHP Information sheet: *Species Management Program Requirements for tampering with a protected animal breeding place in Queensland* provides additional guidance relating to SMPs. Therein it is noted that an SMP is required for any proposed activity that will impact on breeding places of protected animals that are classified as extinct in the wild, endangered, vulnerable, near threatened (EVNT), special least concern, colonial breeder or least concern under the NC Act. That is, if a breeding place that is permanently or intermittently used by any native fauna species is being cleared then a SMP is required. Where it is determined that an SMP is required, a breeding place survey must be undertaken by a 'suitably qualified' person and an application must be made in writing to EHP for the approval of the SMP to tamper with an animal breeding place. It is understood that the LoganWIA possesses a 'low risk' SMP for tampering with breeding places of 'Least Concern' fauna under the NC Act.

A number of potential animal breeding places (including hollow-bearing trees, stags and logs) were detected within the Site. Whist these are likely to provide breeding habitat for a number of least concern fauna species, they are considered unlikely to be suitable for threatened fauna species identified by the desktop assessment as potentially occurring within the Site. Specifically, no suitable breeding habitat for the powerful owl (i.e. large vertical hollows in large old trees) was identified within the proposed ROW, and no suitable breeding habitat for quoll (i.e. rock denning habitat such as outcrops, ledges, escarpments etc.) was observed.

Threatened Flora Species

Two *Melaleuca irbyana* individuals were identified during the site inspection. The closest specimen being recorded approximately ~30m from the proposed alignment. Given that this specimen occurs within 100 m of the proposed alignment, a permit under the NC Act and detailed protected flora survey may be required.

No other threatened flora species were detected within the Site. A full list of all native and exotic flora species detected during the Site inspection is provided as Appendix B.

Vegetation Management Act 1999

Desktop Assessment Results
It is understood that vegetation clearing is proposed to facilitate the ROW. Most of the proposed construction footprint is located within Category X non-remnant vegetation which is not regulated under the *Vegetation Management Act 1999*. The following Category B Remnant Regional Ecosystems (REs) are mapped within the proposed construction footprint:

- RE12.3.3 - *Eucalyptus tereticornis* woodland on Quaternary alluvium
- RE 12.9-10.2 - *Corymbia citriodora* subsp*. variegata* +/- *Eucalyptus crebra* open forest on sedimentary rocks
- RE 12.9-10.3 - *Eucalyptus moluccana* open forest on sedimentary rocks
- 12.9-10.7 - *Eucalyptus crebra* +/- *E. tereticornis, Corymbia tessellaris, Angophora* spp., *E. melanophloia* woodland on sedimentary rocks.

For Category B vegetation on certain land tenure, vegetation clearing approval will be required.

Field Assessment Results
Five quaternary level vegetation assessments were completed within areas of mapped remnant vegetation. The results of these assessments are provided as Appendix C. Generally, vegetation within the Site was consistent with the mapped Regional Ecosystems (REs).

Biosecurity Act 2014

Whilst a dedicated weed survey was not completed as part of the site inspection, a number of weed species declared under the *Biosecurity Act 2014* were detected within the Site. Restricted weeds identified within the Site are as follows:

- Ragweed (*Ambrosia artemisiifolia*) Category 2
- Dutchman's Pipe (*Aristolochia elegans*) Category 3
- Groundsel Bush (*Baccharis halimifolia*) Category 3
- Cat's claw creeper (Dolichandra unguis-cati) Category 3
- Lantana (*Lantana camara*) Category 3
- Creeping lantana (*Lantana montividenis*) Category 3
- Velvety tree pear (*Opuntia tomentosa*) Category 3
- Broad-leaved Pepper tree (*Schinus terebinthifolius*) Category 3
- Fireweed (*Senecio madagascariensis*) Category 3; and
- Giant Rat's Tail Grass (*Sporobolus pyramidalis*) Category 3

General Biosecurity obligations therefore apply for the removal and disposed of declared weeds and pests.

Recommendations and Further Actions

The following is recommend to avoid and minimise impacts.

- Clearing of vegetation should be avoided as far as practical.
- An EPBC Act self-assessment should be completed to demonstrate that the Project will not a significant impact on MNES.
- Clearing of greater than 2 ha of vegetation may trigger referral under the EPBC Act. Should any more than 2 ha of clearing of koala habitat be required a pre-referral meeting with the Commonwealth Department of the Environment & Energy (DoEE) and referral for Koala as 'not a controlled action' is recommended.
- Two *Melaleuca irbyana* individuals were identified during the site inspection, with the closest specimen approximately ~30m from the proposed alignment. Given that this specimen occurs within 100 m of the proposed alignment, a permit under the NC Act and detailed protected flora survey may be required.
- Prior to any clearing, clearly delineate areas for retention of vegetation with high visibility flagging tape or equivalent markings.

- Fell vegetation away from any vegetation which is to be retained.
- Clear vegetation in a manner that will prevent damage to vegetation to be retained.
- A suitably qualified fauna spotter catcher should be present to supervise all vegetation clearing.
- A number of flora species which are restricted invasive plants under the *Biosecurity Act 2014* were identified during the site inspections. General biosecurity obligation applies.
- Owing to the presence of numerous watercourse crossing within the Site appropriate erosion and sediment control is required. Soil erosion and sediment loss should be managed during site works as per a site specific Environment Management Plan (Construction) and Erosion Sediment Control Plan.

Appendix A Desktop Search Results

Protected Plants Flora Survey Trigger Map

Legend

- Coordinates
- High risk area
- Cadastral line
  Property boundaries shown are provided as a locational aid only
- Freeways / motorways / highways
- Secondary roads / streets

N

0 490 980 1,470 1,960 2,450 m

This product is projected into:
GDA 1994 Queensland Albers

This map shows areas where particular provisions of the Nature Conservation Act 1992 apply to the clearing of protected plants.

This map is produced at a scale relevant to the size of the area selected and should be printed as A4 size in portrait orientation.

For further information or assistance with interpretation of this product, please contact the Department of Environment and Heritage Protection at palm@ehp.qld.gov.au

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Kingdom	Class	Family	Scientific Name	Vernacular Name
Animalia	Actinopterygii	Ambassidae	*Ambassis agassizii*	Agassiz's glassfish
Animalia	Actinopterygii	Anguillidae	*Anguilla australis*	southern shortfin eel
Animalia	Actinopterygii	Anguillidae	*Anguilla reinhardtii*	longfin eel
Animalia	Actinopterygii	Atherinidae	*Craterocephalus stercusmuscarum*	flyspecked hardyhead
Animalia	Actinopterygii	Cichlidae	*Oreochromis mossambica*	Mozambique mouthbrooder
Animalia	Actinopterygii	Cyprinidae	*Carassius auratus*	goldfish
Animalia	Actinopterygii	Cyprinidae	*Cyprinus carpio*	European carp
Animalia	Actinopterygii	Eleotridae	*Gobiomorphus australis*	striped gudgeon
Animalia	Actinopterygii	Eleotridae	*Hypseleotris compressa*	empire gudgeon
Animalia	Actinopterygii	Eleotridae	*Hypseleotris galii*	firetail gudgeon
Animalia	Actinopterygii	Eleotridae	*Hypseleotris klunzingeri*	western carp gudgeon
Animalia	Actinopterygii	Eleotridae	*Philypnodon grandiceps*	flathead gudgeon
Animalia	Actinopterygii	Eleotridae	*Philypnodon macrostomus*	dwarf flathead gudgeon
Animalia	Actinopterygii	Melanotaeniidae	*Melanotaenia duboulayi*	crimsonspotted rainbowfish
Animalia	Actinopterygii	Mugilidae	*Mugil cephalus*	sea mullet
Animalia	Actinopterygii	Mugilidae	*Trachystoma petardi*	pinkeye mullet
Animalia	Actinopterygii	Percichthyidae	*Macquaria novemaculeata*	Australian bass
Animalia	Actinopterygii	Plotosidae	*Tandanus tandanus*	freshwater catfish
Animalia	Actinopterygii	Poeciliidae	*Gambusia holbrooki*	mosquitofish
Animalia	Actinopterygii	Pseudomugilidae	*Pseudomugil signifer*	Pacific blue eye
Animalia	Actinopterygii	Retropinnidae	*Retropinna semoni*	Australian smelt
Animalia	Actinopterygii	Terapontidae	*Leiopotherapon unicolor*	spangled perch
Animalia	Amphibia	Bufonidae	*Rhinella marina*	cane toad
Animalia	Amphibia	Hylidae	*Litoria dentata*	bleating treefrog
Animalia	Amphibia	Hylidae	*Litoria fallax*	eastern sedgefrog
Animalia	Amphibia	Hylidae	*Litoria latopalmata*	broad palmed rocketfrog
Animalia	Amphibia	Myobatrachidae	*Crinia parinsignifera*	beeping froglet
Animalia	Amphibia	Myobatrachidae	*Limnodynastes peronii*	striped marshfrog
Animalia	Aves	Acanthizidae	*Acanthiza chrysorrhoa*	Yellow-rumped Thornbill
Animalia	Aves	Acanthizidae	*Acanthiza nana*	Yellow Thornbill
Animalia	Aves	Acanthizidae	*Acanthiza reguloides*	buff-rumped thornbill
Animalia	Aves	Acanthizidae	*Chthonicola sagittata*	speckled warbler
Animalia	Aves	Acanthizidae	*Gerygone mouki*	Brown Gerygone
Animalia	Aves	Acanthizidae	*Gerygone olivacea*	White-throated Gerygone
Animalia	Aves	Acanthizidae	*Sericornis frontalis*	White-browed Scrubwren
Animalia	Aves	Acanthizidae	*Smicrornis brevirostris*	Weebill
Animalia	Aves	Accipitridae	*Accipiter cirrocephalus*	Collared Sparrowhawk
Animalia	Aves	Accipitridae	*Accipiter fasciatus*	Brown Goshawk
Animalia	Aves	Accipitridae	*Aquila audax*	Wedge-tailed Eagle
Animalia	Aves	Accipitridae	*Aviceda subcristata*	Pacific Baza
Animalia	Aves	Accipitridae	*Circus assimilis*	spotted harrier
Animalia	Aves	Accipitridae	*Haliaeetus leucogaster*	White-bellied Sea-Eagle
Animalia	Aves	Alaudidae	*Mirafra javanica*	Horsfields Bushlark
Animalia	Aves	Alcedinidae	*Ceyx azureus*	Azure Kingfisher
Animalia	Aves	Alcedinidae	*Dacelo leachii*	blue-winged kookaburra
Animalia	Aves	Alcedinidae	*Dacelo novaeguineae*	Laughing Kookaburra
Animalia	Aves	Alcedinidae	*Todiramphus sanctus*	Sacred Kingfisher
Animalia	Aves	Anatidae	*Anas gracilis*	Gray Teal
Animalia	Aves	Anatidae	*Anas superciliosa*	Pacific Black Duck
Animalia	Aves	Anatidae	*Aythya australis*	White-eyed Duck
Animalia	Aves	Anatidae	*Chenonetta jubata*	Maned Duck
Animalia	Aves	Anatidae	*Dendrocygna eytoni*	Plumed Whistling-Duck
Animalia	Aves	Anhingidae	*Anhinga novaehollandiae*	Australasian Darter
Animalia	Aves	Ardeidae	*Ardea ibis*	Cattle Egret
Animalia	Aves	Ardeidae	*Ardea modesta*	Great Egret
Animalia	Aves	Ardeidae	*Egretta novaehollandiae*	White-faced Heron
Animalia	Aves	Ardeidae	*Ardea intermedia*	Intermediate Egret
Animalia	Aves	Artamidae	*Artamus leucorynchus*	White-breasted Woodswallow
Animalia	Aves	Artamidae	*Cracticus nigrogularis*	Pied Butcherbird
Animalia	Aves	Artamidae	*Cracticus tibicen*	Australian Magpie
Animalia	Aves	Artamidae	*Cracticus torquatus*	Gray Butcherbird
Animalia	Aves	Artamidae	*Strepera graculina*	Pied Currawong
Animalia	Aves	Cacatuidae	*Cacatua galerita*	Sulphur-crested Cockatoo

Kingdom	Class	Family	Scientific Name	Vernacular Name
Animalia	Aves	Cacatuidae	*Cacatua sanguinea*	Little Corella
Animalia	Aves	Cacatuidae	*Cacatua tenuirostris*	Long-billed Corella
Animalia	Aves	Cacatuidae	*Eolophus roseicapillus*	Galah
Animalia	Aves	Campephagidae	*Coracina novaehollandiae*	Black-faced Cuckooshrike
Animalia	Aves	Campephagidae	*Coracina tenuirostris*	Cicadabird
Animalia	Aves	Campephagidae	*Lalage sueurii*	White-winged Triller
Animalia	Aves	Campephagidae		Common Cicadabird
Animalia	Aves	Centropodidae	*Centropus phasianinus*	Pheasant Coucal
Animalia	Aves	Charadriidae	*Elseyornis melanops*	Black-fronted Dotterel
Animalia	Aves	Charadriidae	*Vanellus miles*	Masked Lapwing
Animalia	Aves	Ciconiidae	*Ephippiorhynchus asiaticus*	BLACK-NECKED STORK
Animalia	Aves	Cisticolidae	*Cisticola exilis*	Golden-headed Cisticola
Animalia	Aves	Climacteridae	*Cormobates leucophaeus*	White-throated Treecreeper
Animalia	Aves	Columbidae	*Geopelia humeralis*	Bar-shouldered Dove
Animalia	Aves	Columbidae	*Geopelia striata*	Peaceful Dove
Animalia	Aves	Columbidae	*Ocyphaps lophotes*	Crested Pigeon
Animalia	Aves	Columbidae	*Streptopelia chinensis*	Spotted Dove
Animalia	Aves	Coraciidae	*Eurystomus orientalis*	Dollarbird
Animalia	Aves	Corvidae	*Corvus orru*	Torresian Crow
Animalia	Aves	Cuculidae	*Cacomantis flabelliformis*	Fan-tailed Cuckoo
Animalia	Aves	Cuculidae	*Cacomantis variolosus*	Brush Cuckoo
Animalia	Aves	Cuculidae	*Chrysococcyx basalis*	Horsfield's Bronze-Cuckoo
Animalia	Aves	Cuculidae	*Chrysococcyx lucidus*	Shining Bronze-Cuckoo
Animalia	Aves	Cuculidae	*Eudynamys orientalis*	Pacific Koel (Australian)
Animalia	Aves	Dicruridae	*Dicrurus bracteatus*	Spangled Drongo
Animalia	Aves	Estrildidae	*Lonchura castaneothorax*	Chestnut-breasted Mannikin
Animalia	Aves	Estrildidae	*Neochmia modesta*	Plum-headed Finch
Animalia	Aves	Estrildidae	*Neochmia temporalis*	Red-browed Firetail
Animalia	Aves	Estrildidae	*Stizoptera bichenovii*	Double-barred Finch
Animalia	Aves	Falconidae	*Falco berigora*	Brown Falcon
Animalia	Aves	Falconidae	*Falco cenchroides*	Nankeen Kestrel
Animalia	Aves	Falconidae	*Falco longipennis*	Australian Hobby
Animalia	Aves	Falconidae	*Falco peregrinus*	peregrine falcon
Animalia	Aves	Hirundinidae	*Hirundo neoxena*	Welcome Swallow
Animalia	Aves	Hirundinidae	*Petrochelidon ariel*	Fairy Martin
Animalia	Aves	Hirundinidae	*Petrochelidon nigricans*	Tree Martin
Animalia	Aves	Jacanidae	*Irediparra gallinacea*	Comb-crested Jacana
Animalia	Aves	Maluridae	*Malurus cyaneus*	Superb Fairywren
Animalia	Aves	Maluridae	*Malurus lamberti*	Variegated Fairywren
Animalia	Aves	Maluridae	*Malurus melanocephalus*	Red-backed Fairy-wren
Animalia	Aves	Megaluridae	*Megalurus timoriensis*	Tawny Grassbird
Animalia	Aves	Meliphagidae	*Acanthorhynchus tenuirostris*	eastern spinebill
Animalia	Aves	Meliphagidae	*Caligavis chrysops*	Yellow-faced Honeyeater
Animalia	Aves	Meliphagidae	*Entomyzon cyanotis*	Blue-faced Honeyeater
Animalia	Aves	Meliphagidae	*Lichmera indistincta*	Brown Honeyeater
Animalia	Aves	Meliphagidae	*Manorina melanocephala*	Noisy Miner
Animalia	Aves	Meliphagidae	*Meliphaga lewinii*	Lewin's Honeyeater
Animalia	Aves	Meliphagidae	*Melithreptus albogularis*	White-throated Honeyeater
Animalia	Aves	Meliphagidae	*Melithreptus gularis*	Black-chinned Honeyeater
Animalia	Aves	Meliphagidae	*Myzomela sanguinolenta*	scarlet honeyeater
Animalia	Aves	Meliphagidae	*Philemon citreogularis*	Little Friarbird
Animalia	Aves	Meliphagidae	*Philemon corniculatus*	Noisy Friarbird
Animalia	Aves	Meliphagidae	*Plectorhyncha lanceolata*	Striped Honeyeater
Animalia	Aves	Meliphagidae	*Ptilotula fusca*	Fuscous Honeyeater
Animalia	Aves	Meropidae	*Merops ornatus*	Rainbow Bee-eater
Animalia	Aves	Monarchidae	*Grallina cyanoleuca*	Magpie-lark
Animalia	Aves	Monarchidae	*Myiagra inquieta*	Restless Flycatcher
Animalia	Aves	Monarchidae	*Myiagra rubecula*	Leaden Flycatcher
Animalia	Aves	Motacillidae	*Anthus novaeseelandiae*	Australasian Pipit
Animalia	Aves	Nectariniidae	*Dicaeum hirundinaceum*	Mistletoebird
Animalia	Aves	Neosittidae	*Daphoenositta chrysoptera*	Varied Sittella
Animalia	Aves	Oriolidae	*Oriolus sagittatus*	Olive-backed Oriole
Animalia	Aves	Oriolidae	*Sphecotheres vieilloti*	Australasian Figbird

