Adani Mining Pty Ltd

Carmichael Coal Mine and Rail Project SEIS

Offsite Infrastructure

Property Map of Assessable Vegetation

17 October 2013

GHD

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1. Introduction

1.1 Project overview

Adani Mining Pty Ltd (Adani, the Proponent), commenced an Environmental Impact Statement (EIS) process for the Carmichael Coal Mine and Rail Project (the Project) in 2010. On 26 November 2010, the Queensland (Qld) Office of the Coordinator General declared the Project a 'significant project' and the Project was referred to the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) (referral No. 2010/5736). The Project was assessed to be a controlled action on the 6 January 2011 under section 75 and section 87 of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The controlling provisions for the Project include:

- World Heritage properties (sections 12 & 15A)
- National Heritage places (sections 15B & 15C)
- Wetlands (Ramsar) (sections 16 & 17B)
- Listed threatened species and communities (sections 18 & 18A)
- Listed migratory species (sections 20 & 20A)
- The Great Barrier Reef Marine Park (GBRMP) (sections 24B & 24C)
- Protection of water resources (sections 24D & 24E).

The Qld Government's EIS process has been accredited for the assessment under Part 8 of the EPBC Act in accordance with the bilateral agreement between the Commonwealth of Australia and the State of Queensland.

The Proponent prepared an EIS in accordance with the Terms of Reference (ToR) issued by the Qld Coordinator-General in May 2011 (Qld Government, 2011). The EIS process is managed under section 26(1) (a) of the *State Development and Public Works Act 1971* (SDPWO Act), which is administered by the Qld Government's Department of State Development, Infrastructure and Planning (DSDIP).

The EIS, submitted in December 2012, assessed the environmental, social and economic impacts associated with developing a 60 million tonne (product) per annum (Mtpa) thermal coal mine in the northern Galilee Basin, approximately 160 kilometres (km) north-west of Clermont, Central Queensland, Australia. Coal from the Project will be transported by rail to the existing Goonyella and Newlands rail systems, operated by Aurizon Operations Limited (Aurizon). The coal will be exported via the Port of Hay Point and the Point of Abbot Point over the 60 year (90 years in the EIS) mine life.

Project components are as follows:

- The Project (Mine): a greenfield coal mine over EPC 1690 and the eastern portion of EPC 1080, which includes both open cut and underground mining, on mine infrastructure and associated mine processing facilities (the Mine) and the Mine (offsite) infrastructure including a workers accommodation village and associated facilities, a permanent airport site, an industrial area and water supply infrastructure

- The Project (Rail): a greenfield rail line connecting to mine to the existing Goonyella and Newlands rail systems to provide for the export of coal via the Port of Hay Point (Dudgeon Point expansion) and the Port of Abbot Point, respectively including:
  - Rail (west): a 120 km dual gauge portion running west from the Mine site east to Diamond Creek
  - Rail (east): a 69 km narrow gauge portion running east from Diamond Creek connecting to the Goonyella rail system south of Moranbah.
  - Quarries: The use of five local quarries to extract quarry materials for construction and operational purposes.

1.2 Purpose of this report

The property vegetation assessment map (PMAV) redefines the mapping of remnant vegetation based on field verified evidence. The purpose of this report is to support an application for re-mapping of regional ecosystem over Lot 662 on PH1491.

This report provides an outline of the methods and results of the vegetation assessment undertaken on Lot 662 on PH1491, on which this PMAV application is based.

1.3 Property details

Table 1 provides a summary of the property details for which the PMAV applies.

Table 1 Property details

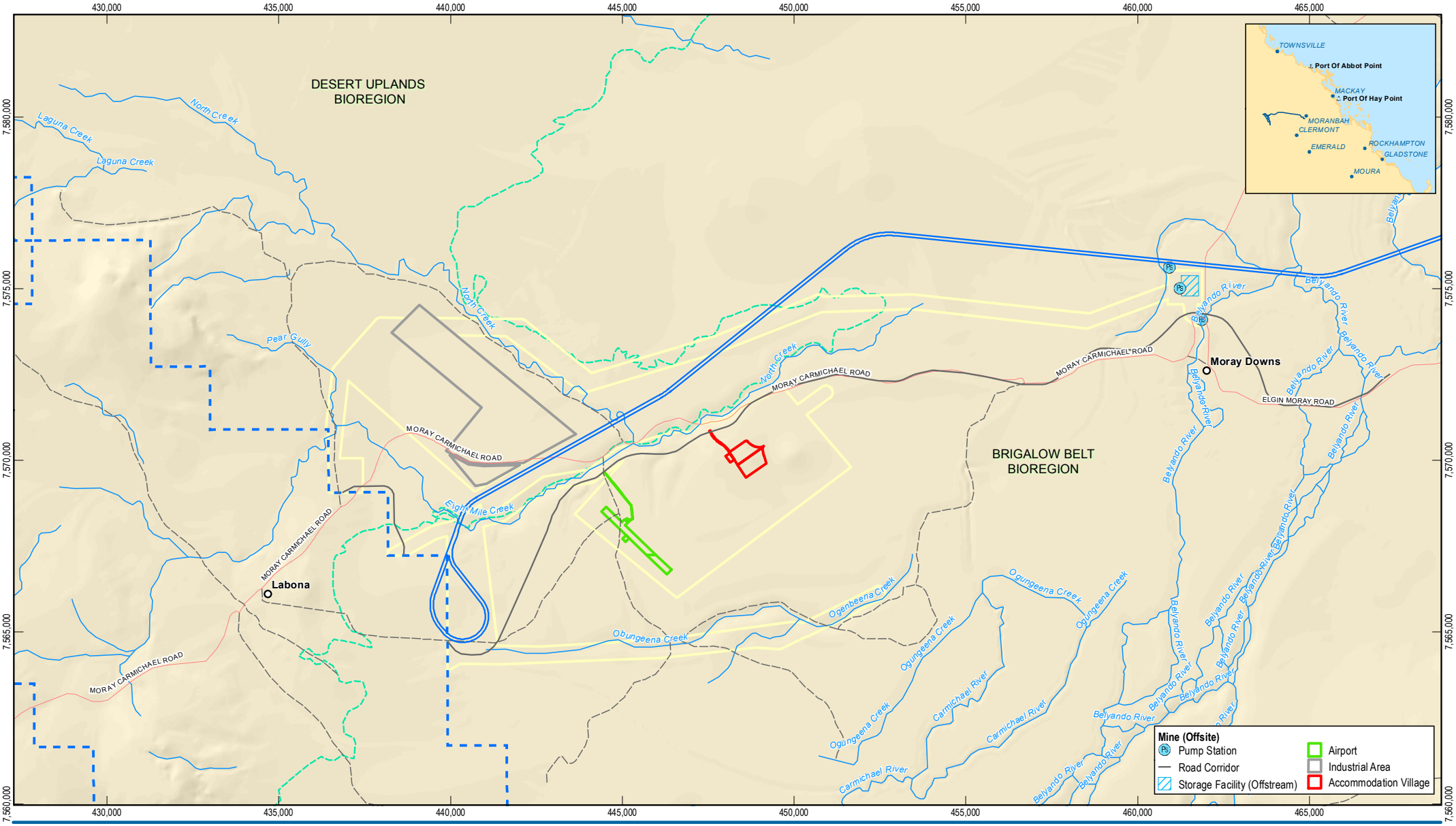
Address	Moray Carmichael Boundary Road, Moray Downs
Lot number	Lot 662 on PH1491
Application area	Approximately 7,635.8 ha
Local government area	Isaac Regional Council
Local plan zoning	Rural
Existing land use	Grazing
Proposed land use	Accommodation village, industrial area, airport and water infrastructure to support development of the Project (Mine)
Type of application	Correction to mapping
Previous PMAV applications	None

1.4 Study area

The Study Area for the assessment is shown in Figure 1. The Study Area is located immediately east of the proposed Projec (Mine) and covers an area of approximately 7,635.8 ha.

1.5 Assumptions and limitations

Field surveys were undertaken within the Study Area outlined in Figure 1.