Kingdom	Class	Family	Scientific Name	Vernacular Name
Animalia	Aves	Pachycephalidae	*Colluricincla harmonica*	Gray Shrikethrush
Animalia	Aves	Pachycephalidae	*Pachycephala pectoralis*	Golden Whistler
Animalia	Aves	Pachycephalidae	*Pachycephala rufiventris*	Rufous Whistler
Animalia	Aves	Pardalotidae	*Pardalotus punctatus*	Spotted Pardalote
Animalia	Aves	Pardalotidae	*Pardalotus striatus*	Striated Pardalote
Animalia	Aves	Pelecanidae	*Pelecanus conspicillatus*	Australian Pelican
Animalia	Aves	Petroicidae	*Eopsaltria australis*	Eastern Yellow Robin
Animalia	Aves	Petroicidae	*Microeca fascinans*	jacky winter
Animalia	Aves	Petroicidae	*Petroica rosea*	Rose Robin
Animalia	Aves	Phalacrocoracidae	*Microcarbo melanoleucos*	Little Pied Cormorant
Animalia	Aves	Phalacrocoracidae	*Phalacrocorax melanoleucos*	Little Pied Cormorant
Animalia	Aves	Phalacrocoracidae	*Phalacrocorax sulcirostris*	Little Black Cormorant
Animalia	Aves	Phasianidae	*Coturnix ypsilophora*	Brown Quail
Animalia	Aves	Podicipedidae	*Tachybaptus novaehollandiae*	Australasian Grebe
Animalia	Aves	Pomatostomidae	*Pomatostomus temporalis*	Gray-crowned Babbler
Animalia	Aves	Psittacidae	*Alisterus scapularis*	Australian King-Parrot
Animalia	Aves	Psittacidae	*Parvipsitta pusilla*	Little Lorikeet
Animalia	Aves	Psittacidae	*Platycercus adscitus*	Pale-headed Rosella
Animalia	Aves	Psittacidae	*Trichoglossus chlorolepidotus*	Scaly-breasted Lorikeet
Animalia	Aves	Psittacidae	*Trichoglossus haematodus*	Rainbow Lorikeet
Animalia	Aves	Psophodidae	*Cinclosoma punctatum*	spotted quail-thrush
Animalia	Aves	Psophodidae	*Psophodes olivaceus*	Eastern Whipbird
Animalia	Aves	Rallidae	*Fulica atra*	Eurasian Coot
Animalia	Aves	Rallidae	*Gallinula tenebrosa*	Dusky Moorhen
Animalia	Aves	Rallidae	*Porphyrio porphyrio*	Australasian Swamphen
Animalia	Aves	Rhipiduridae	*Rhipidura albiscapa*	Gray Fantail
Animalia	Aves	Rhipiduridae	*Rhipidura leucophrys*	Willie-wagtail
Animalia	Aves	Rhipiduridae	*Rhipidura rufifrons*	Rufous Fantail
Animalia	Aves	Sturnidae	*Acridotheres*	Common Myna
Animalia	Aves	Sturnidae	*Sturnus tristis*	Common Myna
Animalia	Aves	Sturnidae	*Sturnus vulgaris*	Common Starling
Animalia	Aves	Threskiornithidae	*Platalea flavipes*	Yellow-billed Spoonbill
Animalia	Aves	Threskiornithidae	*Platalea regia*	Royal Spoonbill
Animalia	Aves	Threskiornithidae	*Threskiornis molucca*	Australian White Ibis
Animalia	Aves	Threskiornithidae	*Threskiornis spinicollis*	Straw-necked Ibis
Animalia	Aves	Timaliidae	*Zosterops lateralis*	Silver-eye
Animalia	Mammalia	Dasyuridae	*Antechinus flavipes*	Yellow-footed Antechinus
Animalia	Mammalia	Dasyuridae	*Phascogale tapoatafa*	Brush-tailed phascogale
Animalia	Mammalia	Dasyuridae	*Sminthopsis murina*	common dunnart
Animalia	Mammalia	Leporidae	*Oryctolagus cuniculus*	rabbit
Animalia	Mammalia	Macropodidae	*Macropus giganteus*	eastern grey kangaroo
Animalia	Mammalia	Macropodidae	*Macropus rufogriseus*	red-necked wallaby
Animalia	Mammalia	Muridae	*Melomys cervinipes*	Fawn-footed Melomys
Animalia	Mammalia	Muridae	*Rattus fuscipes*	bush rat
Animalia	Mammalia	Muridae	*Rattus lutreolus*	Swamp Rat
Animalia	Mammalia	Phalangeridae	*Trichosurus vulpecula*	common brushtail possum
Animalia	**Mammalia**	**Phascolarctidae**	***Phascolarctos cinereus***	**Koala**
Animalia	Mammalia	Pteropodidae	*Pteropus alecto*	black flying-fox
Animalia	**Mammalia**	**Pteropodidae**	***Pteropus poliocephalus***	**grey-headed flying-fox**
Animalia	Mammalia	Suidae	*Sus scrofa*	pig
Animalia	Mammalia	Tachyglossidae	*Tachyglossus aculeatus*	Echidna
Animalia	Mammalia	Vespertilionidae	*Chalinolobus gouldii*	Gould's Wattled Bat
Animalia	Mammalia	Vespertilionidae	*Vespadelus pumilus*	Eastern Forest-bat
Animalia	Reptilia	Agamidae	*Intellagama lesueurii*	eastern water dragon
Animalia	Reptilia	Colubridae	*Dendrelaphis punctulatus*	Green Tree Snake
Animalia	Reptilia	Elapidae	*Hoplocephalus bitorquatus*	pale-headed snake
Animalia	Reptilia	Scincidae	*Carlia munda*	
Animalia	Reptilia	Scincidae	*Carlia vivax*	
Animalia	Reptilia	Scincidae	*Cryptoblepharus pulcher*	elegant snake-eyed skink
Animalia	Reptilia	Scincidae	*Ctenotus taeniolatus*	copper-tailed skink
Plantae	Equisetopsida	Fabaceae	*Glycine tabacina*	
Plantae	Equisetopsida	Fabaceae	*Indigofera australis*	
Plantae	Equisetopsida	Hypnodendraceae	*Hypnodendron vitiense*	

Kingdom	Class	Family	Scientific Name	Vernacular Name
Plantae	Equisetopsida	Myrtaceae	*Angophora subvelutina*	
Plantae	Equisetopsida	Poaceae	*Cynodon dactylon*	
Plantae	Equisetopsida	Poaceae	*Paspalum distichum*	
Plantae	Equisetopsida	Polypodiaceae	*Platycerium bifurcatum*	elkhorn
Plantae	Equisetopsida	Rubiaceae	*Asperula conferta*	
Plantae	Equisetopsida	Solanaceae	*Solanum linnaeanum*	
Plantae		Chenopodiaceae	*Chenopodium erosum*	

Australian Government
Department of the Environment and Energy

EPBC Act Protected Matters Report

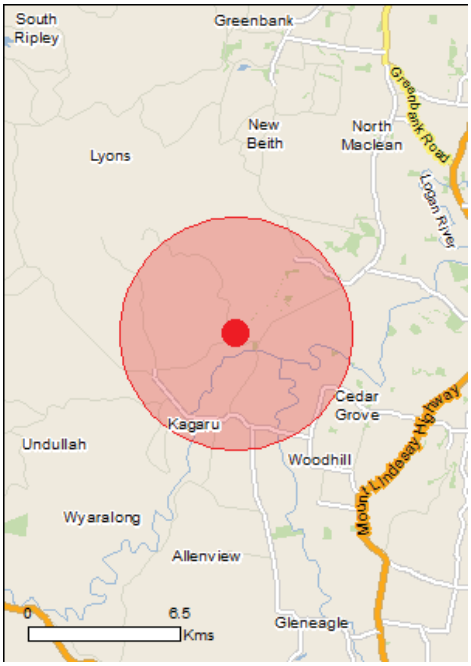
This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

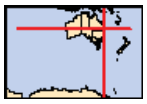
Report created: 18/01/17 14:10:26

- Summary
- Details
  - Matters of NES
  - Other Matters Protected by the EPBC Act
  - Extra Information
- Caveat
- Acknowledgements



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

Coordinates
Buffer: 5.0Km



Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	2
Listed Threatened Species:	33
Listed Migratory Species:	13

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	20
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	None
Regional Forest Agreements:	None
Invasive Species:	31
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar)	[Resource Information]
Name	Proximity
Moreton bay	30 - 40km upstream

Listed Threatened Ecological Communities		[Resource Information]
For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.		
Name	Status	Type of Presence
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community may occur within area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community may occur within area

Listed Threatened Species		[Resource Information]
Name	Status	Type of Presence
Birds		
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour may occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Dasyornis brachypterus Eastern Bristlebird [533]	Endangered	Species or species habitat likely to occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat likely to occur within area
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat may occur within area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Poephila cincta cincta Southern Black-throated Finch [64447]	Endangered	Species or species

Name	Status	Type of Presence
		habitat may occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
Turnix melanogaster Black-breasted Button-quail [923]	Vulnerable	Species or species habitat likely to occur within area
Fish		
Maccullochella mariensis Mary River Cod [83806]	Endangered	Translocated population known to occur within area
Mammals		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat may occur within area
Petauroides volans Greater Glider [254]	Vulnerable	Species or species habitat may occur within area
Petrogale penicillata Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat likely to occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area
Other		
Cycas ophiolitica [55797]	Endangered	Species or species habitat likely to occur within area
Plants		
Bosistoa transversa Three-leaved Bosistoa, Yellow Satinheart [16091]	Vulnerable	Species or species habitat likely to occur within area
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area
Macadamia integrifolia Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak [7326]	Vulnerable	Species or species habitat likely to occur within area
Macadamia tetraphylla Rough-shelled Bush Nut, Macadamia Nut, Rough-shelled Macadamia, Rough-leaved Queensland Nut [6581]	Vulnerable	Species or species habitat may occur within area
Notelaea ipsviciensis Cooneana Olive [81858]	Critically Endangered	Species or species habitat may occur within area
Notelaea lloydii Lloyd's Olive [15002]	Vulnerable	Species or species habitat likely to occur within area
Phaius australis Lesser Swamp-orchid [5872]	Endangered	Species or species habitat may occur within area

Name	Status	Type of Presence
Phebalium distans Mt Berryman Phebalium [81869]	Critically Endangered	Species or species habitat may occur within area
Samadera bidwillii Quassia [29708]	Vulnerable	Species or species habitat likely to occur within area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area
Reptiles		
Delma torquata Collared Delma [1656]	Vulnerable	Species or species habitat may occur within area
Furina dunmalli Dunmall's Snake [59254]	Vulnerable	Species or species habitat may occur within area
Saiphos reticulatus Three-toed Snake-tooth Skink [88328]	Vulnerable	Species or species habitat may occur within area

Listed Migratory Species

[Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat likely to occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area
Migratory Wetlands Species		
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Birds		
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Cuculus saturatus Oriental Cuckoo, Himalayan Cuckoo [710]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat likely to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area

Name	Threatened	Type of Presence
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat may occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Extra Information

Invasive Species [Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Lonchura punctulata Nutmeg Mannikin [399]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina Cane Toad [83218]		Species or species habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Equus caballus Horse [5]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur

Name	Status	Type of Presence within area
Plants		
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area
Cabomba caroliniana Cabomba, Fanwort, Carolina Watershield, Fish Grass, Washington Grass, Watershield, Carolina Fanwort, Common Cabomba [5171]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
Eichhornia crassipes Water Hyacinth, Water Orchid, Nile Lily [13466]		Species or species habitat likely to occur within area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
Parkinsonia aculeata Parkinsonia, Jerusalem Thorn, Jelly Bean Tree, Horse Bean [12301]		Species or species habitat likely to occur within area
Parthenium hysterophorus Parthenium Weed, Bitter Weed, Carrot Grass, False Ragweed [19566]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Senecio madagascariensis Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624]		Species or species habitat likely to occur within area
Reptiles		
Hemidactylus frenatus Asian House Gecko [1708]		Species or species habitat likely to occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-27.83428 152.92758

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact Us page.

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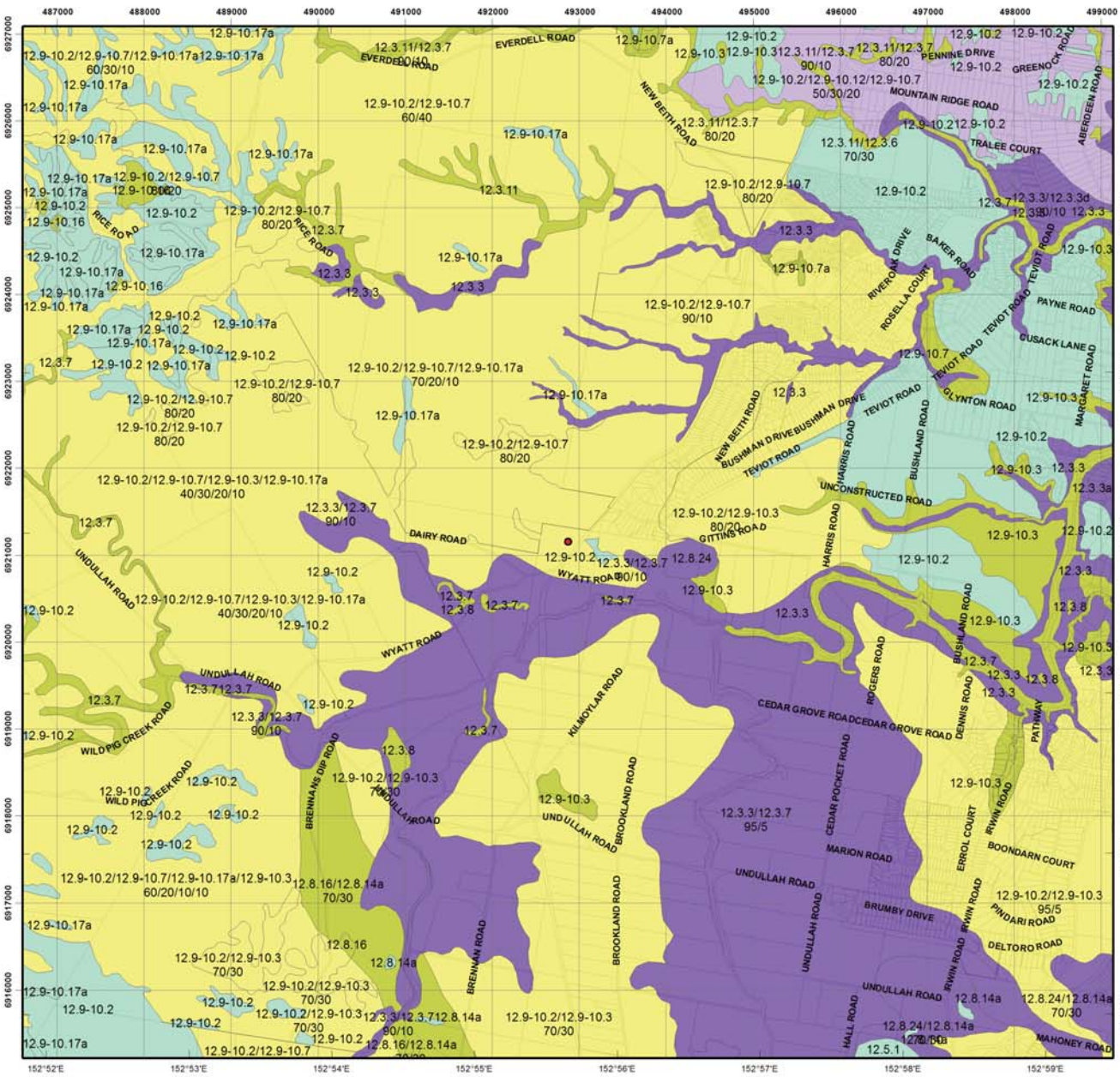

Pre-clearing Regional Ecosystems

Biodiversity Status

- Coordinates
- Endangered - Dominant vegetation
- Endangered - Sub-dominant
- Of Concern - Dominant
- Of Concern - Sub-dominant
- No concern at present
- Water
- Cadastral Boundaries

N

0 0.75 1.5 2.25 3 km

This product is projected into GDA 1994 MGA Zone 56

Regional ecosystem mapping over the majority of Queensland is produced at a scale of 1:100,000. At this scale, the minimum remnant polygon area is 5 hectares or minimum remnant width of 75 metres. Regional ecosystem linework reproduced at a scale greater than 1:100,000, except in designated areas, should be used as a guide only. The precision of polygon boundaries or positional accuracy of linework is 100 metres.