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Kilometres

Map Projection: Universal Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia (GDA)
Grid: Map Grid of Australia 1994, Zone 55

N

LEGEND

- Homestead
- Local Road
- Track
- Watercourse
- Bioregion Boundary
- Study Area
- Rail Corridor
- Project Area

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Carmichael Coal Mine and Rail Project SEIS
Property Map of Assessable Vegetation

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Study Area

Figure 1

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Data source: DME: EPC1690 (2010)/EPC1080 (2011); DNRM: Bioregion Boundary (2011); © Commonwealth of Australia (Geoscience Australia): Watercourse, Tracks (2007); Adani: Alignment Opt11 Rev 2 (SP1 and 2)(2013), Offsite Infrastructure (2013); Gassman/Hyder: Mine (Offsite) Moray Carmichael Road Realignment (Opt 2) (2013). Created by: AJ

2. Methodology

2.1 Overview

A combination of desktop assessments and detailed site assessments were used to accurately map and define vegetation communities within the Study Area, based on vegetation categories defined by the Queensland Herbarium.

2.2 Desktop assessments

Prior to survey, a desktop assessment was undertaken to assist with the final determination of vegetation community boundaries within the Study Area. The following information sources were reviewed:

- Current certified RE mapping Version 6.1b
- Historical Department of Environment and Heritage Protection (DEHP) aerial imagery for the location
- Queensland Herbarium mapping and methodology procedures outlined in Neldner et al., 2012

2.3 Field assessments

Site surveys were carried out by GHD botanists between 30 April and 6 May 2013 and assessed the accuracy of RE mapping within discrete areas within the Study Area. Sites were assessed using the Quaternary method under the Queensland Herbarium mapping methodology (Neldner et al., 2012). In brief, a Quaternary level of assessment involves collection of data regarding the structure and composition of strata comprising the vegetation community. A combination of high resolution aerial imagery, historical photographs and field traverses (using hand held global positioning system (GPS) were used to delineate between RE boundaries. BioCondition assessments, as outlined in Eyre et al., (2011), were also undertaken at some sites, and the data obtained has been utilised in the RE ground-truthing process.

A number of RE polygons were consistent across the Study Area (e.g. 10.3.4b/10.3.6a/10.3.3b polygons were consistently ground-truthed as 10.3.6a). In these cases, representative assessment sites have been used on which to base the field verifications for these RE polygons (see Appendix A).

2.4 PMAV category classifications

Rules for mapping changes, based on the *Vegetation Management Act 1999* (VM Act) definitions for remnant vegetation and remnant least concern, of concern and endangered REs, have been established by the Queensland Herbarium in Methodology for survey and mapping of Regional Ecosystems and vegetation communities in Queensland (Neldner et al., 2012). These rules have been summarised below where necessary to outline how the field data was gathered and mapping for this PMAV prepared.

PMAV vegetation category classifications, as defined within the VM Act, are provided in Table 2.

Table 2 PMAV category classifications

PMAV Category	Description
Category A	An area identified as: • a declared, offset or exchange area; or • being unlawfully cleared; or • subject to a restoration notice or an enforcement notice under the Planning Act; or • being a declared area by the chief executive under section 20BA of the VM Act.
Category B	An area shown on a regional ecosystem map or remnant map as remnant vegetation.
Category C	An area other than a Category A area, that contains regrowth vegetation that is an endangered, of concern or a least concern regional ecosystem that has not been cleared since 31 December 1989.
Category X	An area: • where clearing has occurred; and • is not a Category A area, Category B area or category C area on a property map of assessable vegetation made under section 20B; and • at the time of the making, under section 20B or 20C, or the replacement, under section 20D, of the property map of assessable vegetation applying to the area— – does not contain remnant vegetation; or – is not cleared due to burning, flooding or natural causes and the vegetation in the area forms a predominant canopy that— – has cover that averages less than 50% of the undisturbed predominant canopy; or – has height that averages less than 70% of the vegetation's undisturbed height; or – is not composed of species characteristic of the vegetation's undisturbed predominant canopy.

As established in the VM Act to demonstrate that vegetation mapped as remnant should be mapped non-remnant, it is necessary to establish one of the following:

- That the density (or projective foliage cover) of the subject vegetation canopy averages less than 50 percent that of the undisturbed predominant canopy of the vegetation.
- That the canopy height of the subject vegetation averages less than 70 percent that of the undisturbed height of the RE.
- That the species composition of the subject vegetation canopy is not characteristic of the species composition of the REs undisturbed predominant canopy (on its own this will generally only indicate that another RE may be more applicable, rather than that the subject vegetation is non-remnant, unless the dominant species are exotic).

Therefore, for the purpose of demonstrating that an area of vegetation which is currently mapped as remnant vegetation should be mapped in a PMAV as a category X area, it is necessary to demonstrate that the vegetation has been cleared before (as defined by the VM Act and not by burning, flooding or natural causes) and that the vegetation has not regained sufficient height or canopy density, or does not have the species composition, to be remnant vegetation.

These rules introduce a number of terms, the interpretation of which is essential for an accurate understanding of the changes recommended in this report. Therefore, it is necessary to define a number of these terms:

- ‘Undisturbed’ means the pre-clear condition of the vegetation in an RE. The pre-clear condition of vegetation can only be measured using reference sites. Neldner et al. (2012) makes recommendations for the selection of reference sites – they should be in good condition and be representative of the subject RE (same dominant species etc.).
- ‘Predominant canopy’ means the stratum forming the Ecological Dominant Layer (EDL). This is the layer that has the greatest above-ground biomass, and is usually the tallest tree layer (T1).
- ‘Average’ – the measure for average used by the Queensland Herbarium for measuring canopy height and density is the median.

3. Desktop assessment

3.1 Site location and regional context

The Study Area occurs in central Queensland at the boundary of the Desert Uplands and Brigalow Belt bioregions within the Belyando River sub-catchment of the Burdekin Catchment.

This region has been utilised extensively for livestock grazing and coal extraction, resulting in significant reduction in vegetation communities within the area.

3.2 Site landform and geology

The Belyando River sub-catchment is characterised by generally low relief floodplains drained by braided channels and surrounded by wide alluvial plains (Dight, 2009). Within the region, connectivity of remnant vegetation is maintained by riparian vegetation including mature river red gum (*Eucalyptus camaldulensis*) and paper bark (*Melaleuca leucadendra*) associated with the Carmichael and Belyando rivers. The Study Area drains into a number of ephemeral creeks that become undefined before draining into the Belyando River. The elevated location of the Study Area in the Burdekin Catchment in combination with seasonality of rainfall means stream flows are generally restricted to the wetter months (November to March). During the dryer months (June and July) many streams and drainage channels dry while larger rivers sustain only pools or low flows.