Regional ecosystems are defined as vegetation communities in a bioregion that are consistently associated with a particular combination of geology, landform and soil.

The polygons are labelled by regional ecosystem (RE); where more than one RE occurs, the percentage of each is labelled. The label consists of 3 components: bioregion, land zone, and vegetation community – the dominant canopy species. e.g.: RE 12.3.3. Descriptions of REs are found online. Use the search term "Regional Ecosystem Framework".

Regional ecosystem mapping at 1:100,000 map scale is derived from the following sources: 1:80,000 B&W 1960's aerial photography, Landsat TM imagery, geology, soils, land systems data, field survey and historical records.

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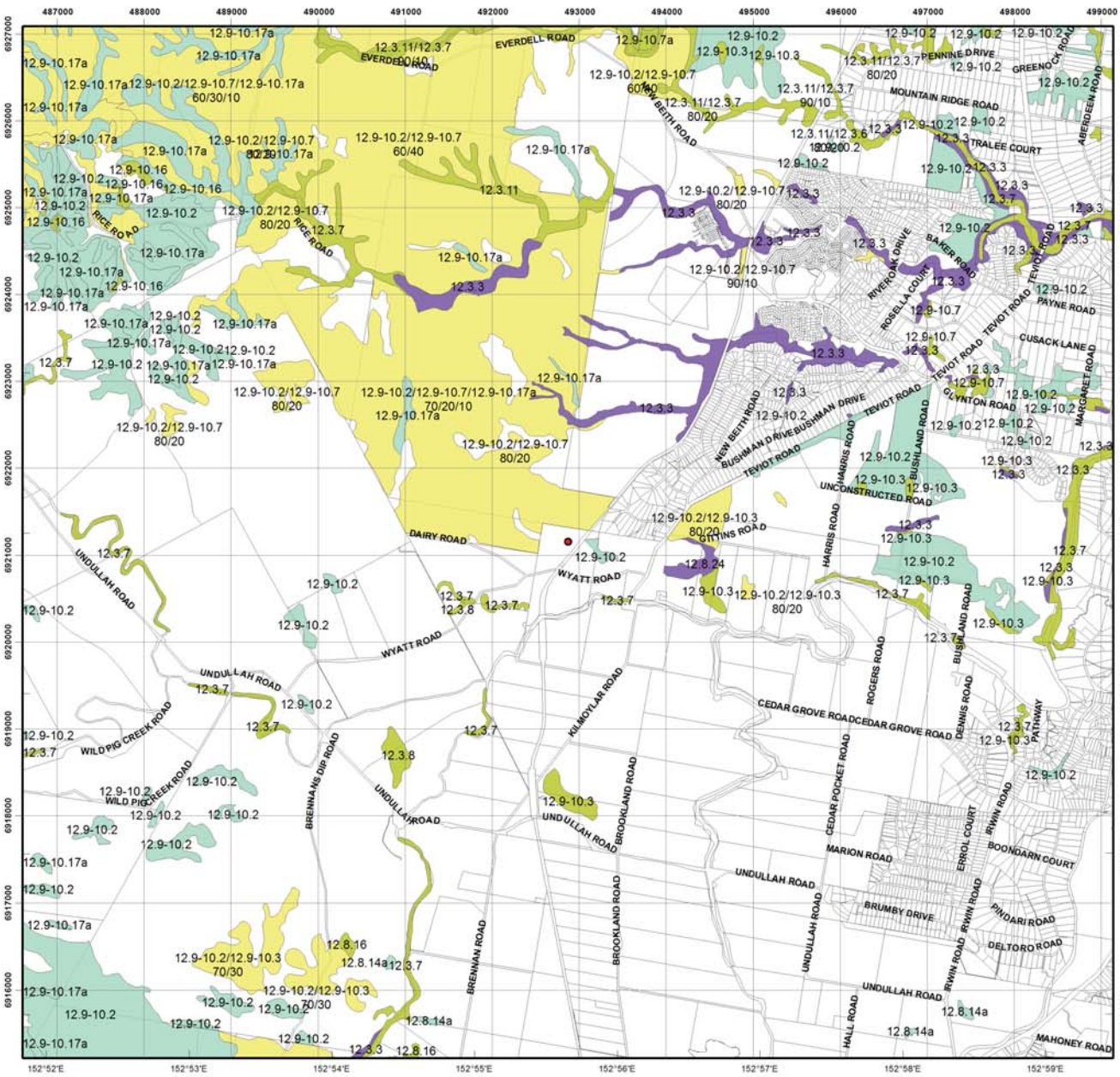
18/01/2017 13:09:43
Longitude: 152.927578 Latitude: -27.834282



Remnant 2015 Regional Ecosystems

Biodiversity Status

- Coordinates
- Endangered - Dominant vegetation
- Endangered - Sub-dominant
- Of Concern - Dominant
- Of Concern - Sub-dominant
- No concern at present
- Non-remnant vegetation, cultivated or built environment
- Plantation
- Water
- Cadastral Boundaries

N

0 0.75 1.5 2.25 3 km

This product is projected into GDA 1994 MGA Zone 56

Regional ecosystem mapping over the majority of Queensland is produced at a scale of 1:100,000. At this scale, the minimum remnant polygon area is 5 hectares or minimum remnant width of 75 metres. Regional ecosystem linework reproduced at a scale greater than 1:100,000, except in designated areas, should be used as a guide only. The precision of polygon boundaries or positional accuracy of linework is 100 metres.

Regional ecosystems are defined as vegetation communities in a bioregion that are consistently associated with a particular combination of geology, landform and soil.

The polygons are labelled by regional ecosystem (RE); where more than one RE occurs, the percentage of each is labelled. The label consists of 3 components: bioregion, land zone, and vegetation community – the dominant canopy species. e.g.: RE 12.3.3. Descriptions of REs are found online. Use the search term "Regional Ecosystem Framework".

Regional ecosystem mapping at 1:100,000 map scale is derived from the following sources: 1:80,000 B&W 1960's aerial photography, Landsat TM imagery, geology, soils, land systems data, field survey and historical records.

Remnant woody vegetation is defined as vegetation that has not been cleared or vegetation that has been cleared but where the dominant canopy has >70% of the height and >50% of the cover relative to the undisturbed height and cover of that stratum and is dominated by species characteristic of the vegetation's undisturbed canopy.

Non-remnant vegetation includes regrowth and disturbed native vegetation.

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Department of Natural Resources and Mines

Vegetation management report

For Lot: 907 Plan: SP281066

Current as at 18/01/2017

Queensland Government

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Overview

The management and clearing of native vegetation in Queensland is regulated by the *Vegetation Management Act 1999*, the Vegetation Management Regulation 2009, the *Sustainable Planning Act 2009* and the Sustainable Planning Regulation 2009 in conjunction with associated policies and codes. These legislation, policies and codes are referred to as the Vegetation Management Framework.

Many routine vegetation management activities can be carried out under exemptions or self-assessable codes under the *Vegetation Management Act 1999*. Other activities may require you to apply for a development approval under the *Sustainable Planning Act 2009*. The requirements for a permit depend on the type of vegetation, the land tenure (e.g. freehold or leasehold land), the location, and the extent and purpose of the proposed clearing. In urban areas, vegetation may be regulated by local government provisions even if it is not regulated vegetation under the VMA.

The information in this report will assist you to determine the options for managing vegetation on your property. Based on the lot on plan you have supplied, this report provides the following detailed information:

1. *Property region* - the local government area, bioregion(s), subregion(s), catchment(s) and any applicable area management plans associated with your property.
2. *Vegetation management framework* - an explanation of the options that may be available to manage vegetation on your property.
3. *Property details for the specified Lot on Plan* - specific information about your property including land tenure, vegetation categories, regional ecosystems, watercourses, wetlands, essential habitat, land suitability and protected plants.
4. *Maps* - a series of colour maps to assist in identifying regulated vegetation on your property including:
   - regulated vegetation management map
   - vegetation management map
   - land suitability map
   - protected plants map.

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1. Property regions

Table 1 provides a summary of the regions that property Lot: 907 Plan: SP281066 is located within.

Table 1: Property regions

Local Government(s)
Logan City

Bioregion(s)	Subregion(s)
Southeast Queensland	Moreton Basin

Catchment(s)
Logan-Albert

Area Management Plan(s): Nil

2. Vegetation management framework

Vegetation clearing is regulated under the *Vegetation Management Act 1999* (VMA) and the *Sustainable Planning Act 2009* (SPA). A development approval is required to clear where the clearing is not exempt under the SPA, or where it cannot be carried out under a self-assessable clearing code or an area management plan under the VMA.

The VMA does not apply to all land tenures or vegetation types. State forests, national parks, forest reserves and some tenure types as defined under the *Forestry Act 1959* and *Nature Conservation Act 1992* are not regulated by the VMA. Managing vegetation not regulated under the VMA may require permits under these laws.

The following native vegetation is not regulated under the VMA but may require permit(s) under other laws:

a) grass or non-woody herbage;
b) a plant within a grassland regional ecosystem; and
c) a mangrove.

The regulated vegetation management map, the vegetation management map, the land suitability map and the protected plants map provided in section 4 and the information provided in section 2 and 3 of this report will assist you in identifying clearing suitability and enable you to determine whether your proposed clearing is:

- exempt;
- requires notification and compliance with a self-assessable code or area management plan; or
- requires a development approval.

2.1 Exemptions

The vegetation management framework allows clearing for certain purposes without approval, known as an exemption.

Areas that are mapped as Category X (white in colour) on the regulated vegetation management map (section 5.1) on most State land tenures are exempt and therefore do not require a development approval or notification.

There are other exemptions that apply to a range of routine property management activities. A list of these is available at https://www.qld.gov.au/environment/land/vegetation/exemptions/.

Although vegetation management laws may allow clearing under an exemption, there may be other state, local or Commonwealth laws that apply. Exemptions may not apply if the vegetation is subject to permit conditions, a covenant, an

offset or restrictions as a result of unlawful clearing.

2.2 Self-assessable codes

Some clearing activities can be undertaken using a self-assessable vegetation clearing code and notification process. The codes can be downloaded at
https://www.qld.gov.au/environment/land/vegetation/codes/

If you intend to clear vegetation under a self-assessable vegetation clearing code, you must notify the department before commencing. The information in this report will assist you to complete the online notification form.

You can complete the online form at
https://apps.dnrm.qld.gov.au/vegetation/

2.3 Area management plans

Area Management Plans (AMP) provide an alternative approval system for vegetation clearing. They list the purposes and clearing conditions that have been approved for the areas covered by the plan. It is not necessary to use an AMP, even when an AMP applies to your property.

If an area management plan applies to your property, it will be listed in Table 1 of this report.

To clear under an existing AMP, you must notify the DNRM before clearing starts and follow the conditions listed in the AMP. You can download the area management clearing notification form and obtain a copy of the relevant AMP at
https://www.qld.gov.au/environment/land/vegetation/area-plans/

2.4 Development approvals

If your proposed clearing is not exempt, or is not permitted under a self-assessable vegetation clearing code, or an AMP, you may be able to apply for a development approval. Information on how to apply for a development approval is available at
https://www.qld.gov.au/environment/land/vegetation/applying/

3. Property details for Lot: 907 Plan: SP281066

3.1 Tenure

All of the lot, plan and tenure information associated with property Lot: 907 Plan: SP281066, including links to relevant Smart Maps, are listed in Table 2. The tenure of the property (whether it is freehold, leasehold, or other) may be viewed by clicking on the Smart Map link(s) provided.

Table 2: Lot, plan and tenure information for the property

Tenure	Lot	Plan	Link to property on SmartMap
Freehold	907	SP281066	http://globe.information.qld.gov.au/cgi-bin/SmartMapgen.py?q=907\SP281066
Easement	C	SP183944	http://globe.information.qld.gov.au/cgi-bin/SmartMapgen.py?q=C\SP183944
Easement	B	SP183944	http://globe.information.qld.gov.au/cgi-bin/SmartMapgen.py?q=B\SP183944
Easement	EA	SP290305	http://globe.information.qld.gov.au/cgi-bin/SmartMapgen.py?q=EA\SP290305
Easement	EB	SP290305	http://globe.information.qld.gov.au/cgi-bin/SmartMapgen.py?q=EB\SP290305

The tenure of the land determines whether certain exemptions are applicable.

Some self-assessable codes apply only to freehold and leasehold land granted for grazing and agricultural purposes.

3.2 Vegetation categories

Vegetation categories are shown on the regulated vegetation management map in section 5.1 of this report. Descriptions for these categories are shown in Table 3.

Table 3

Category	Colour on Map	Description	Requirements
A	red	Compliance areas, environmental offset areas and voluntary declaration areas	Clearing requires a development approval, exemption, or self-assessable clearing code or area management plan notification.
B	dark blue	Remnant vegetation areas	Clearing requires a development approval, exemption, or self-assessable clearing code or area management plan notification.
C	light blue	High-value regrowth areas	Clearing requires exemption, or self-assessable clearing code or area management plan notification.
R	yellow	Regrowth within 50m of a watercourse in the priority reef catchment areas	Clearing requires exemption, or self-assessable clearing code or area management plan notification.
X	white	Areas not regulated under the *Vegetation Management Act 1999*	No permit or notification required on all but certain state land tenures.

The vegetation categories on this property are listed in Table 4.

Table 4: Vegetation categories for subject property

Vegetation category
Category B
Category X

3.3 Regional ecosystems

The endangered, of concern and least concern regional ecosystems on your property are shown on the vegetation management supporting map in section 5.2 and are listed in Table 5.

A description of regional ecosystems can be accessed online at https://www.qld.gov.au/environment/plants-animals/plants/ecosystems/descriptions/

Table 5: Regional ecosystems present on subject property

Regulated vegetation description	Regional ecosystem patch
rem_oc	12.9-10.2/12.9-10.7
rem_end	12.3.3
rem_oc	12.9-10.2/12.9-10.7/12.9-10.3/12.9-10.17
rem_leastc	12.9-10.17
rem_oc	12.9-10.2/12.9-10.7/12.9-10.17

rem_leastc	is vegetation category A or B with a VMA status of least concern
rem_oc	is vegetation category A or B with a VMA status of concern
rem_end	is vegetation category A or B with a VMA status of endangered
hvr_leastc	is vegetation category C or R with a VMA status of least concern
hvr_oc	is vegetation category C or R with a VMA status of concern
hvr_end	is vegetation category C or R with a VMA status of endangered

The VMA status of the regional ecosystem (whether it is endangered, of concern or least concern) also determines if any of the following are applicable:

- exemptions
- performance outcomes in State Development Assessment Provisions (SDAP)
- self-assessable codes.

Some clearing purposes are limited to a particular group of regional ecosystems (e.g. encroachment) and some self-assessable codes allow clearing only in certain regional ecosystems.

3.4 Watercourses

Vegetation management watercourses for this property are shown on the vegetation management supporting map in section 5.2.

3.5 Wetlands

There are no vegetation management wetlands present on this property.

3.6 Essential habitat

Any essential habitat on this property will be shown on the vegetation management supporting map in section 5.2.

Essential habitat identifies areas in which species of wildlife that are endangered, vulnerable, rare or near threatened under the *Nature Conservation Act 1992* have been known to occur. These important habitat areas are protected under the VMA.

If essential habitat is identified on this property, the information about the protected wildlife species is provided in Table 6 below (if no table is displayed below, there has not been any essential habitat identified on this property). The species label is shown on the vegetation management supporting map in section 5.2. The essential habitat factors are stated in the columns marked with an asterisk.

Table 6: Endangered, vulnerable, or near threatened wildlife species identified within the property (if no table is shown below, there is no essential habitat identified on the property)

Label	Scientific Name	Common Name	NCA Status	*Vegetation Community	*Altitude
29186	Phascolarctos cinereus (southeast Queensland bioregion)	Koala	V	Open eucalypt forest and woodland that has: a) multiple strata layers containing Eucalyptus, Corymbia, Angophora, Lophostemon or Melaleuca trees that-at 1.3 metres above the ground-have a diameter both greater and less than 30 centimetres; and b) at least 1 of the following species: Eucalyptus tereticornis, E. fibrosa, E. propinqua; E. umbra, E. grandis, E. microcorys, E. tindaliae, E. resinifera, E. populnea, E. robusta, E. nigra, E. racemosa, E. crebra, E. exserta, E. seeana, Lophostemon confertus, L. suaveolens, Melaleuca quinquenervia.	Sea level to 1000m.

Additional essential habitat information

Label	*Regional Ecosystem (mandatory)
29186	12.3.3, 12.3.4, 12.3.6, 12.3.7, 12.3.10, 12.3.11, 12.5.2, 12.5.3, 12.8.14, 12.9-10.4, 12.9-10.7, 12.9-10.17, 12.11.5, 12.11.18, 12.12.12

3.7 Land suitability

Land suitability mapping and information is required if you are applying to clear vegetation for high value or irrigated high value agriculture. Land suitability assessment addresses the capacity of land to sustain specific land uses such as cropping, irrigated agriculture and forestry.

A land suitability map for this property is provided in section 5.3. The map provides detailed land suitability, agricultural land classification, or soil and land resource mapping data where it is available.

The land suitability project that applies to this property is shown in Table 7 and Table 8.

Table 7: Land suitability project details for this property

Project name	Project code	Start date	Scale
Soil Survey of the Boonah-Beaudesert Area	ZAV	1971-01-01 00:00:00	50000

Table 8: Available land suitability project reports for this property

Project name	Availability of report
Soil Survey of the Boonah-Beaudesert Area	CSIRO report. Available at www.publications.qld.gov.au

3.8 Protected plants

In Queensland, all plants that are native to Australia are protected plants under the *Nature Conservation Act 1992*. The Act endeavours to ensure that protected plants (whole plants or protected plant parts) are not illegally removed from the wild or illegally traded.

Prior to clearing, you must check the flora survey trigger map to determine if the clearing is within a high risk area. The trigger map for this property is provided in section 5.4.

If your property is in a high risk area, a flora survey must be undertaken and a clearing permit may be required for clearing endangered, vulnerable and near threatened plants (EVNT plants) and their supporting habitat.

If a flora survey identifies that EVNT plants are not present or can be avoided by 100m, the clearing activity may be exempt from a permit. An exempt clearing notification form is required. This form can be downloaded at
http://www.ehp.qld.gov.au/licences-permits/plants-animals/protected-plants/

In an area other than a high risk area, a clearing permit is only required where a person is, or becomes aware that EVNT plants are present.

Clearing of least concern plants is exempt from requiring a clearing permit within a low risk area.

To be eligible for certain clearing exemptions you need to keep a copy of the map for the area subject to clearing. Protected plants flora survey trigger maps are valid for a period of 12 months from the date of request. After 12 months you will need to obtain a new protected plants flora survey trigger map to determine clearing requirements for your area of interest. This can be accessed online at
http://www.ehp.qld.gov.au/licences-permits/plants-animals/protected-plants/map-request.php

For further information or assistance on the protected plants flora survey trigger map for this property, please contact the Department of Environment and Heritage Protection at
palm@ehp.qld.gov.au

3.9 Emissions Reduction Fund (ERF)

The ERF is an Australian Government scheme which offers incentives for businesses and communities across the economy to reduce emissions.

Under the ERF, farmers can earn money from activities such as planting (and keeping) trees, managing regrowth vegetation and adopting more sustainable agricultural practices.

The purpose of a project is to remove greenhouse gases from the atmosphere. Each project will provide new economic opportunities for farmers, forest growers and land managers.

Further information on ERF is available at https://www.qld.gov.au/environment/land/state/use/carbon-rights/

4. Contacts for further information

For further information on vegetation management:
Phone 135VEG (135 834)
Email vegetation@dnrm.qld.gov.au
Visit www.dnrm.qld.gov.au/our-department/contact-us/vegetation-contacts to submit an online enquiry.

5. Maps

The maps included in this report may also be requested individually at:

https://www.dnrm.qld.gov.au/qld/environment/land/vegetation/vegetation-map-request-form
and
http://www.ehp.qld.gov.au/licences-permits/plants-animals/protected-plants/map-request.php

Regulated vegetation management map

The regulated vegetation management map shows vegetation categories to determine clearing requirements. These maps are updated monthly to show new property maps of assessable vegetation

Vegetation management supporting map

The vegetation management supporting map provides information on regional ecosystems, wetlands, watercourses and essential habitat.

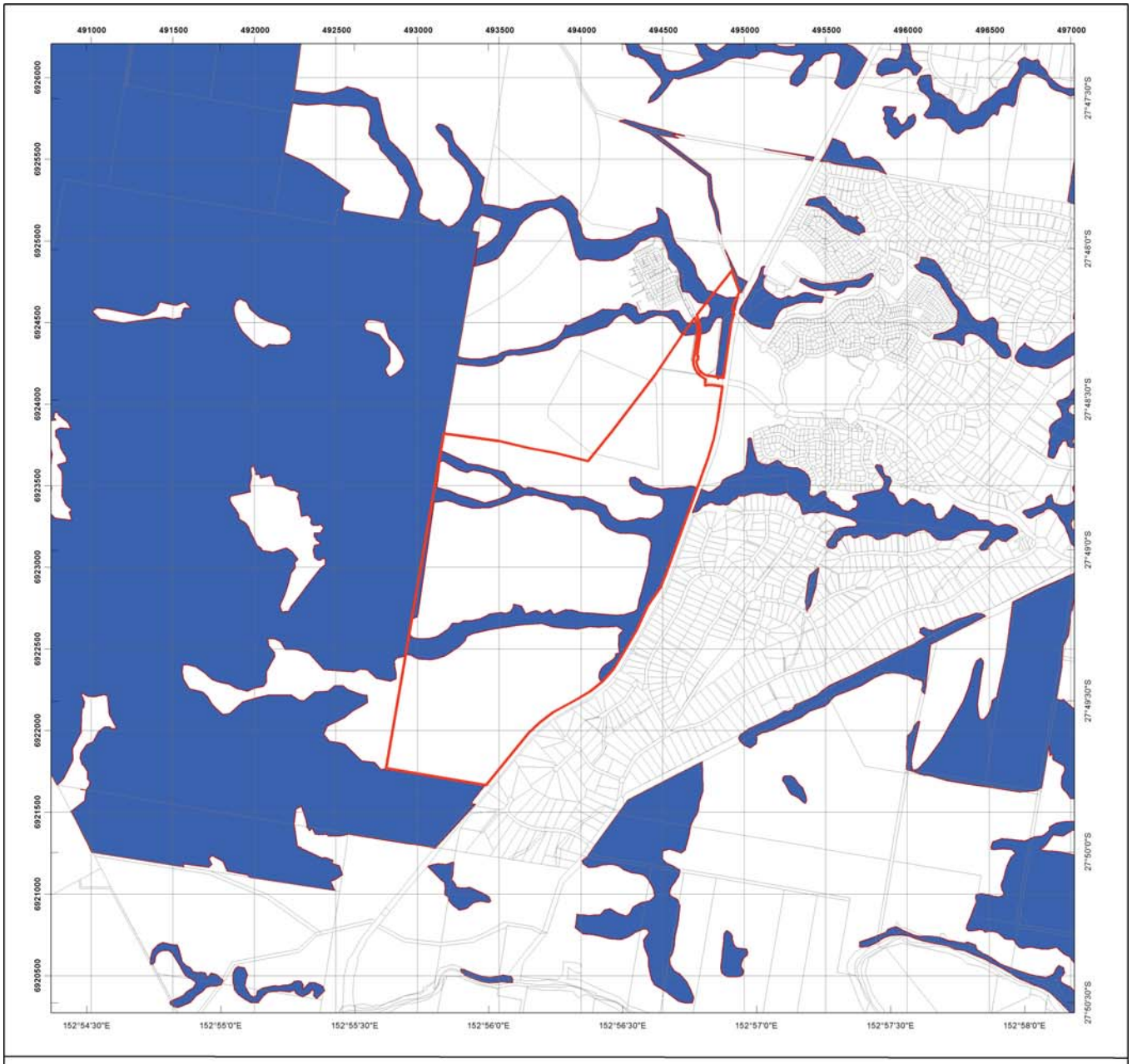
Land suitability map

The land suitability map assists with identifying the land suitability category under the high value and irrigated high value agriculture vegetation clearing purpose.

Protected plants map

The protected plants map shows areas where particular provisions of the *Nature Conservation Act 1992* apply to the clearing of protected plants.

5.1 Regulated vegetation management map

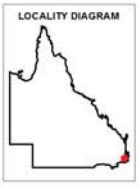


Regulated Vegetation Management Map

Legend

- Lot and Plan
- Category A area (Vegetation offsets/compliance notices/VDecs)
- Category B area (Remnant vegetation)
- Category C area (High-value regrowth vegetation)
- Category R area (Reef regrowth watercourse vegetation)
- Category X area (Exempt on Freehold, Indigenous and Leasehold land)
- Water
- Area not categorised
- Cadastral line
- Property boundaries shown are provided as a locational aid only

LOCALITY DIAGRAM



N

0 340 680 1,020 1,360 1,700 m

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Additional information required for the assessment of vegetation values is provided in the accompanying "Vegetation Management Supporting map". For further information go to the web site: www.dnrm.qld.gov.au or contact the Department of Natural Resources and Mines.

Digital data for the regulated vegetation management map is available from the Queensland Spatial Portal at http://www.information.qld.gov.au/

This map is updated on a monthly basis to ensure new PMAVs are included as they are approved.

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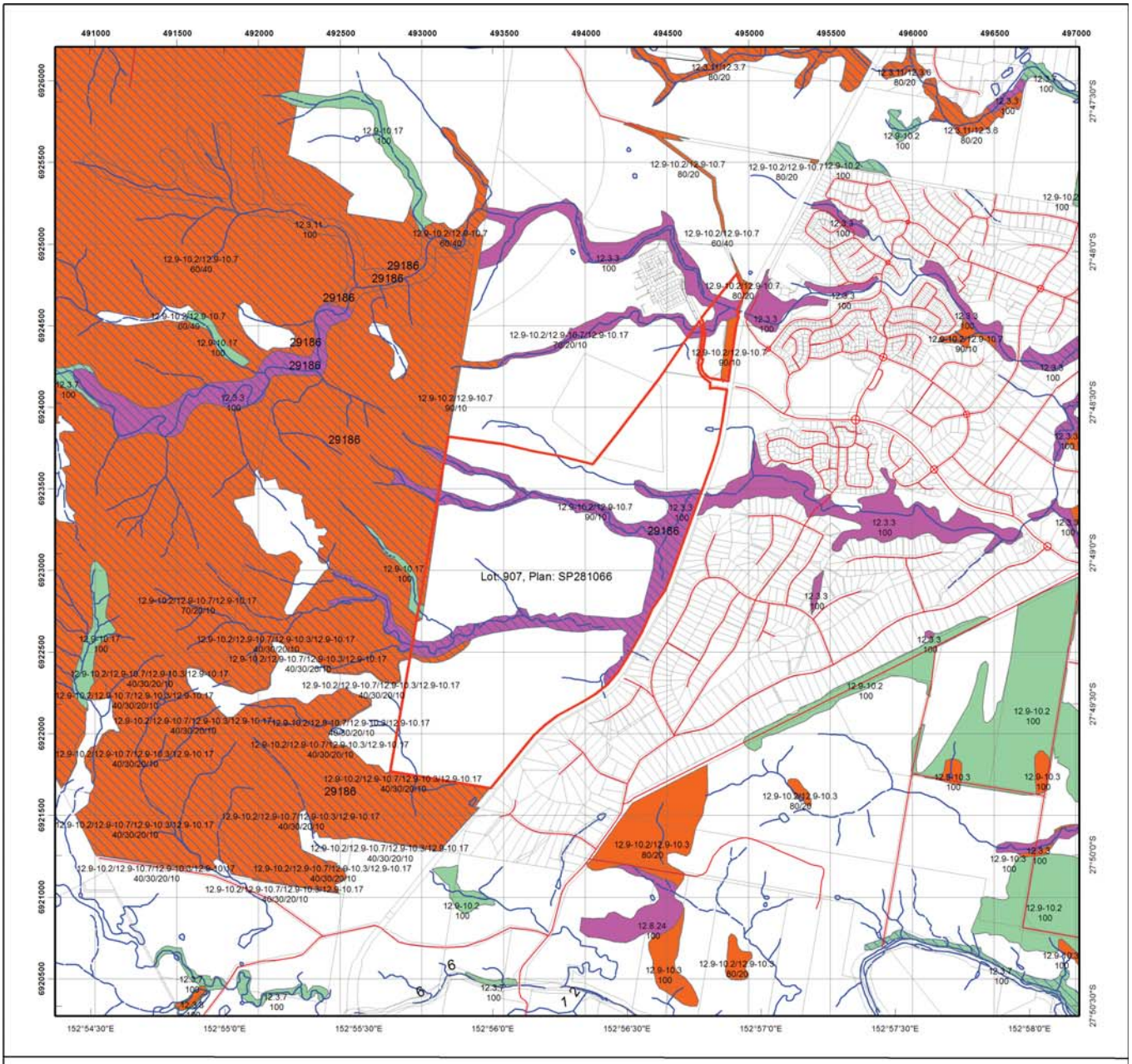
5.2 Vegetation management supporting map



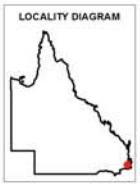
Vegetation Management Supporting Map

Legend

- Lot and Plan
- Category A or B area containing endangered regional ecosystems
- Category A or B area containing of concern regional ecosystems
- Category A or B area that is a least concern regional ecosystem
- Category A or B area containing remnant vegetation
- Category A or B area under Section 20AH
  These areas are edged in yellow and filled with the remnant RE Status
- Category C area containing endangered regional ecosystems
- Category C area containing of concern regional ecosystems
- Category C area that is a least concern regional ecosystem
- Category C area containing high value regrowth vegetation
- Category C area under Section 20AI
  These areas are edged in purple and filled with the remnant RE Status
- Non Remnant
- Water
- Wetland on the vegetation management wetlands map
- Essential habitat on the essential habitat map
- Essential habitat species record
- Watercourse on the vegetation management watercourse and drainage feature map (Stream order shown as black number against stream where available)
- Roads
- National Parks, State Forest and other reserves
- Cadastral line
  Property boundaries shown are provided as a locational aid only

Queensland Government

LOCALITY DIAGRAM



N

0 240 480 720 960 1,200 m

This product is projected into:
GDA 1994 MGA Zone 56

Labels for Essential Habitat are centred on the area of enquiry.

Regional ecosystem linework has been compiled at a scale of 1:100 000, except in designated areas where a compilation scale of 1:50 000 is available. Linework should be used as a guide only. The positional accuracy of RE data mapped at a scale of 1:100 000 is +/- 100 metres.

Disclaimer:
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Additional information may be required for the purposes of land clearing or assessment of a regional ecosystem map or PMAV applications. For further information go to the web site: www.dnrm.qld.gov.au or contact the Department of Natural Resources and Mines.