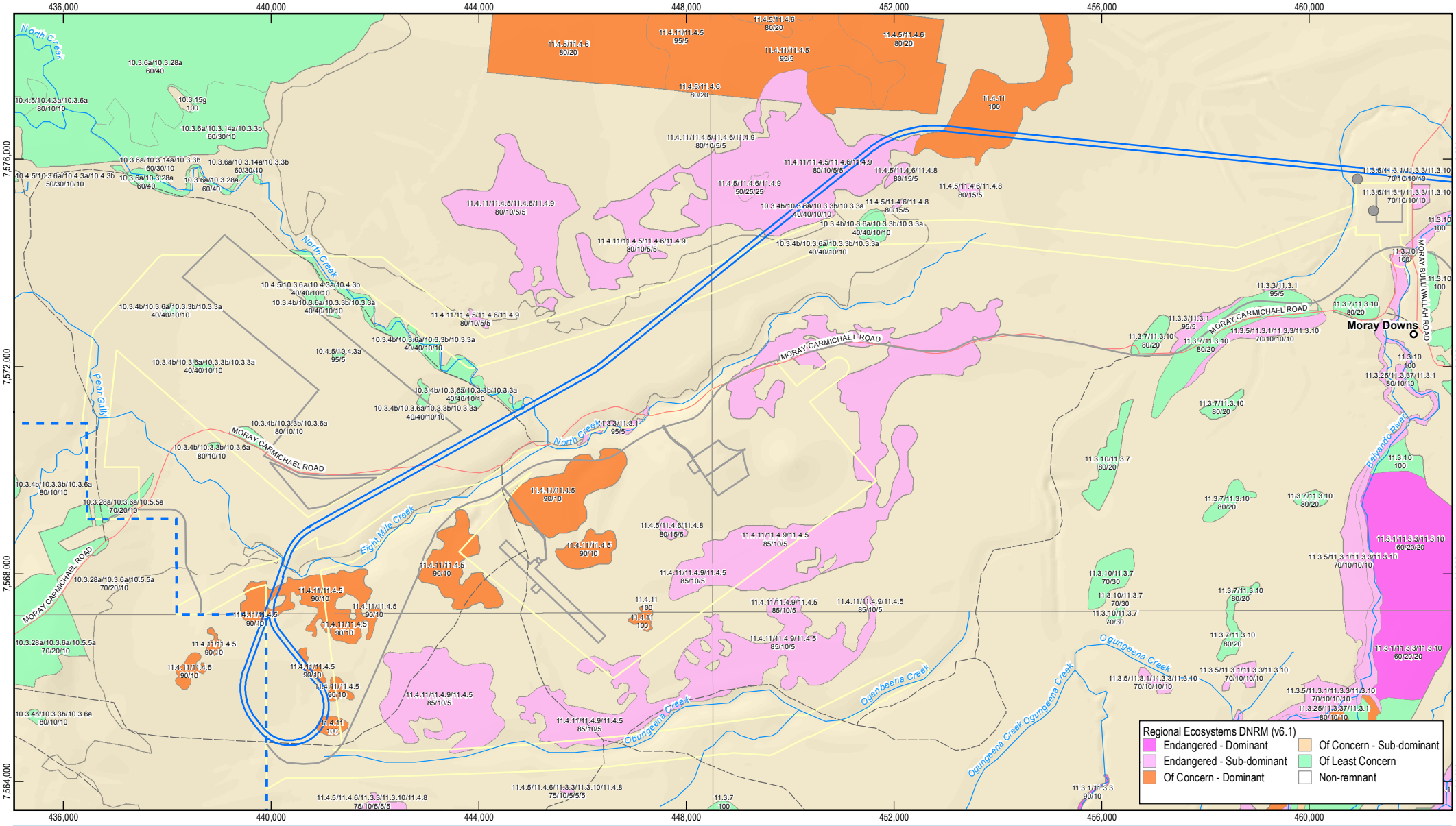
Geological data was sourced from the Department of Natural Resources and Mines (DNRM) using the Surat Basin Surface Geology dataset (DNRM, 2012). Soil information was acquired from the Commonwealth Scientific and Industrial Research Organisation (CSIRO) Australian Soil Resource Information System (CSIRO, 2010). The geology that shapes the Study Area is predominantly Tertiary and Quaternary alluvials and colluvials, less than 65 million years old (DNRM, 2012). The key geological unit underlying much of the Study Area is the Woondoolla beds and unconsolidated materials, comprising fluvial sands and clays (Vertosols and Kandosols) on gently undulating plains (DNRM, 2012). This is consistent with the currently mapped land zones 4 and 5 by the Queensland Herbarium (Wilson and Taylor, 2012).

3.3 Existing mapping

The current certified RE mapping (version 6.1b) identified the Study Area as predominately supporting non-remnant vegetation. A total of 16 REs are currently mapped in the Study Area:

- 7 least concern Desert Upland REs (10.3.3, 10.3.4, 10.3.6, 10.3.28, 10.4.3, 10.4.5, 10.5.5)
- 4 least concern Brigalow Belt REs (11.3.1, 11.3.3, 11.3.25, 11.3.37)
- 2 of concern Brigalow Belt REs (11.4.5, 11.4.6)
- 3 endangered Brigalow Belt REs (11.4.8, 11.4.9, 11.4.11)

The existing DEHP RE mapping for the Study Area is provided in Figure 2.



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Kilometres

Map Projection: Universal Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia (GDA)
Grid: Map Grid of Australia 1994, Zone 55

N

LEGEND

- Homestead
- Local Road
- Track
- Watercourse
- Study Area
- Rail Corridor
- Project Area
- Mine (Offsite)
- Mine (Offsite)

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DNRM Certified Regional Ecosystems - V6.1 Figure 2

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4. Field assessment

4.1 Survey effort

Site surveys were carried out by GHD botanists between 30 April and 6 May 2013. A total of 30 polygons were surveyed utilising 100 metre (m) transects.

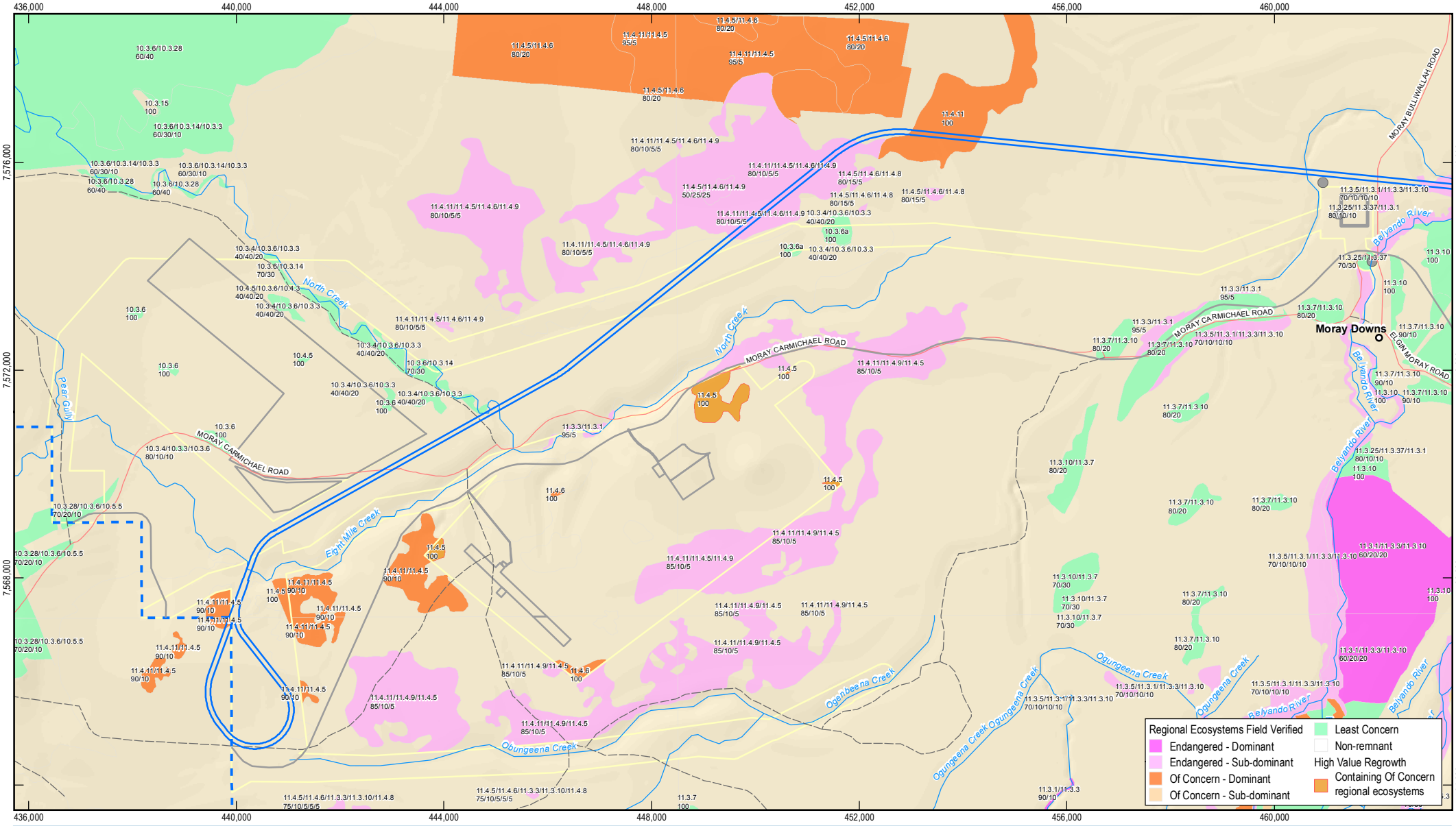
4.2 Proposed mapping

Table 3 describes the polygons within the Study Area that have a proposed change of RE status. Table 4 describes the polygons within the Study Area that have a proposed change of RE designation or where a change is recommended to the proportion of constituent REs within heterogeneous polygons (with no associated change in status). A summary of the justification for the change in RE is also presented in these tables. Further assessment site data and justification for the proposed RE changes are provided in Appendix A.

A total of 16 REs were confirmed present within the Study Area, including a large number of small areas mapped as the least concern REs 10.3.6a and the of concern 11.4.11/11.4.5, as well as smaller areas mapped as the least concern 11.3.25, 11.3.3 and 11.3.37, associated with watercourses. The field verified RE mapping is provided Figure 3.

Remnant vegetation was observed to be less extensive than presented by the certified RE mapping. Specifically, many areas mapped as containing natural grasslands RE 11.4.11 and *Acacia argyrodendron* woodland (RE 11.4.5) were not found to occur within some parts of the Study Area.

The polygons represented in Figure 4 refine the present certified RE mapping across the lot by proposing more accurate mapping based on aerial photograph interpretation coupled with field survey data using a method consistent with the Queensland Herbarium procedure for ground-truthing REs (Neldner et al., 2012).



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Horizontal Datum: Geocentric Datum of Australia (GDA)
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N

LEGEND

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- Study Area
- Rail Corridor
- Project Area
- Mine (Offsite)
- Mine (Offsite)

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Field Verified Regional Ecosystems

Figure 3

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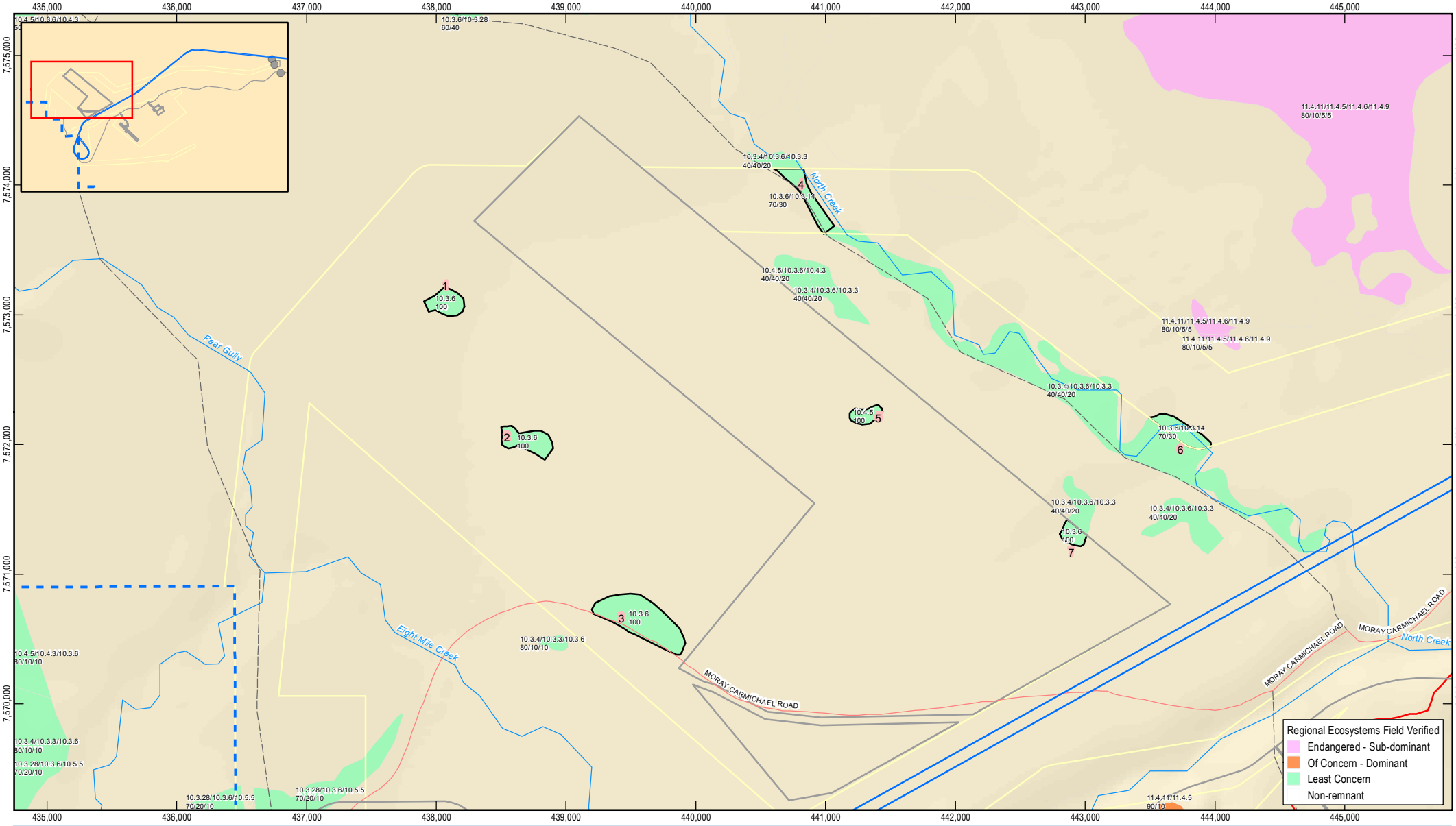

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N

LEGEND

- Local Road
- Track
- Watercourse
- Study Area
- Regional Ecosystem Change
  - Code
  - Status
- Rail Corridor
- Project Area
- Mine (Offsite)

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Nominated RE Polygon Changes within the Study Area

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Figure 4
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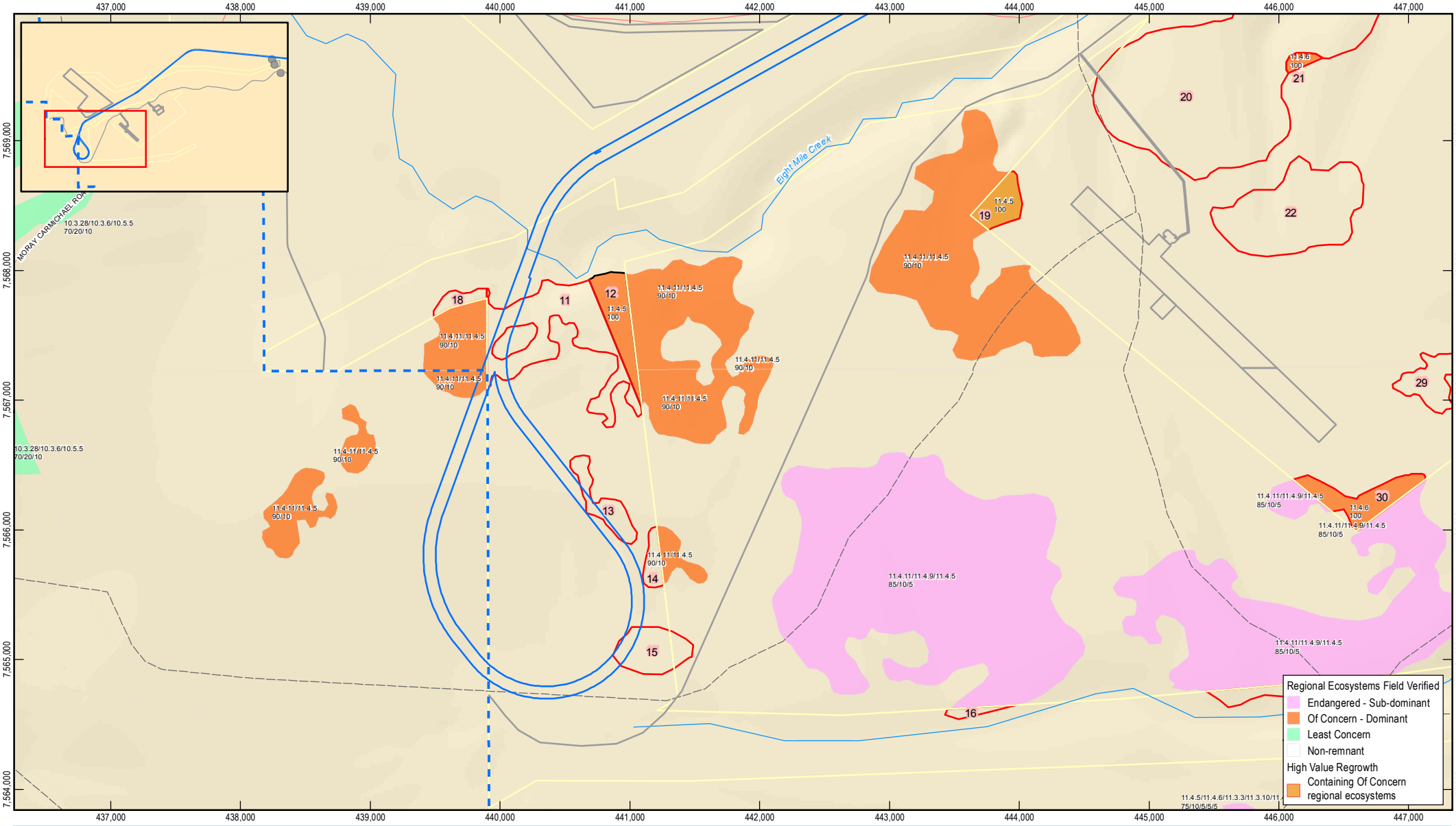