Digital data for the vegetation management watercourse and drainage feature map, vegetation management wetlands map, essential habitat map and the vegetation management remnant and regional ecosystem map are available from the Queensland Spatial Portal at http://www.information.qld.gov.au/

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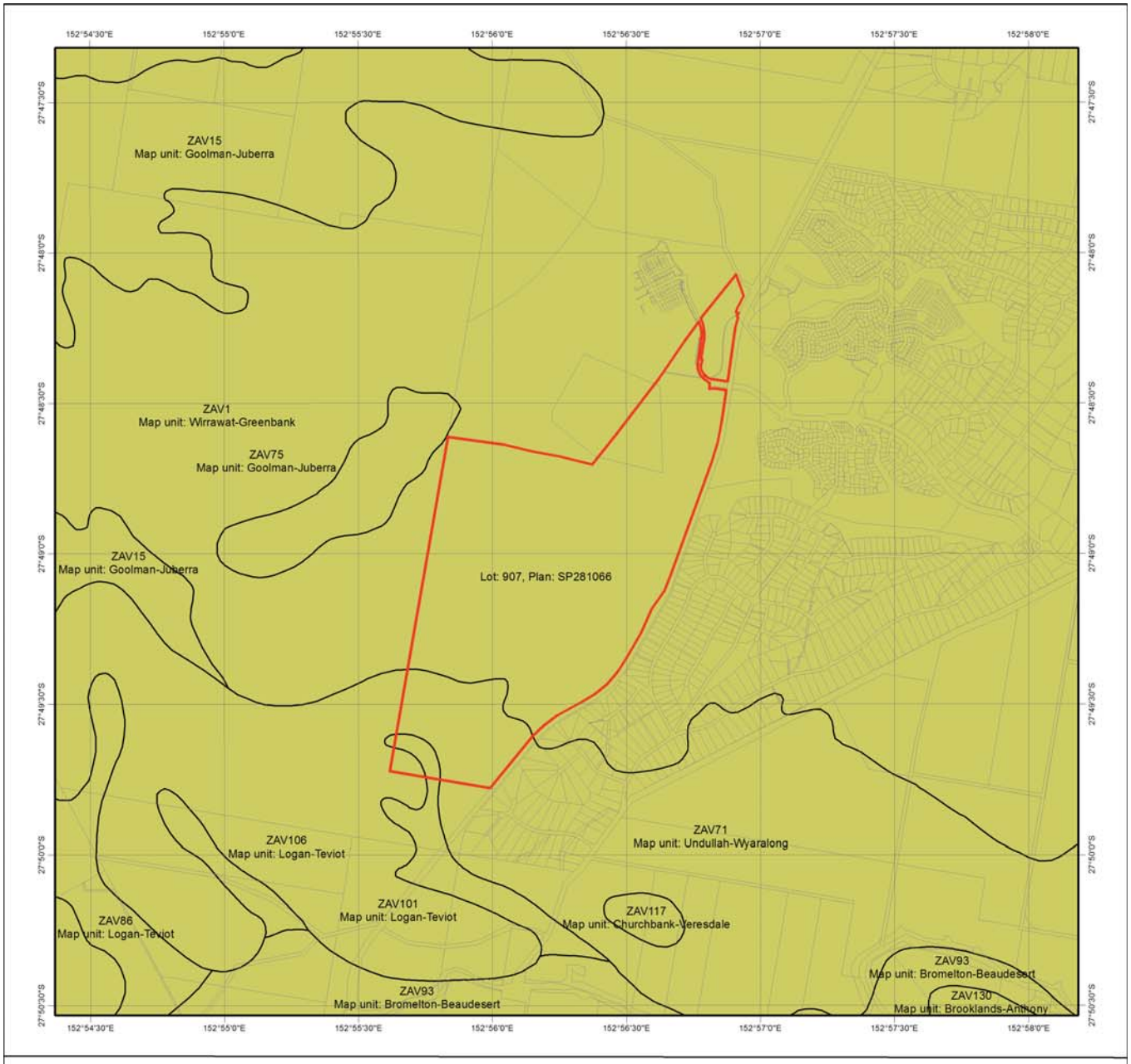
5.3 Land suitability map

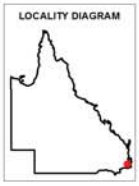


Land Suitability Overview Map

Legend

- Lot and Plan
- Cadastral Boundaries
- Land suitability mapping 1:100,000 scale or better (Category 2 or 3*)
- Land suitability mapping greater than 1:100,000 scale (Category 4)
- No mapping available (Category 4)

* Category 3 applies to applications where there is some land resource mapping or information available however it either does not cover the entire area, or the land suitability mapping and information does not identify the land as suitable for the proposed crop and management systems.



Important information

The Land Suitability Overview Map assists with identifying the Land Suitability category under the high value and irrigated high value agriculture vegetation clearing purpose. This map provides detailed land suitability, agricultural land classification, or soil and land resource mapping data where it is available on the selected lots. Where no data is available, the maps will be blank, with no mapping visible.

Further information on these categories is available in the Guideline for applying to clear for high-value or irrigated high-value agriculture (www.dnrm.qld.gov.au).

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N

0 240 480 720 960 1,200 m

This product is projected into:
GDA 1994 MGA Zone 56

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5.4 Protected plants map

Protected Plants Flora Survey Trigger Map

Legend

- Lot and Plan
- High risk area
- Cadastral line
  Property boundaries shown are provided as a locational aid only
- Freeways / motorways / highways
- Secondary roads / streets

N

0 240 480 720 960 1,200 m

This product is projected into:
GDA 1994 MGA Zone 56

This map shows areas where particular provisions of the Nature Conservation Act 1992 apply to the clearing of protected plants.

This map is produced at a scale relevant to the size of the area selected and should be printed as A4 size in portrait orientation.

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Queensland Government

Wildlife Online Extract

Search Criteria: Species List for a Specified Point
Species: All
Type: All
Status: All
Records: All
Date: All
Latitude: -27.8343
Longitude: 152.9276
Distance: 5
Email: sophie.cowie@cardno.com.au
Date submitted: Wednesday 18 Jan 2017 13:08:47
Date extracted: Wednesday 18 Jan 2017 13:10:08

The number of records retrieved = 186

Disclaimer

As the DSITIA is still in a process of collating and vetting data, it is possible the information given is not complete. The information provided should only be used for the project for which it was requested and it should be appropriately acknowledged as being derived from Wildlife Online when it is used.

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Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Bufonidae	*Rhinella marina*	cane toad	Y			3
animals	amphibians	Hylidae	*Litoria dentata*	bleating treefrog		C		2
animals	amphibians	Hylidae	*Litoria caerulea*	common green treefrog		C		2
animals	amphibians	Hylidae	*Litoria gracilenta*	graceful treefrog		C		1
animals	amphibians	Hylidae	*Litoria fallax*	eastern sedgefrog		C		1
animals	amphibians	Hylidae	*Litoria latopalmata*	broad palmed rocketfrog		C		4
animals	amphibians	Limnodynastidae	*Limnodynastes peronii*	striped marshfrog		C		1
animals	amphibians	Limnodynastidae	*Platyplectrum ornatum*	ornate burrowing frog		C		1
animals	amphibians	Myobatrachidae	*Crinia parinsignifera*	beeping froglet		C		5
animals	birds	Acanthizidae	*Smicrornis brevirostris*	weebill		C		7
animals	birds	Acanthizidae	*Acanthiza nana*	yellow thornbill		C		1
animals	birds	Acanthizidae	*Gerygone olivacea*	white-throated gerygone		C		6
animals	birds	Acanthizidae	*Acanthiza reguloides*	buff-rumped thornbill		C		11
animals	birds	Acanthizidae	*Sericornis frontalis*	white-browed scrubwren		C		3
animals	birds	Acanthizidae	*Acanthiza chrysorrhoa*	yellow-rumped thornbill		C		2
animals	birds	Acanthizidae	*Chthonicola sagittata*	speckled warbler		C		9
animals	birds	Accipitridae	*Aviceda subcristata*	Pacific baza		C		1
animals	birds	Accipitridae	*Haliaeetus leucogaster*	white-bellied sea-eagle		C		2
animals	birds	Accipitridae	*Accipiter fasciatus*	brown goshawk		C		1
animals	birds	Accipitridae	*Circus assimilis*	spotted harrier		C		1
animals	birds	Accipitridae	*Aquila audax*	wedge-tailed eagle		C		1
animals	birds	Alaudidae	*Mirafra javanica*	Horsfield's bushlark		C		1
animals	birds	Alcedinidae	*Ceyx azureus*	azure kingfisher		C		2
animals	birds	Anatidae	*Anas gracilis*	grey teal		C		1
animals	birds	Anatidae	*Anas superciliosa*	Pacific black duck		C		9
animals	birds	Anatidae	*Chenonetta jubata*	Australian wood duck		C		6
animals	birds	Ardeidae	*Bubulcus ibis*	cattle egret		C		5
animals	birds	Ardeidae	*Egretta novaehollandiae*	white-faced heron		C		5
animals	birds	Artamidae	*Strepera graculina*	pied currawong		C		2
animals	birds	Artamidae	*Cracticus tibicen*	Australian magpie		C		29
animals	birds	Artamidae	*Cracticus torquatus*	grey butcherbird		C		11
animals	birds	Artamidae	*Cracticus nigrogularis*	pied butcherbird		C		9
animals	birds	Cacatuidae	*Calyptorhynchus funereus*	yellow-tailed black-cockatoo		C		1
animals	birds	Cacatuidae	*Cacatua sanguinea*	little corella		C		1
animals	birds	Cacatuidae	*Cacatua galerita*	sulphur-crested cockatoo		C		15
animals	birds	Cacatuidae	*Cacatua tenuirostris*	long-billed corella	Y	C		3
animals	birds	Cacatuidae	*Eolophus roseicapilla*	galah		C		15
animals	birds	Campephagidae	*Coracina novaehollandiae*	black-faced cuckoo-shrike		C		12
animals	birds	Campephagidae	*Coracina tenuirostris*	cicadabird		C		1
animals	birds	Charadriidae	*Vanellus miles*	masked lapwing		C		2
animals	birds	Charadriidae	*Vanellus miles novaehollandiae*	masked lapwing (southern subspecies)		C		1
animals	birds	Ciconiidae	*Ephippiorhynchus asiaticus*	black-necked stork		C		1
animals	birds	Cisticolidae	*Cisticola exilis*	golden-headed cisticola		C		2
animals	birds	Climacteridae	*Cormobates leucophaea metastasis*	white-throated treecreeper (southern)		C		2
animals	birds	Columbidae	*Geopelia humeralis*	bar-shouldered dove		C		11
animals	birds	Columbidae	*Ocyphaps lophotes*	crested pigeon		C		6

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Columbidae	*Geopelia striata*	peaceful dove		C		2
animals	birds	Columbidae	*Macropygia amboinensis*	brown cuckoo-dove		C		1
animals	birds	Coraciidae	*Eurystomus orientalis*	dollarbird		C		8
animals	birds	Corvidae	*Corvus orru*	Torresian crow		C		25
animals	birds	Cuculidae	*Scythrops novaehollandiae*	channel-billed cuckoo		C		1
animals	birds	Cuculidae	*Centropus phasianinus*	pheasant coucal		C		2
animals	birds	Estrildidae	*Neochmia modesta*	plum-headed finch		C		1
animals	birds	Estrildidae	*Lonchura castaneothorax*	chestnut-breasted mannikin		C		1
animals	birds	Estrildidae	*Taeniopygia bichenovii*	double-barred finch		C		3
animals	birds	Estrildidae	*Neochmia temporalis*	red-browed finch		C		5
animals	birds	Falconidae	*Falco berigora*	brown falcon		C		1
animals	birds	Falconidae	*Falco longipennis*	Australian hobby		C		3
animals	birds	Falconidae	*Falco cenchroides*	nankeen kestrel		C		3
animals	birds	Falconidae	*Falco peregrinus*	peregrine falcon		C		1
animals	birds	Halcyonidae	*Dacelo leachii*	blue-winged kookaburra		C		3
animals	birds	Halcyonidae	*Dacelo novaeguineae*	laughing kookaburra		C		9
animals	birds	Halcyonidae	*Todiramphus sanctus*	sacred kingfisher		C		6
animals	birds	Hirundinidae	*Hirundo neoxena*	welcome swallow		C		8
animals	birds	Hirundinidae	*Petrochelidon nigricans*	tree martin		C		1
animals	birds	Maluridae	*Malurus melanocephalus*	red-backed fairy-wren		C		14
animals	birds	Maluridae	*Malurus cyaneus*	superb fairy-wren		C		5
animals	birds	Maluridae	*Malurus lamberti*	variegated fairy-wren		C		4
animals	birds	Megaluridae	*Megalurus timoriensis*	tawny grassbird		C		2
animals	birds	Meliphagidae	*Lichmera indistincta*	brown honeyeater		C		5
animals	birds	Meliphagidae	*Philemon corniculatus*	noisy friarbird		C		3
animals	birds	Meliphagidae	*Entomyzon cyanotis*	blue-faced honeyeater		C		9
animals	birds	Meliphagidae	*Caligavis chrysops*	yellow-faced honeyeater		C		18
animals	birds	Meliphagidae	*Meliphaga lewinii*	Lewin's honeyeater		C		5
animals	birds	Meliphagidae	*Ptilotula fusca*	fuscous honeyeater		C		6
animals	birds	Meliphagidae	*Manorina melanocephala*	noisy miner		C		12
animals	birds	Meliphagidae	*Acanthorhynchus tenuirostris*	eastern spinebill		C		2
animals	birds	Meliphagidae	*Plectorhyncha lanceolata*	striped honeyeater		C		7
animals	birds	Meliphagidae	*Melithreptus albogularis*	white-throated honeyeater		C		17
animals	birds	Meliphagidae	*Philemon citreogularis*	little friarbird		C		1
animals	birds	Meliphagidae	*Myzomela sanguinolenta*	scarlet honeyeater		C		3
animals	birds	Meropidae	*Merops ornatus*	rainbow bee-eater		C		20
animals	birds	Monarchidae	*Monarcha melanopsis*	black-faced monarch		SL		1
animals	birds	Monarchidae	*Symposiachrus trivirgatus*	spectacled monarch		SL		1
animals	birds	Monarchidae	*Grallina cyanoleuca*	magpie-lark		C		12
animals	birds	Motacillidae	*Anthus novaeseelandiae*	Australasian pipit		C		1
animals	birds	Nectariniidae	*Dicaeum hirundinaceum*	mistletoebird		C		2
animals	birds	Neosittidae	*Daphoenositta chrysoptera*	varied sittella		C		4
animals	birds	Oriolidae	*Sphecotheres vieilloti*	Australasian figbird		C		4
animals	birds	Oriolidae	*Oriolus sagittatus*	olive-backed oriole		C		2
animals	birds	Pachycephalidae	*Pachycephala rufiventris*	rufous whistler		C		15
animals	birds	Pachycephalidae	*Pachycephala pectoralis*	golden whistler		C		9

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Pachycephalidae	*Colluricincla harmonica*	grey shrike-thrush		C		1
animals	birds	Pardalotidae	*Pardalotus punctatus*	spotted pardalote		C		3
animals	birds	Pardalotidae	*Pardalotus striatus*	striated pardalote		C		27
animals	birds	Pelecanidae	*Pelecanus conspicillatus*	Australian pelican		C		1
animals	birds	Petroicidae	*Eopsaltria australis*	eastern yellow robin		C		2
animals	birds	Petroicidae	*Petroica rosea*	rose robin		C		9
animals	birds	Petroicidae	*Microeca fascinans*	jacky winter		C		4
animals	birds	Phalacrocoracidae	*Microcarbo melanoleucos*	little pied cormorant		C		2
animals	birds	Phasianidae	*Coturnix ypsilophora*	brown quail		C		1
animals	birds	Podargidae	*Podargus strigoides*	tawny frogmouth		C		1
animals	birds	Pomatostomidae	*Pomatostomus temporalis*	grey-crowned babbler		C		1
animals	birds	Psittacidae	*Parvipsitta pusilla*	little lorikeet		C		4
animals	birds	Psittacidae	*Trichoglossus chlorolepidotus*	scaly-breasted lorikeet		C		20
animals	birds	Psittacidae	*Trichoglossus haematodus moluccanus*	rainbow lorikeet		C		8
animals	birds	Psittacidae	*Platycercus adscitus*	pale-headed rosella		C		12
animals	birds	Psittacidae	*Alisterus scapularis*	Australian king-parrot		C		3
animals	birds	Psophodidae	*Cinclosoma punctatum*	spotted quail-thrush		C		3
animals	birds	Rallidae	*Gallinula tenebrosa*	dusky moorhen		C		1
animals	birds	Rallidae	*Gallirallus philippensis*	buff-banded rail		C		1
animals	birds	Rhipiduridae	*Rhipidura albiscapa*	grey fantail		C		20
animals	birds	Rhipiduridae	*Rhipidura leucophrys*	willie wagtail		C		16
animals	birds	Strigidae	*Ninox boobook*	southern boobook		C		1
animals	birds	Strigidae	*Ninox strenua*	powerful owl		V		1
animals	birds	Sturnidae	*Sturnus vulgaris*	common starling	Y			3
animals	birds	Sturnidae	*Acridotheres tristis*	common myna	Y			2
animals	birds	Threskiornithidae	*Threskiornis spinicollis*	straw-necked ibis		C		7
animals	birds	Threskiornithidae	*Platalea flavipes*	yellow-billed spoonbill		C		2
animals	birds	Threskiornithidae	*Threskiornis molucca*	Australian white ibis		C		3
animals	birds	Timaliidae	*Zosterops lateralis*	silvereye		C		10
animals	mammals	Canidae	*Canis lupus familiaris*	dog	Y			1
animals	mammals	Dasyuridae	*Antechinus flavipes flavipes*	yellow-footed antechinus (south-east Queensland)		C		24
animals	mammals	Dasyuridae	*Phascogale tapoatafa tapoatafa*	brush-tailed phascogale		C		1
animals	mammals	Dasyuridae	*Sminthopsis murina*	common dunnart		C		11
animals	mammals	Leporidae	*Oryctolagus cuniculus*	rabbit	Y			2
animals	mammals	Macropodidae	*Macropus giganteus*	eastern grey kangaroo		C		9
animals	mammals	Macropodidae	*Macropus rufogriseus*	red-necked wallaby		C		10
animals	mammals	Macropodidae	*Wallabia bicolor*	swamp wallaby		C		1
animals	mammals	Muridae	*Mus musculus*	house mouse	Y			2
animals	mammals	Muridae	*Rattus tunneyi*	pale field-rat		C		2
animals	mammals	Muridae	*Rattus fuscipes*	bush rat		C		2
animals	mammals	Muridae	*Rattus norvegicus*	brown rat	Y			1
animals	mammals	Peramelidae	*Isoodon macrourus*	northern brown bandicoot		C		1
animals	mammals	Peramelidae	*Isoodon sp.*					1
animals	mammals	Petauridae	*Petaurus norfolcensis*	squirrel glider		C		1
animals	mammals	Petauridae	*Petaurus breviceps*	sugar glider		C		2

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	mammals	Phalangeridae	*Trichosurus vulpecula*	common brushtail possum		C		7
animals	mammals	Phascolarctidae	*Phascolarctos cinereus*	koala		V	V	10
animals	mammals	Pteropodidae	*Pteropus alecto*	black flying-fox		C		1
animals	mammals	Pteropodidae	*Pteropus poliocephalus*	grey-headed flying-fox		C	V	2
animals	mammals	Suidae	*Sus scrofa*	pig	Y			3
animals	mammals	Tachyglossidae	*Tachyglossus aculeatus*	short-beaked echidna		SL		2
animals	ray-finned fishes	Ambassidae	*Ambassis agassizii*	Agassiz's glassfish				6
animals	ray-finned fishes	Anguillidae	*Anguilla reinhardtii*	longfin eel				15
animals	ray-finned fishes	Anguillidae	*Anguilla australis*	southern shortfin eel				2
animals	ray-finned fishes	Atherinidae	*Craterocephalus stercusmuscarum*	flyspecked hardyhead				3
animals	ray-finned fishes	Cichlidae	*Oreochromis mossambicus*	Mozambique mouthbrooder	Y			4
animals	ray-finned fishes	Cyprinidae	*Carassius auratus*	goldfish	Y			1
animals	ray-finned fishes	Cyprinidae	*Cyprinus carpio*	European carp	Y			13
animals	ray-finned fishes	Eleotridae	*Gobiomorphus australis*	striped gudgeon				12
animals	ray-finned fishes	Eleotridae	*Hypseleotris klunzingeri*	western carp gudgeon				9
animals	ray-finned fishes	Eleotridae	*Philypnodon macrostomus*	dwarf flathead gudgeon				3
animals	ray-finned fishes	Eleotridae	*Philypnodon grandiceps*	flathead gudgeon				11
animals	ray-finned fishes	Eleotridae	*Hypseleotris compressa*	empire gudgeon				6
animals	ray-finned fishes	Eleotridae	*Hypseleotris galii*	firetail gudgeon				16
animals	ray-finned fishes	Melanotaeniidae	*Melanotaenia duboulayi*	crimsonspotted rainbowfish				14
animals	ray-finned fishes	Mugilidae	*Mugil cephalus*	sea mullet				9
animals	ray-finned fishes	Mugilidae	*Trachystoma petardi*	pinkeye mullet				2
animals	ray-finned fishes	Percichthyidae	*Macquaria novemaculeata*	Australian bass				1
animals	ray-finned fishes	Plotosidae	*Tandanus tandanus*	freshwater catfish				3
animals	ray-finned fishes	Poeciliidae	*Gambusia holbrooki*	mosquitofish	Y			16
animals	ray-finned fishes	Pseudomugilidae	*Pseudomugil signifer*	Pacific blue eye				2
animals	ray-finned fishes	Retropinnidae	*Retropinna semoni*	Australian smelt				4
animals	ray-finned fishes	Terapontidae	*Leiopotherapon unicolor*	spangled perch				8
animals	reptiles	Agamidae	*Pogona barbata*	bearded dragon		C		2
animals	reptiles	Agamidae	*Intellagama lesueurii*	eastern water dragon		C		2
animals	reptiles	Chelidae	*Chelodina longicollis*	eastern snake-necked turtle		C		1
animals	reptiles	Elapidae	*Hoplocephalus bitorquatus*	pale-headed snake		C		1/1
animals	reptiles	Scincidae	*Cryptoblepharus pulcher pulcher*	elegant snake-eyed skink		C		3
animals	reptiles	Scincidae	*Carlia vivax*	tussock rainbow-skink		C		2
animals	reptiles	Scincidae	*Ctenotus taeniolatus*	copper-tailed skink		C		2
animals	reptiles	Scincidae	*Carlia munda*	shaded-litter rainbow-skink		C		2
animals	reptiles	Varanidae	*Varanus varius*	lace monitor		C		1
fungi	club fungi	Basidiomycota	*Tylopilus*			C		1/1
fungi	sac fungi	Ramalinaceae	*Ramalina celastri subsp. celastri*			C		1/1
fungi	sac fungi	Usneaceae	*Usnea*			C		1/1
plants	higher dicots	Asteraceae	*Solenogyne bellioides*			C		1/1
plants	higher dicots	Euphorbiaceae	*Euphorbia ophthalmica*		Y			1/1
plants	higher dicots	Fabaceae	*Glycine tabacina*	glycine pea		C		1/1
plants	higher dicots	Flacourtiaceae	*Dovyalis caffra*	kei apple	Y			1/1
plants	higher dicots	Myrtaceae	*Melaleuca irbyana*			E		2
plants	higher dicots	Rubiaceae	*Asperula conferta*			C		1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	higher dicots	Solanaceae	*Solanum linnaeanum*	apple of Sodom	Y			1/1
plants	monocots	Poaceae	*Paspalum distichum*	water couch		C		1/1
plants	monocots	Poaceae	*Cynodon dactylon var. dactylon*		Y			1/1

CODES

I - Y indicates that the taxon is introduced to Queensland and has naturalised.

Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992.* The codes are Extinct in the Wild (PE), Endangered (E), Vulnerable (V), Near Threatened (NT), Least Concern (C) or Not Protected ( ).

A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999.* The values of EPBC are Conservation Dependent (CD), Critically Endangered (CE), Endangered (E), Extinct (EX), Extinct in the Wild (XW) and Vulnerable (V).

Records – The first number indicates the total number of records of the taxon for the record option selected (i.e. All, Confirmed or Specimens).
This number is output as 99999 if it equals or exceeds this value. The second number located after the / indicates the number of specimen records for the taxon.
This number is output as 999 if it equals or exceeds this value.

Appendix B Flora Species List

Native Species

Scientific Name	Common Name	NC Act Status
Acacia disparrima	Hickory Wattle	Least Concern
Acacia leiocalyx	Early Flowering Black Wattle	Least Concern
Acacia maidenii	Maiden's wattle	Least Concern
Acrotriche aggregata	Red Ground Berry	Least Concern
Alectryon tomentosus	Hairy Bird's Eye	Least Concern
Allocasuarina littoralis	Black She-oak	Least Concern
Alphitonia excelsa	Soap Ash	Least Concern
Angophora subvelutina	Broad-leaved Apple	Least Concern
Aphananthe philippinensis	Rough-leaved elm	Least Concern
Aristida queenslandica var. queenslandica		Least Concern
Breynia oblongifolia	Coffee Bush	Least Concern
Capillipedium spicigerum	Scented-top Grass	Least Concern
Castanospermum australe	Blackbean	Least Concern
Casuarina cunninghamiana	River She-oak	Least Concern
Centella asiatica	Gotu Cola	Least Concern
Cheilanthes distans	Bristly Cloak Fern	Least Concern
Chrysocephalum apiculatum	Yellow Buttons	Least Concern
Corymbia citridora	Spotted Gum	Least Concern
Corymbia intermedia	Pink bloodwood	Least Concern
Corymbia tessellaris	Morteon Bay Ash	Least Concern
Crinum flaccidum	Murray's Lily	Least Concern
Cupaniopsis parvifolia	Small leaved Tuckeroo	Least Concern
Cymbopogon refractus	Barbed wire grass	Least Concern
Cyperus polystachyos	Bunchy Sedge	Least Concern
Dianella brevipedunculata	Blue flax lily	Least Concern
Dianella caerulea	Flax Lily	Least Concern
Eragrostis brownii	Brown's Lovegrass	Least Concern
Eremophila debile	Winter apple	Least Concern
Eucalyptus crebra		Least Concern
Eucalyptus moluccana	Gum-topped box	Least Concern
Eucalyptus propinqua	Grey Gum	Least Concern
Eucalyptus siderophloia	Northern Grey Ironbark	Least Concern
Eucalyptus teriticornis		Least Concern
Eustrephus latifolius	Wombat Berry	Least Concern
Ficus coronata	Sandpaper fig	Least Concern
Gahnia aspera	Saw Tooth Sedge	Least Concern
Geodorum densiflorum	Shepherds crook orchid	Least Concern
Glochidion ferdinandi	Cheese Tree	Least Concern
Glochidion sumatrensis	Cheese Tree	Least Concern
Glycine tabacina		Least Concern
Goodenia rotundiflolia	Goodenia	Least Concern
Heteropogon contortus	Black Speargrass	Least Concern

Scientific Name	Common Name	NC Act Status
Imperata cylindrica	Blady Grass	Least Concern
Jacksonia scoparia	Dogwood	Least Concern
Jagera pseudorhus	Foambark	Least Concern
Juncus usitatus	Common Rush	Least Concern
Leersia hexandra	Swamp Rice Grass	Least Concern
Leptospermum polygalifolium	Tantoon	Least Concern
Lobelia purpurascens	White Root	Least Concern
Lomandra confertifolia subsp. confertifolia		Least Concern
Lomandra hystrix	River Mat Rush	Least Concern
Lomandra multiflora	Many-flowered Mat Rush	Least Concern
Lomandra spicta	Orange Lomandra	Least Concern
Lophostemon suaveolens	Swamp Box	Least Concern
Maclura cochinchinensis	Cockspur	Least Concern
Mallotus philippensis	Red Kamala	Least Concern
Melaleuca bracteata	Weeping bottlebrush	Least Concern
Melaleuca bracteata	Black Tea-tree	Least Concern
Melaleuca irbyana	Swamp Tea-trees	Least Concern
Melaleuca quinquenervia	Broad-leaved Paperbark	Least Concern
Melaleuca salicina	Willow Bottlebrush	Least Concern
Murannia graminea	Slug herb	Least Concern
Oplismenus aemulus	Basket Grass	Least Concern
Ottochloa gracillima	Slender Grass	Least Concern
Ozothamnus diosmifolius	Rice Flower	Least Concern
Parsonsia straminea	Monkey Rope	Least Concern
Philydrum lanuginosum	Frogsmouth	Least Concern
Phyllanthus virgatus	Creeping Phyllanthus	Least Concern
Pimelea liniflolia	Rice Flower	Least Concern
Polymeria calycina	Slender Bindweed	Least Concern
Pteridium esculentum	Bracken	Least Concern
Pterocaulon redolens		Least Concern
Sigesbeckia orientalis		Least Concern
Themeda triandra	Kangaroo Grass	Least Concern
Wahlenbergia gracilis	Australian Bluebell	Least Concern

Exotic Species

Scientific Name	Common Name	Biosecurity Act Status
Ageratum houstonianum	Blue billygoat weed	Environmental Weed
Ambrosia artemisiifolia	Ragweed	**Category 2**
Aristolochia elegans	Dutchman's Pipe	**Category 3**
Baccharis halimifolia	Groundsel Bush	**Category 3**
Bidens pilosa	Cobblers Pegs	Environmental Weed
Chloris gayana	Rhodes Grass	Environmental Weed
Chloris virgata	Feathertop Rhodes Grass	Environmental Weed
Cirsium vulgare	Scotch Thistle	Environmental Weed
Conyza sumatrensis	Tall Fleabane	Environmental Weed
Cynodon dactylon	Green Couch	Environmental Weed
Cyperus brevifolius	Mullumbimby couch	Environmental Weed
Digitaria didactyla	Queensland Blue Couch	Environmental Weed
Dolichandra unguis-cati	Cat's claw creeper	**Category 3**
Emilia sonchifolia var. javanica	Emilia	Environmental Weed
Gomphocarpus physocarpus	Balloon Cotton Bush	Environmental Weed
Gomphrena celosioides	Gomphrena Weed	Environmental Weed
Heliotropium amplexicaule	Blue Heliotrope	Environmental Weed
Lantana camara	Lantana	**Category 3**
Lantana montevidensis	Creeping Lantana	**Category 3**
Megathyrsus maximus var. maximus	Guinea Grass	Environmental Weed
Megathyrsus maximus var. pubiglumis	Guinea Grass	Environmental Weed
Melinis repens	Red Natal Grass	Environmental Weed
Opuntia tomentosa	velvety tree pear	**Category 3**
Oxalis sp.	Oxalis	Environmental Weed
Paspalum urvillei	Vasey Grass	Environmental Weed
Passiflora suberosa	Corky Passion Vine	Environmental Weed
Passiflora subpeltata	White Passionflower	Environmental Weed
Polygala paniculata		Environmental Weed
*Portulaca pilosa**	Hairy pigweed	Environmental Weed
Schinus terebinthifolius	Broad-leaved Pepper tree	**Category 3**
Senecio madagascariensis	Fireweed	**Category 3**
Sida cordifolia	Sida	Environmental Weed
Solanum mauritianum	Wild tobacco	Environmental Weed
Solanum nigrum	Blackberry Nightshade	Environmental Weed
Solanum seaforthianum	Brazilian nightshade	Environmental Weed
Sorghum halepense	Johnson Grass	Environmental Weed
Sporobolus pyramidalis	Gaint Rat's Tail Grass	**Category 3**
Urochloa decumbens	Signal Grass	Environmental Weed
Verbena bonariensis	Brazilian Verbena	Environmental Weed
Verbena incompta	Purpletop	Environmental Weed

Appendix C Quaternary Site Data

Site 1	
Mapped RE:	
STRUCTURAL SUMMARY	

Layer	Species	Median height (m)	Estimate cover %
T1	*Eucalyptus crebra*	18	60
	Eucalyptus siderophloia		
	Corymbia citriodora		
T2	*Corymbia citriodora*	11	40
	Alphitonia excelsa		
S1	*Acacia disparrima*	2	50
	Alphitonia excelsa		
	*Lantana camara**		
Ground	Blady grass, native grasses and forbs.		

Site 2	
Mapped RE:	
STRUCTURAL SUMMARY	

Layer	Species	Median height (m)	Estimate cover %
T1	*Eucalyptus crebra*	18	25
	Corymbia citriodora		
T2	*Eucalyptus tereticornis*	13	30
	Corymbia intermedia		
	Corymbia citriodora		
S1	*Lantana camara**	2.5	60
	Corymbia citriodora (saplings)		
Ground	Blady grass, Mulumbimbi couch, Seisbeckia orientalis		

Site 3	
Mapped RE:	
STRUCTURAL SUMMARY	

Layer	Species	Median height (m)	Estimate cover %
T1	*Corymbia Intermedia*	22.5	80
	Eucalyptus siderophloia		
T2	*Corymbia Intermedia*	17	50
	Melaleuca quinquenervia		
	Alphitonia excelsa		
S1	*Alphitonia excelsa*	4	70
	Acacia epicalyx		
	Acacia disparrima		
	*Lantana camara**		
Ground	Sparse groundcover of native grasses. Thick leaf litter layer.		