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Property Map of Assessable Vegetation

Nominated RE Polygon Changes within the Study Area

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Figure 4
Sheet 2 of 5

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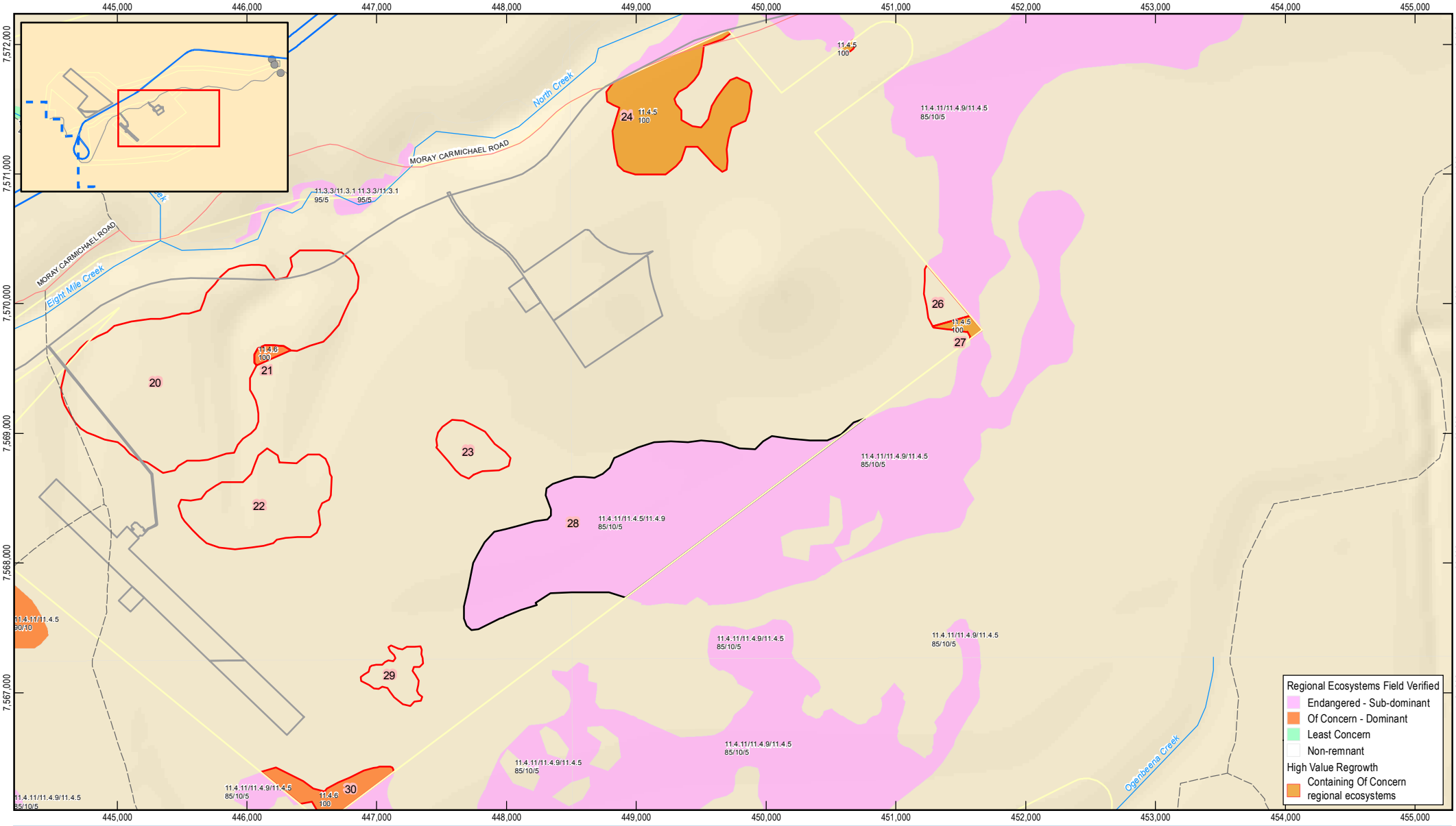

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Property Map of Assessable Vegetation

Nominated RE Polygon Changes within the Study Area

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Figure 4
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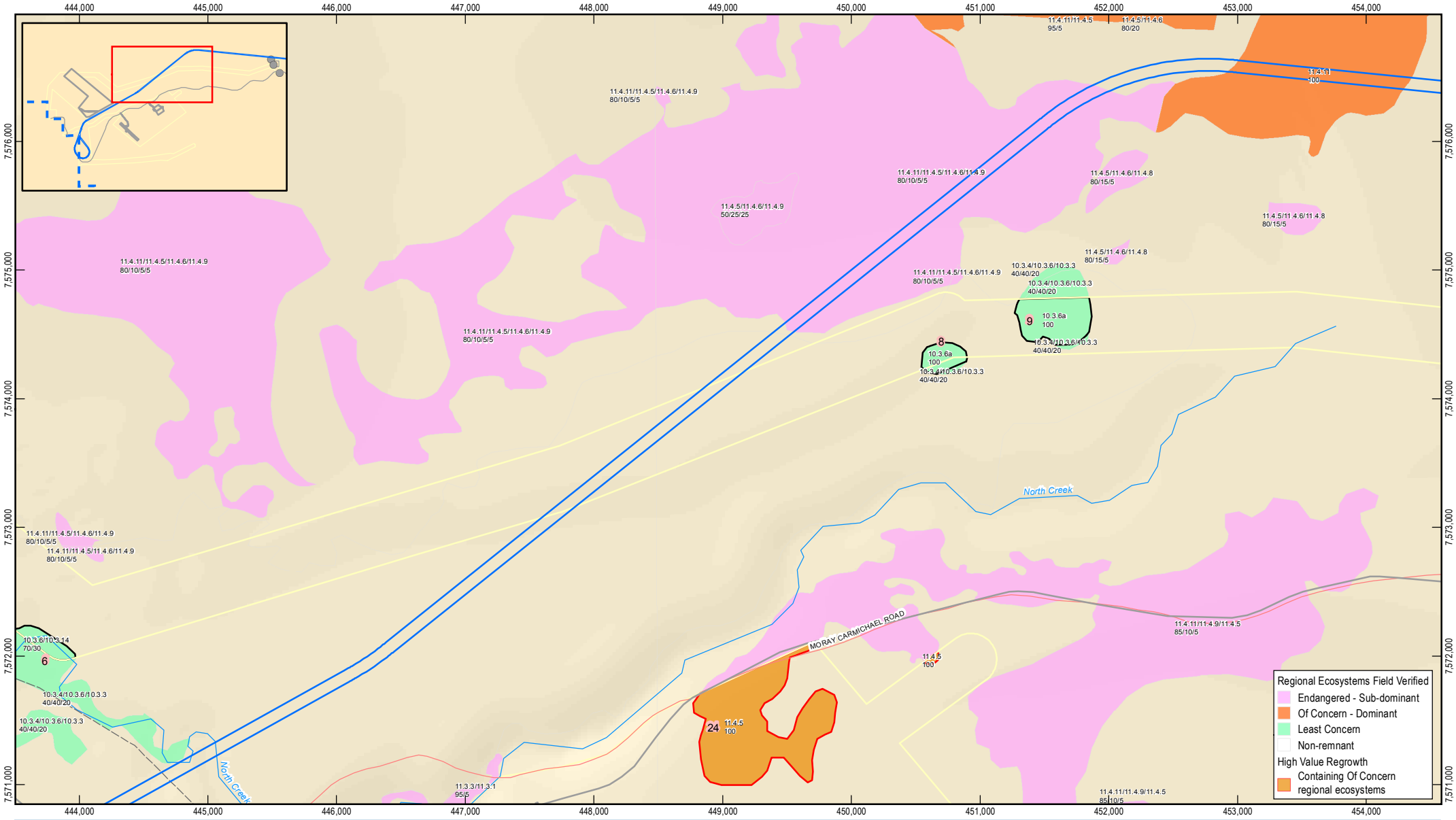