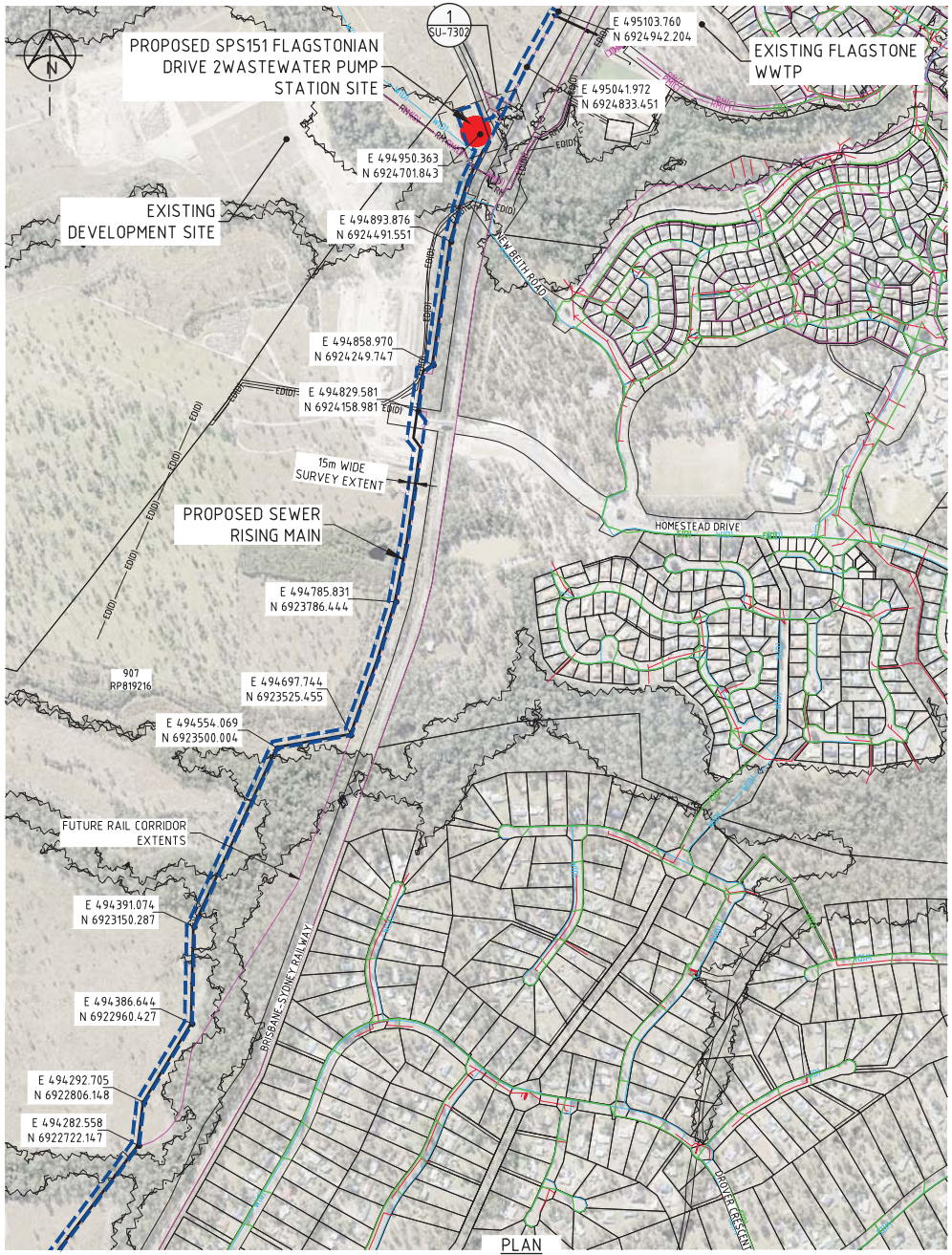
Site 4	
Mapped RE:	
STRUCTURAL SUMMARY	

Layer	Species	Median height (m)	Estimate cover %
T1	*Corymbia citriodora*	22	35
T2	*Corymbia citriodora*	16	60
	Eucalyptus tereticornis		
S1	*Alphitonia excelsa*	6	80
	Acacia disparrima		
Ground	*Dianella brevipedunculata, Themeda triandra, Imperata cylindrica*		

Site 5	
Mapped RE:	
STRUCTURAL SUMMARY	

Layer	Species	Median height (m)	Estimate cover %
T1	*Corymbia citriodora*	21	30
	Eucalyptus crebra		
T2	*Corymbia citriodora*	15	50
	Eucalyptus crebra		
	Eucalyptus moluccana		
S1	*Acacia leiocalyx*	2	10
	Acacia disparrima		
Ground	*Cymbopogon refractus, Themeda triandra*		

Appendix B LS304 Project Alignment surveyed



CONTINUED ABOVE

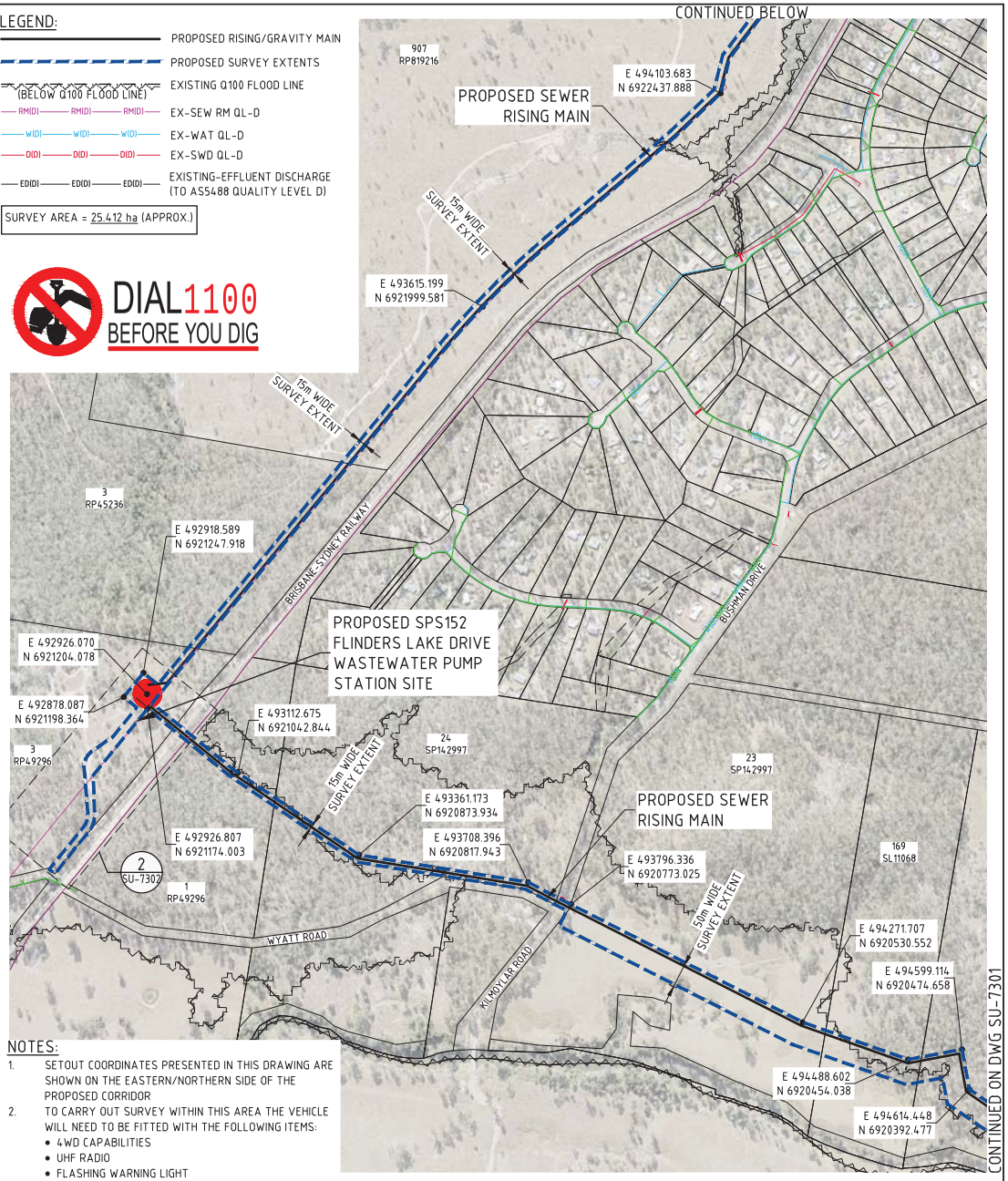
PLAN
SCALE 1:5000

LEGEND:

- PROPOSED RISING/GRAVITY MAIN
- PROPOSED SURVEY EXTENTS
- EXISTING Q100 FLOOD LINE (BELOW Q100 FLOOD LINE)
- RM(D) — EX-SEW RM QL-D
- W(D) — EX-WAT QL-D
- D(D) — EX-SWD QL-D
- ED(D) — EXISTING-EFFLUENT DISCHARGE (TO AS5488 QUALITY LEVEL D)

SURVEY AREA = 25.412 ha (APPROX.)

DIAL1100 BEFORE YOU DIG



NOTES:

1. SETOUT COORDINATES PRESENTED IN THIS DRAWING ARE SHOWN ON THE EASTERN/NORTHERN SIDE OF THE PROPOSED CORRIDOR
2. TO CARRY OUT SURVEY WITHIN THIS AREA THE VEHICLE WILL NEED TO BE FITTED WITH THE FOLLOWING ITEMS:
   - 4WD CAPABILITIES
   - UHF RADIO
   - FLASHING WARNING LIGHT
3. WESTERN SECTION OF FC2 SPS SITE IS AN EXISTING DEVELOPMENT SITE.

PLAN
SCALE 1:5000

0 50 100 200 300m
A1 – 1:5000

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REV. No.	DESCRIPTION	DRAWN	DESIGNED	APPR.	DATE
B	SEWER EASEMENT AMENDED	SL	AL	CS	7/09/2017
A	FOR INFORMATION	SL	AL	CS	14/07/2017

DESIGNED BY: A.LATORRE
DRAFTED BY: S.LAL
DRAFTING CHECK BY: P.SPEAR
DESIGN CHECKED BY: C.SALEM RPEQ
APPROVED BY: C.SALEM RPEQ

REFERENCES
PROJECT No. LS304-00
FILE REFERENCE:
SHEET SIZE A1
DATUM : AHD GDA 94 ZONE 56.

LOGAN WATER INFRASTRUCTURE ALLIANCE
Proudly LOGAN CITY COUNCIL

PROJECT: FLAGSTONE CENTRAL TO CEDAR GROVE WWTP CONVEYANCE SYSTEM

DRAWING TITLE: PROPOSED SURVEY EXTENTS
SHEET 1 OF 3

DRAWING No. LS304-00-S-DWG-SU-7300
DESIGN COMPANY. LoganWIA
REV. B
TECH SERVICES DRG No.

CAD FILE: T:\LS304-CEDAR GROVE WWTP CONVEYANCE\01 - General\Sch\020 Area\LS304-00-S-DWG-SU-7300.dwg
DATE PLOTTED: 08 September, 2017 - 12:52am

LEGEND:

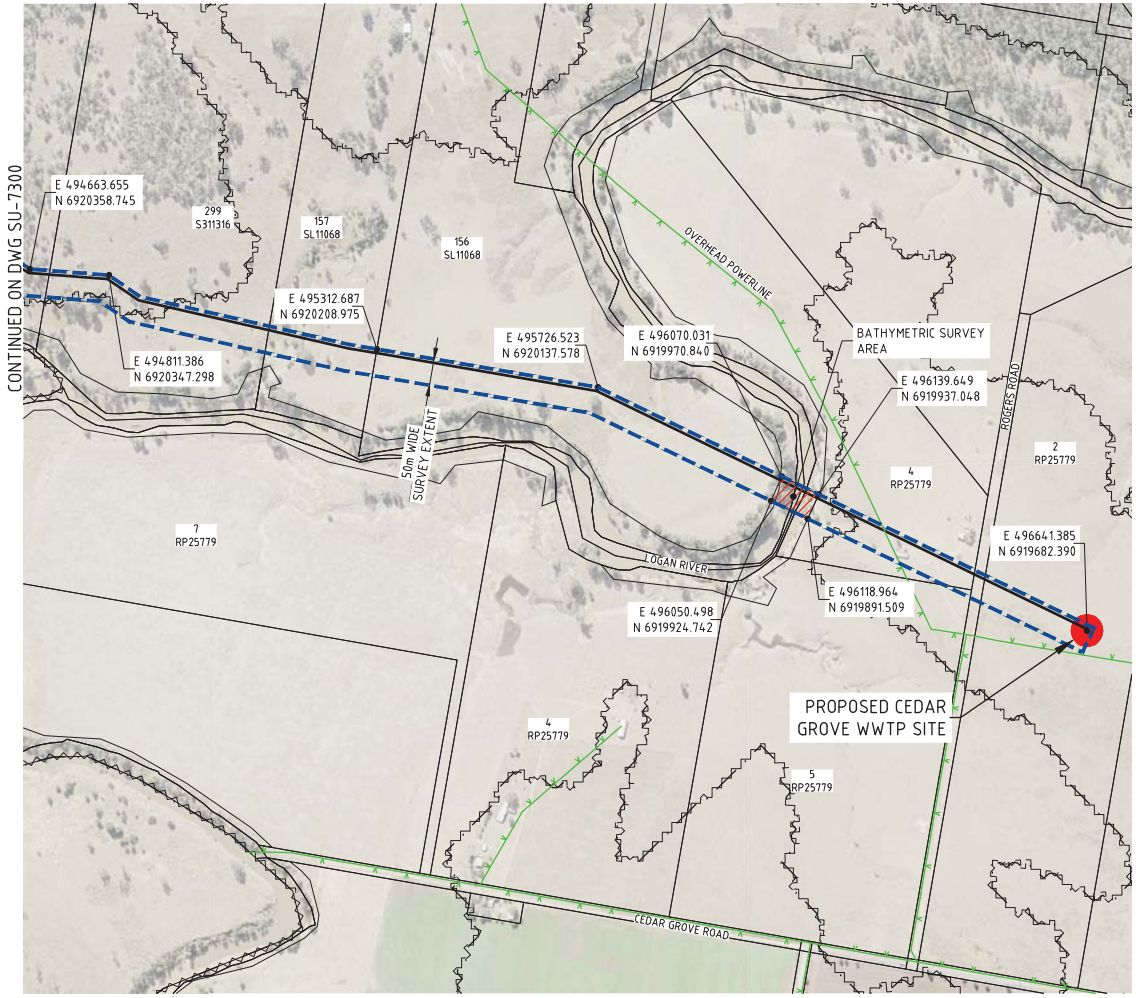
- PROPOSED RISING/GRAVITY MAIN
- PROPOSED SURVEY EXTENTS
- EXISTING Q100 FLOOD LINE (BELOW Q100 FLOOD LINE)
- EX-SEW RM QL-D
- EX-WAT QL-D
- EX-ELEC OH

SURVEY AREA = 25.412 ha (APPROX.)

NOTES:

1. SETOUT COORDINATES PRESENTED IN THIS DRAWING ARE SHOWN ON THE EASTERN/NORTHERN SIDE OF THE PROPOSED CORRIDOR
2. TO CARRY OUT SURVEY WITHIN THIS AREA THE VEHICLE WILL NEED TO BE FITTED WITH THE FOLLOWING ITEMS:
   - 4WD CAPABILITIES
   - UHF RADIO
   - FLASHING WARNING LIGHT
3. WESTERN SECTION OF FC2 SPS SITE IS AN EXISTING DEVELOPMENT SITE.

DIAL1100 BEFORE YOU DIG



PLAN
SCALE 1:5000

0 50 100 200 300m
A1 – 1:5000

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B	SEWER EASEMENT AMENDED	SL	AL	CS	7/09/2017
A	FOR INFORMATION	SL	AL	CS	14/07/2017

DESIGNED BY: A.LATORRE
DRAFTED BY: S.LAL
DRAFTING CHECK BY: P.SPEAR
DESIGN CHECKED BY: C.SALEM RPEQ
APPROVED BY: C.SALEM RPEQ

REFERENCES
PROJECT No. LS304-00
FILE REFERENCE:
SHEET SIZE A1
DATUM : AHD GDA 94 ZONE 56.

LOGAN WATER INFRASTRUCTURE ALLIANCE
Proudly LOGAN CITY COUNCIL

PROJECT: FLAGSTONE CENTRAL TO CEDAR GROVE WWTP CONVEYANCE SYSTEM

DRAWING TITLE: PROPOSED SURVEY EXTENTS
SHEET 2 OF 3

DRAWING No. LS304-00-S-DWG-SU-7301
DESIGN COMPANY. LoganWIA
REV. B
TECH SERVICES DRG No.