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Figure 4
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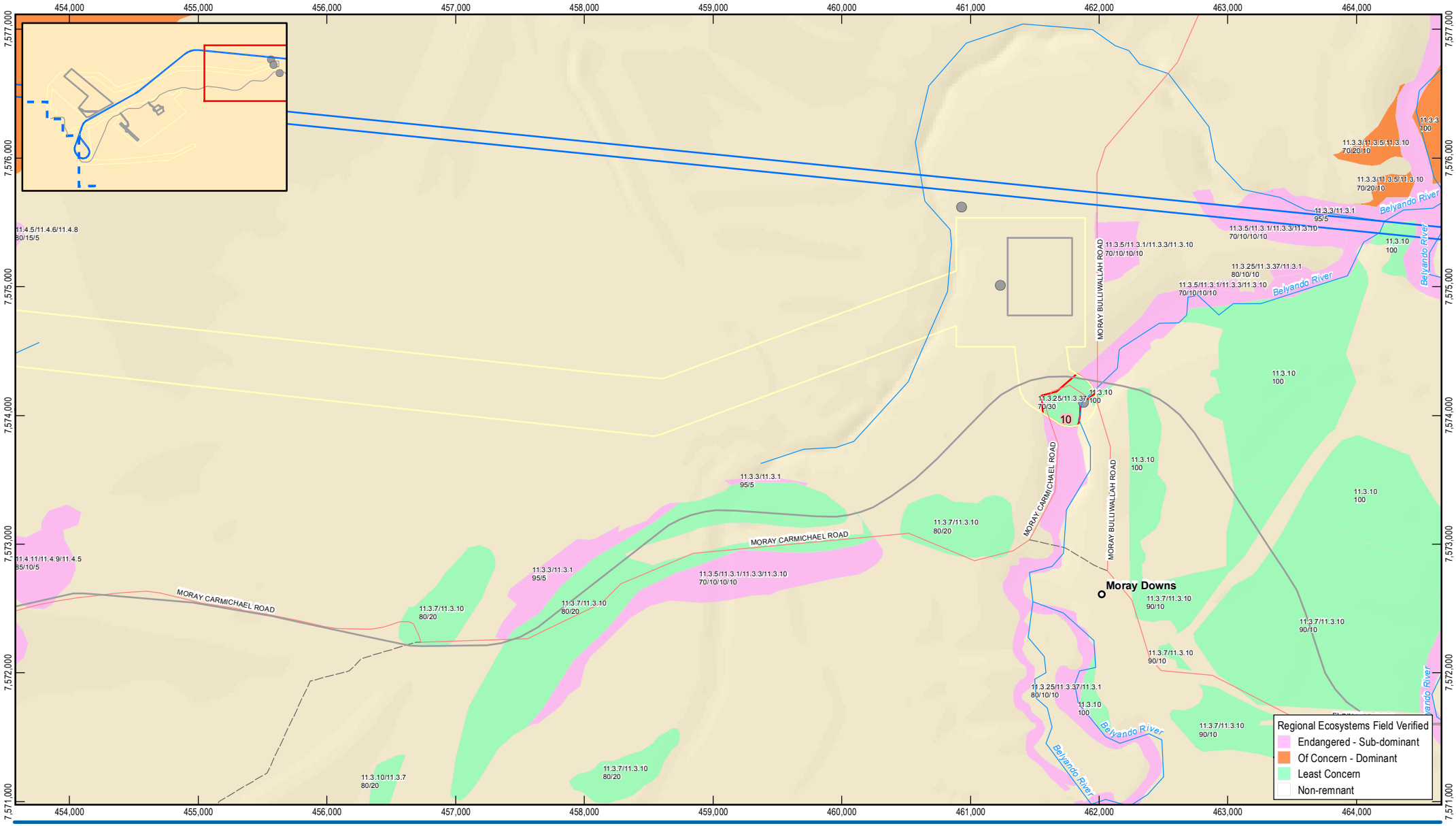

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Figure 4
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Table 3 Summary of RE polygons resulting in a proposed change in RE status

Polygon	Existing RE Mapping	RE Observed	Area (ha)	Justification for change in RE mapping
10	Endangered 11.3.25/11.3.37/ 11.3.1	Least concern 11.3.37/11.3.25	9.79	Assessment was undertaken within 11.3.37, as 11.3.25 was too narrow to survey. Field surveys found this polygon to be characterised by fringing riparian woodland dominated by *Eucalyptus coolabah* and *E. camaldulensis* to 18 m tall. The community occurs on flat to gently undulating alluvial plains comprising sandy soils (land zone 3). Site inspection found the species composition, geology and landform corresponds to a heterogeneous polygon comprising REs 11.3.37/11.3.25.
11	Of concern 11.4.11/11.4.5	Non-remnant	45.23	Field surveys found this polygon to be characterised by grazing pasture dominated by *Cenchrus ciliaris* (buffel grass). Site inspection found buffel grass encroachment and fire, as a result of past and current land management, has largely displaced native grass species, altering the species composition and now resembles non-remnant vegetation. *Acacia argyrodendron* is highly sensitive to fire with buffel grass capable of supporting intense fires that can result in tree death (DEHP, 2013). Although sparsely scattered shrubs were observed (to 5 m), no tree layer was present, with the structure and composition of the community uncharacteristic of remnant or regrowth communities for the area. Although historical aerial imagery for the area is limited, evidence of significant clearing (prior to 1978) and application of fire management has occurred within the area.
13	Of concern 11.4.11/11.4.5	Non-remnant	10.70	Field surveys found this polygon to be characterised by grazing pasture dominated by *Cenchrus ciliaris* with sparsely scattered shrubs to 3 m. Site inspection found buffel grass encroachment and altered fire regimes, as a result of past and current land management, has largely displaced native grass species, modifying the species composition and now resembles non-remnant vegetation. *Acacia argyrodendron* is highly sensitive to fire with buffel grass capable of supporting intense fires that can result in tree death (DEHP, 2013). Although patchy areas of sparse shrubs were observed, no tree layer was present, with the structure and composition of the community uncharacteristic of remnant or regrowth communities for the area. Although historical aerial imagery for the area is limited, evidence of significant clearing (prior to 1978) and application of fire management has occurred within the area.

Polygon	Existing RE Mapping	RE Observed	Area (ha)	Justification for change in RE mapping
14	Of concern 11.4.11/11.4.5	Non-remnant	5.01	Field surveys found this polygon to be characterised by grazing pasture dominated by *Cenchrus ciliaris* with sparsely scattered shrubs to 2 m. Site inspection found buffel grass encroachment and altered fire regimes, as a result of past and current land management, has largely displaced native grass species, modifying the species composition and now resembles non-remnant vegetation. *Acacia argyrodendron* is highly sensitive to fire with buffel grass capable of supporting intense fires that can result in tree death (DEHP, 2013). Although patchy areas of sparse shrubs were observed, no tree layer was present, with the structure and composition of the community uncharacteristic of remnant or regrowth communities for the area. Although historical aerial imagery for the area is limited, evidence of significant clearing (prior to 1978) and application of fire management has occurred within the area.
15	Of concern 11.4.11	Non-remnant	16.82	Field surveys found this polygon to be characterised by grazing pasture dominated by *Cenchrus ciliaris* with sparsely scattered shrubs to 6 m. Site inspection found buffel grass encroachment, as a result of past and current land management, has largely displaced native grass species, altering the species composition and now resembles non-remnant vegetation. Although historical aerial imagery for the area is limited, evidence of significant clearing (prior to 1978) has occurred within the area.
16	Endangered 11.4.11/11.4.9/ 11.4.5	Non-remnant	2.54	Field surveys found this polygon to be characterised by grazing pasture dominated by *Cenchrus ciliaris* with sparsely scattered shrubs to 2 m. Site inspection found buffel grass encroachment and altered fire regimes, as a result of past and current land management, has largely displaced native grass species, modifying the species composition and now resembles non-remnant vegetation. *Acacia argyrodendron* is highly sensitive to fire with buffel grass capable of supporting intense fires that can result in tree death (DEHP, 2013). While patchy areas of sparse shrubs were observed, no tree layer was present, with the structure and composition of the community uncharacteristic of remnant or regrowth communities for the area. Although historical aerial imagery for the area is limited, evidence of significant clearing (prior to 1978) and application of fire management has occurred within the area.

Polygon	Existing RE Mapping	RE Observed	Area (ha)	Justification for change in RE mapping
17	Endangered 11.4.11/11.4.9/ 11.4.5	Non-remnant	14.40	Field surveys found this polygon to be characterised by grazing pasture dominated by *Cenchrus ciliaris* with sparsely scattered shrubs to 2 m. Site inspection found buffel grass encroachment and altered fire regimes, as a result of past and current land management, has largely displaced native grass species, modifying the species composition and now resembles non-remnant vegetation. *Acacia argyrodendron* is highly sensitive to fire with buffel grass capable of supporting intense fires that can result in tree death (DEHP, 2013). While patchy areas of sparse shrubs were observed, no tree layer was present, with the structure and composition of the community uncharacteristic of remnant or regrowth communities for the area. Although historical aerial imagery for the area is limited, evidence of significant clearing (prior to 1978) and application of fire management has occurred within the area.
18	Of concern 11.4.11/11.4.5	Non-remnant	3.98	Field surveys found this polygon to be characterised by grazing pasture dominated by *Cenchrus ciliaris* with sparsely scattered shrubs. Buffel grass encroachment and altered fire regimes, as a result of past and current land management, has largely displaced native grass species, modifying the species composition and now resembles non-remnant vegetation. *Acacia argyrodendron* is highly sensitive to fire with buffel grass capable of supporting intense fires that can result in tree death (DEHP, 2013). While patchy areas of sparse shrubs were observed, no tree layer was present, with the structure and composition of the community uncharacteristic of remnant or regrowth communities for the area. Although historical aerial imagery for the area is limited, evidence of significant clearing (prior to 1978) and application of fire management has occurred within the area.
19	Of concern 11.4.11/11.4.5	Non-remnant	10.02	Field surveys found this polygon to be characterised by young acacia regrowth to 6.5 m, with a buffel grass understorey. Buffel grass encroachment and altered fire regimes, as a result of past and current land management, has largely displaced native grass species, modifying the species composition of the understorey. While patchy areas of sparse shrubs were observed, no tree layer was present, with the structure and composition of the community uncharacteristic of remnant or regrowth communities for the area. Although historical aerial imagery for the area is limited, the height and composition of the shrub layer resembles of concern high value regrowth vegetation with evidence of significant clearing (prior to 1989) occurring within the area.

Polygon	Existing RE Mapping	RE Observed	Area (ha)	Justification for change in RE mapping
20	Of concern 11.4.11/11.4.5	Non-remnant	202.34	Field surveys found this polygon to be characterised by grazing pasture dominated by *Cenchrus ciliaris* with sparsely scattered shrubs (to 5 m). Buffel grass encroachment and altered fire regimes, as a result of past and current land management, has largely displaced native grass species, modifying the species composition and now resembles non-remnant vegetation. *Acacia argyrodendron* is highly sensitive to fire with buffel grass capable of supporting intense fires that can result in tree death (DEHP, 2013). While patchy areas of sparse shrubs were observed, no tree layer was present, with the structure and composition of the community uncharacteristic of remnant or regrowth communities for the area. Although historical aerial imagery for the area is limited, evidence of significant clearing (prior to 1978) and application of fire management has occurred within the area.
22	Of concern 11.4.11/11.4.5	Non-remnant	58.13	Field surveys found this polygon to be characterised by grazing pasture dominated by *Cenchrus ciliaris* with sparsely scattered shrubs (to 5 m). Buffel grass encroachment and altered fire regimes, as a result of past and current land management, has largely displaced native grass species, modifying the species composition and now resembles non-remnant vegetation. *Acacia argyrodendron* is highly sensitive to fire with buffel grass capable of supporting intense fires that can result in tree death (DEHP, 2013). While patchy areas of sparse shrubs was observed, no tree layer was present and structure and composition of the sparse shrub layer is uncharacteristic of remnant or regrowth communities for the area. Although historical aerial imagery for the area is limited, evidence of significant clearing (prior to 1978) and application of fire management has occurred within the area. .
23	Endangered 11.4.5/11.4.6/ 11.4.8	Non-remnant	16.05	Field surveys found this polygon to be characterised by grazing pasture dominated by *Cenchrus ciliaris* with sparsely scattered shrubs (to 5 m). Buffel grass encroachment and altered fire regimes, as a result of past and current land management, has largely displaced native grass species, modifying the species composition and now resembles non-remnant vegetation. *Acacia argyrodendron* is highly sensitive to fire with buffel grass capable of supporting intense fires that can result in tree death (DEHP, 2013). While patchy areas of sparse shrubs and an emergent layer of *Atalaya hemiglauca* was observed, no tree layer was present and structure and composition of the sparse shrub layer is uncharacteristic of remnant or regrowth communities for the area. Although historical aerial imagery for the area is limited, evidence of significant clearing (prior to 1978) and application of fire management has occurred within the area.

Polygon	Existing RE Mapping	RE Observed	Area (ha)	Justification for change in RE mapping
24	Endangered 11.4.11/11.4.9/ 11.4.5	Non-remnant	65.00	Field surveys found this polygon to be characterised by young *Lysiphyllum carronii* regrowth to 7 m, with a buffel grass understorey. Buffel grass encroachment and altered fire regimes, as a result of past and current land management, has largely displaced native grass species, modifying the species composition. *Acacia argyrodendron* is highly sensitive to fire with buffel grass capable of supporting intense fires that can result in tree death (DEHP, 2013). While *A. argyrodendron* is not present, the height and composition of the shrublayer is characteristic of those observed within RE 11.4.5. Although historical aerial imagery for the area is limited, the height and composition of the shrub layer resembles of concern high value regrowth vegetation with evidence of significant clearing (prior to 1989) and application of fire management occurring within the area.
25	Endangered 11.4.11/11.4.9/ 11.4.5	Non-remnant	0.58	Field surveys found this polygon is characterised by young *Atalaya hemiglauca* regrowth to 6 m, with a buffel grass understorey. Buffel grass encroachment and altered fire regimes, as a result of past and current land management, has largely displaced native grass species, modifying the species composition. *Acacia argyrodendron* is highly sensitive to fire with buffel grass capable of supporting intense fires that can result in tree death (DEHP, 2013). While *A. argyrodendron* is not present, the height and composition of the shrublayer is characteristic of those observed within RE 11.4.5. Although historical aerial imagery for the area is limited, the height and composition of the shrub layer resembles of concern high value regrowth vegetation with evidence of significant clearing (prior to 1989) and application of fire management occurring within the area.
26	Endangered 11.4.11/11.4.9/ 11.4.5	Non-remnant	8.40	Field surveys found this polygon to be characterised by grazing pasture dominated by *Cenchrus ciliaris* with sparsely scattered shrubs (to 7 m). Buffel grass encroachment and altered fire regimes, as a result of past and current land management, has largely displaced native grass species, modifying the species composition and now resembles non-remnant vegetation. *Acacia argyrodendron* is highly sensitive to fire with buffel grass capable of supporting intense fires that can result in tree death (DEHP, 2013). While patchy areas of sparse shrubs (*Lysiphyllum carronii* and *Atalaya hemiglauca*) was observed, no tree layer was present and structure and composition of the sparse shrub layer is uncharacteristic of remnant or regrowth communities for the area. Although historical aerial imagery for the area is limited, evidence of significant clearing (prior to 1978) and application of fire management has occurred within the area.