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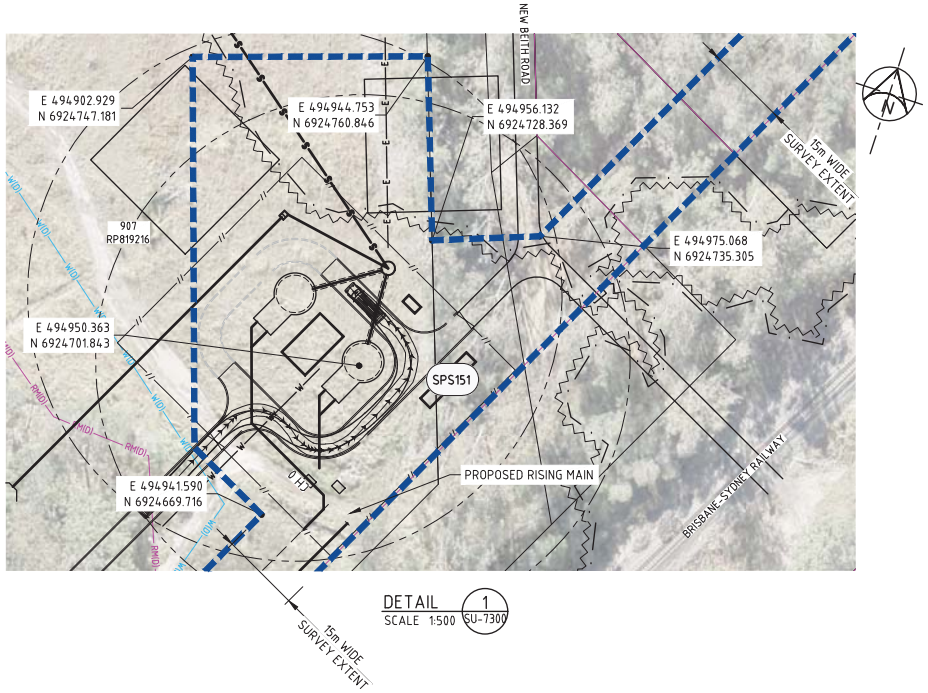
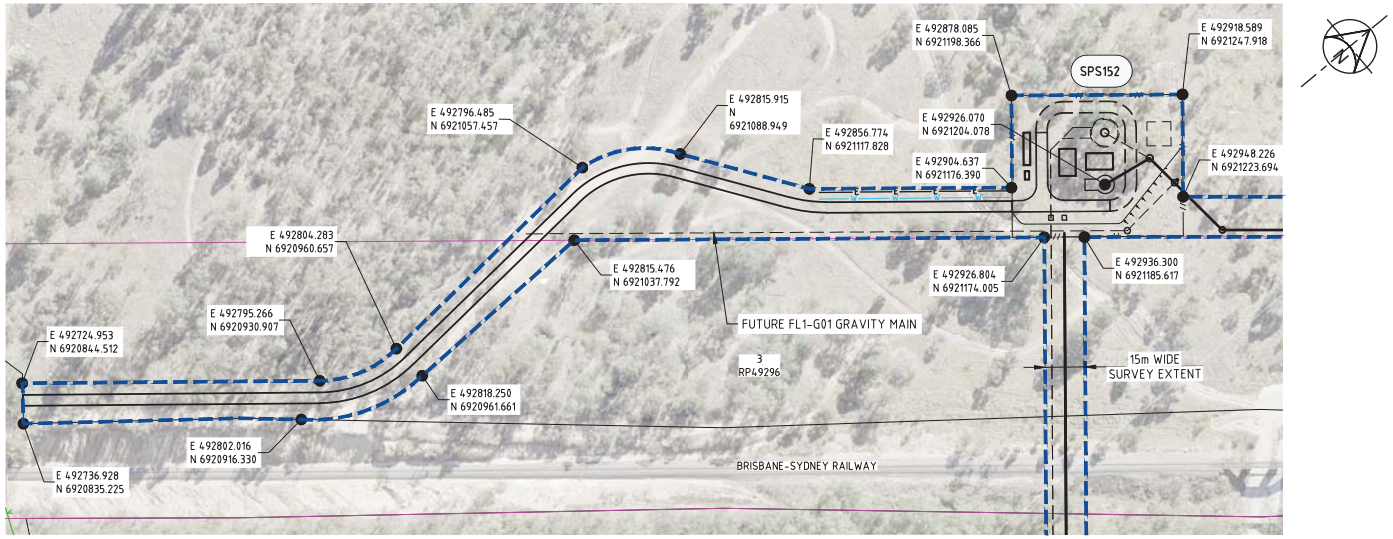


DETAIL 1 SU-7300
SCALE 1:500



DETAIL 2 SU-7300
SCALE 1:1000

LEGEND:

- PROPOSED ACCESS ROAD
- PROPOSED RISING/GRAVITY MAIN
- PROPOSED SURVEY EXTENTS
- EXISTING Q100 FLOOD LINE (BELOW Q100 FLOOD LINE)
- EX-SEW RM QL-D
- EX-WAT QL-D
- EXISTING-EFFLUENT DISCHARGE (TO AS5488 QUALITY LEVEL D)

SURVEY AREA = 25.412 ha (APPROX.)

NOTES:

1. SETOUT COORDINATES PRESENTED IN THIS DRAWING ARE SHOWN ON THE EASTERN/NORTHERN SIDE OF THE PROPOSED CORRIDOR
2. TO CARRY OUT SURVEY WITHIN THIS AREA THE VEHICLE WILL NEED TO BE FITTED WITH THE FOLLOWING ITEMS:
   - 4WD CAPABILITIES
   - UHF RADIO
   - FLASHING WARNING LIGHT
3. WESTERN SECTION OF FC2 SPS SITE IS AN EXISTING DEVELOPMENT SITE.

DIAL1100 BEFORE YOU DIG

0 5 10 20 30m A1 - 1:500

0 10 20 40 60m A1 - 1:1000

FOR INFORMATION

CAD FILE: T:\LS304 CEDAR GROVE WWTP CONVEYANCE\01 - General Set\020 Acad\LS304-00-S-DWG-SU-7302.dwg

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B	SEWER EASEMENT AMENDED	SL	AL	CS	7/09/2017
A	FOR INFORMATION	SL	AL	CS	14/07/2017

DESIGNED BY A.LATORRE
DRAFTED BY S.LAL
DRAFTING CHECK BY P.SPEAR
DESIGN CHECKED BY C.SALEM RPEQ
APPROVED BY C.SALEM RPEQ

REFERENCES
PROJECT No. LS304-00
FILE REFERENCE:
SHEET SIZE A1
DATUM : AHD GDA 94 ZONE 56.

LOGAN WATER INFRASTRUCTURE ALLIANCE

Proudly LOGAN CITY COUNCIL

PROJECT: FLAGSTONE CENTRAL TO CEDAR GROVE WWTP CONVEYANCE SYSTEM

DRAWING TITLE: PROPOSED SURVEY EXTENTS

SHEET 3 OF 3

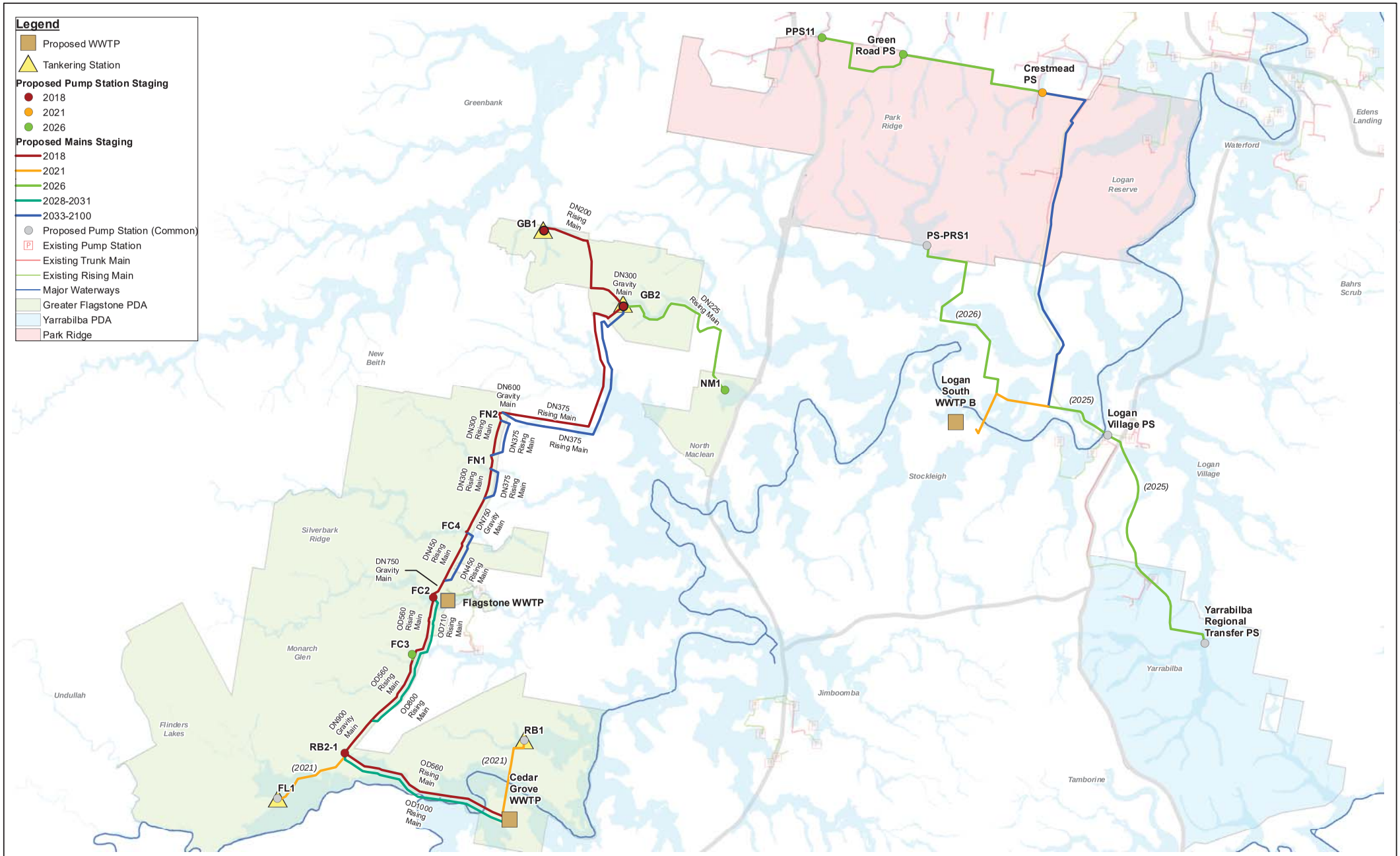
DRAWING No. LS304-00-S-DWG-SU-7302

DESIGN COMPANY. LoganWIA

REV. B

TECH SERVICES DRG No.

Appendix C Greenbank to Cedar Grove (Wider Project) alignment



Project Manager: SF	LoganWIA References	
Designed By: BL	Project No: LS-008-02	LOGAN WATER INFRASTRUCTURE ALLIANCE — Proudly LOGAN CITY COUNCIL
Drawn By: AO	Sheet Size: A3	
Date: 15/06/2017	Datum: GDA 1994 MGA Zone 56	COPYRIGHT © This figure shall remain the property of the Logan City Council. Unauthorised use of this figure is prohibited

Project: Logan South Wastewater Strategy

Project Description: Location Plan

0 800 1,600 2,400 3,200 4,000 Metres

Scale: 1:80,000

N W E S

LoganWIA Figure No:

Figure No:

Rev:

Document Path: P:\04 Tasks\LS-008-Cedar Grove Stakeholder Engagement\300-Subtasks\02 - LCC\500-GIS\01-ESRI\Figures\Figure1.mxd

Appendix D Fauna Species List

Scientific Name	Common Name	NC Act Status	EPBC Act Status	Biosecurity Act Status
Birds				
Accipiter cirrocephalus	Collared Sparrow Hawk	Least Concern	-	-
Anas superciliosa	Pacific Black Duck	Least Concern	-	-
Cacatua galerita	Sulfur crested Cockatoo	Least Concern	-	-
Chenonetta jubata	Wood Duck	Least Concern	-	-
Corvus orru	Torresian Crow	Least Concern	-	-
Cracticus tibicen	Australian Magpie	Least Concern	-	-
Dacela novaeguineae	Laughing Kookaburra	Least Concern	-	-
Grallina cyanoleuca	Magpie Lark	Least Concern	-	-
Podargus strigoides	Tawny Frogmouth	Least Concern	-	-
Amphibians				
Limnodynastes peronei	Striped Marsh Frog	Least Concern	-	-
Limnodynastes terraereginae	Scarlet-sided Popplebonk	Least Concern	-	-
Litoria caerulea	Green Tree Frog	Least Concern	-	-
Litoria fallax	Eastern Sedge Frog	Least Concern	-	-
Pseudophryne raveni	Cooper-backed Brood Frog	Least Concern	-	-
Rhinelle marina	Cane Toad	Introduced	-	-
Mammals				
Cervus timorensis	Rusa Deer	Introduced	-	**Restricted**
Isoodon macrourus	Northern Brown Bandicoots	Least Concern	-	-
Lepus europaeus	Hare	Introduced	-	-
Macropus giganteus	Grey Kangaroo	Least Concern	-	-
Macropus rufogriseus	Red Neck Wallaby	Least Concern	-	-
Petaurus norfolcensis	Squirrel Glider	Least Concern	-	-
Phascolarctos cinereus	Koala	**Vulnerable**	**Vulnerable**	-
Pteropus alecto	Black Flying Fox	Least Concern	-	-
Pteropus poliocephalus	Grey-headed Flying Fox	**Vulnerable**	**Vulnerable**	-
Sus scrofa	Feral Pig	Introduced	-	**Restricted**
Tadarida australia	White striped mastiff bat	Least Concern	-	-
Trichosurus vulpecula	Brush-tail Possum	Least Concern	-	-
Reptiles				
Pogona barbata	Blue Tongue Lizard	Least Concern	-	-
Tiliqua scincoides scincoides	Eastern Blue Tongue Lizard	Least Concern	-	-

Appendix E Flora Species List

Native Species

Scientific Name	Common Name	NC Act Status
Acacia disparrima	Hickory Wattle	Least Concern
Acacia leiocalyx	Early Flowering Black Wattle	Least Concern
Alchornea ilicifolia	Native Holly	Least Concern
Allocasuarina littoralis	Black She-oak	Least Concern
Alphitonia excelsa	Soap Ash	Least Concern
Angophora subvelutina	Broad-leaved Apple	Least Concern
Aristida queenslandica var. queenslandica	-	Least Concern
Castanospermum australe	Blackbean	Least Concern
Corymbia citridora	Spotted Gum	Least Concern
Corymbia intermedia	Pink bloodwood	Least Concern
Corymbia tessellaris	Morteon Bay Ash	Least Concern
Crinum flaccidum	Murray's Lily	Least Concern
Dianella sp.	Flax Lily	Least Concern
Eragrostis sp	-	
Eucalyptus crebra	Narrow-leaved Ironbark	Least Concern
Eucalyptus moluccana	Gum-topped box	Least Concern
Eucalyptus teriticornis	Forest Red Gum	Least Concern
Eustrephus latifolius	Wombat Berry	Least Concern
Ficus coronata	Sandpaper fig	Least Concern
Imperata cylindrica	Blady Grass	Least Concern
Lophostemon suaveolens	Swamp Box	Least Concern
Melaleuca bracteata	Weeping bottlebrush	Least Concern
Melaleuca irbyana	Swamp Tea-trees	**Endangered**
Melaleuca quinquenervia	Broad-leaved Paperbark	Least Concern
Melaleuca viminalis	Willow Bottlebrush	Least Concern
Ottochloa gracillima	Slender Shade Grass	Least Concern
Ozothamnus diosmifolius	Rice Flower	Least Concern
Pandorea pandorana	Wonga Wonga Vine	Least Concern
Parsonsia straminea	Monkey Rope	Least Concern
Pimelea liniflolia	Rice Flower	Least Concern
Themada triandra	Kangaroo Grass	Least Concern

Exotic Species

Scientific Name	Common Name	Biosecurity Act Status
Ageratum houstonianum	Blue billygoat weed	Environmental Weed
Bidens pilosa	Cobblers Pegs	Environmental Weed
Cirsium vulgare	Scotch Thistle	Environmental Weed
Conyza sumatrensis	Tall Fleabane	Environmental Weed
Cynodon dactylon	Green Couch	Environmental Weed
Dolichandra unguis-cati	Cat's claw creeper	**Restricted**
Gomphocarpus physocarpus	Balloon Cotton Bush	Environmental Weed
Gomphrena celosioides	Gomphrena Weed	Environmental Weed
Lantana camara	Lantana	**Restricted**
Megathyrsus maximus var. maximus	Guinea Grass	Environmental Weed
Melinis repens	Red Natal Grass	Environmental Weed
Neonotonia wightii	Glycine	Environmental Weed
Opuntia tomentosa	velvety tree pear	**Restricted**
Cryptostegia grandoflora	Rubbervine	**Restricted**
Sida cordifolia	Sida	Environmental Weed
Solanum mauritianum	Wild tobacco	Environmental Weed
Solanum nigrum	Blackberry Nightshade	Environmental Weed
Solanum seaforthianum	Brazilian nightshade	Environmental Weed
Sorghum halepense	Johnson Grass	Environmental Weed
Urochloa decumbens	Signal Grass	Environmental Weed
Verbena bonariensis	Brazilian Verbena	Environmental Weed
Verbena incompta	Purpletop	Environmental Weed