Polygon	Existing RE Mapping	RE Observed	Area (ha)	Justification for change in RE mapping
27	Endangered 11.4.11/11.4.9/ 11.4.5	Non-remnant	2.80	Field surveys found this polygon to be characterised by young *Atalaya hemiglauca* and *Lysiphyllum carronii* regrowth, with a buffel grass understorey. Buffel grass encroachment and altered fire regimes, as a result of past and current land management, has largely displaced native grass species, modifying the species composition of the understorey. *Acacia argyrodendron* is highly sensitive to fire with buffel grass capable of supporting intense fires that can result in tree death (DEHP, 2013). While *A. argyrodendron* is not present, the height and composition of the shrublayer is characteristic of those observed within RE 11.4.5. Although historical aerial imagery for the area is limited, the height and composition of the shrub layer resembles of concern high value regrowth vegetation with evidence of significant clearing (prior to 1989) and application of fire management occurring within the area.
29	Of concern 11.4.11	Non-remnant	12.53	Field surveys found this polygon to be characterised by grazing pasture dominated by *Cenchrus ciliaris* with sparsely scattered emergent shrublayer (to 9 m). Buffel grass encroachment and altered fire regimes, as a result of past and current land management, has largely displaced native grass species, modifying the species composition and now resembles non-remnant vegetation. *Acacia argyrodendron* is highly sensitive to fire with buffel grass capable of supporting intense fires that can result in tree death (DEHP, 2013). While patchy areas of sparse shrubs and an emergent layer was observed (*Lysiphyllum carronii*) was observed, no tree significant layer was present, with the structure and composition of the community uncharacteristic of remnant or regrowth communities for the area. Although historical aerial imagery for the area is limited, evidence of significant clearing (prior to 1978) and application of fire management has occurred within the area.
30	Endangered 11.4.11/11.4.9/ 11.4.5	Of concern 11.4.5	16.36	Field surveys found this polygon to be characterised by very sparse low trees to 12 m, with mid-dense shrubs to 6 m, over a predominantly *Cenchrus ciliaris*-dominated ground layer. Buffel encroachment and altered fire regimes, as a result of past and current land management, has largely displaced native grass species, modifying the species composition in the ground layer. While patchy areas of tall shrubs and small trees were observed, no significant brigalow (*Acacia harpophylla*) tree layer was observed within the polygon. The dominant canopy species (to 12 m high) was *Acacia cambagei*, with *A. argyrodendron* as a canopy sub-dominant. The structure and composition of species within the community is consistent with the of concern RE 11.4.6.

Table 4 Summary of RE polygons resulting in a proposed change in RE designation/proportion (but no change in RE status)

Polygon	Existing RE Mapping	RE Observed	Area (ha)	Justification for change in RE mapping
1	Least concern 10.3.4/10.3.6/ 10.3.3	Least concern 10.3.6a	4.52	Field surveys found this polygon to be characterised by low open woodland dominated by *Eucalyptus brownii* and *E. melanophloia* to 14 m tall. The community occurs on gently undulating alluvial plains comprising loamy sands (land zone 3). Site inspection found the species composition, geology and landform corresponds to RE 10.3.6a. This polygon also represents part of the true extent of RE 10.3.6a on the Lot.
2	Least concern 10.3.4/10.3.6/ 10.3.3	Least concern 10.3.6a	5.93	Field surveys found this polygon to be characterised by low open woodland dominated by *Eucalyptus brownii* to 12 m tall. The community occurs on gently undulating alluvial plains comprising loamy sands (land zone 3). Site inspection found the species composition, geology and landform corresponds to RE 10.3.6a.
3	Least concern 10.3.4/10.3.3/ 10.3.6	Least concern 10.3.6a	17.09	Field surveys found this polygon is characterised by low open woodland dominated by *Eucalyptus brownii* to 13 m tall. The community occurs on gently undulating alluvial plains comprising loamy sands (land zone 3). Site inspection found the species composition, geology and landform corresponds to RE 10.3.6a.
4	Least concern 10.3.4/10.3.6/ 10.3.3/10.3.3	Least concern 10.3.6a/ 10.3.14	5.63	Field surveys found this polygon to be characterised by low open woodland dominated by *Eucalyptus brownii* to 16 m tall. The community occurs on gently undulating alluvial plains comprising loamy sands (land zone 3). Smaller patches along the riparian corridor were found to be dominated by *E. camaldulensis*. Site inspection found the species composition, geology and landform corresponds to a mix polygon comprising REs 10.3.6a/10.3.14.
5	Least concern 10.4.5/10.4.3	Least concern 10.4.5	2.48	Field surveys found this polygon to be characterised by low open woodland dominated by *Acacia cambagei* with *A. harpophylla* to 15 m tall. The community occurs on gently undulating plains comprising cracking clay soils (land zone 4). Site inspection found the species composition, geology and landform corresponds to RE 10.4.5.
6	Least concern 10.3.4/10.3.6/ 10.3.3	Least concern 10.3.6a/ 10.3.14	5.45	Field surveys found this polygon to be characterised by low open woodland dominated by *Eucalyptus brownii* to 14 m tall. The community occurs on gently undulating alluvial plains comprising loamy sands (land zone 3). Smaller patches along the riparian corridor were found to be dominated by *E. camaldulensis*. Site inspection found the species composition, geology and landform corresponds to a mix polygon comprising REs 10.3.6a/10.3.14.

Polygon	Existing RE Mapping	RE Observed	Area (ha)	Justification for change in RE mapping
7	Least concern 10.3.4/10.3.6/ 10.3.3/10.3.3	Least concern 10.3.6a	2.52	Field surveys found this polygon to be characterised by low open woodland dominated by *Eucalyptus melanophloia* and *E. brownii* to 14 m tall. The community occurs on flat to gently undulating alluvial plains comprising sandy soils (land zone 3). Site inspection found the species composition, geology and landform corresponds to RE 10.3.6a.
8	Least concern 10.3.4/10.3.6/ 10.3.3	Least concern 10.3.6a	6.33	Field surveys found this polygon to be characterised by low open woodland dominated by *Eucalyptus brownii* to 15 m tall. The community occurs on flat to gently undulating alluvial plains comprising sandy soils (land zone 3). Site inspection found the species composition, geology and landform corresponds to RE 10.3.6a.
9	Least concern 10.3.4/10.3.3/ 10.3.6	Least concern 10.3.6a	18.47	Field surveys found this polygon to be characterised by open woodland dominated by *Eucalyptus brownii* and *Corymbia clarksoniana* to 17 m tall. The community occurs on flat to gently undulating alluvial plains comprising sandy soils (land zone 3). Site inspection found the species composition, geology and landform corresponds to RE 10.3.6a.
12	Of concern 11.4.11/11.4.5	Of concern 11.4.5	14.33	Field surveys found this polygon to be characterised by low shrubland dominated by *Acacia harpophylla* / *A. argyrodendron* (lack of flowers/seed pods limited species identification). The community occurs on flat to gently undulating plains comprising clay soils (land zone 4). Site inspection found while buffel grass encroachment as a result of on-going land management has altered the species composition, the species composition, geology and landform corresponds to RE 11.4.5.
21	Of concern 11.4.11/11.4.5	Of concern 11.4.6	2.51	Field surveys found this polygon to be characterised by woodland dominated by *Acacia cambagei* to 12 m tall. The community occurs on flat to gently undulating plains comprising clay soils (land zone 4). Site inspection found the species composition, geology and landform corresponds to RE 11.4.6.
28	Endangered 11.4.11/11.4.9/ 11.4.5 (85/10/5)	Endangered 11.4.11/11.4.5/ 11.4.9 (85/10/5)	189.77	Field surveys found this polygon to be characterised by young regrowth to 6 m, with a dense ground layer of native species, with areas of heavy weed encroachment (*Parthenium hysterophorus*). A small area (approximately 100 m x 200 m) of brigalow (*Acacia harpophylla*) open-forest (to 9 m) with a parthenium-dominated ground layer occurs within the polygon. Cattle grazing and altered fire regimes, as a result of past and current land management, has largely displaced mature woodland trees, modifying the structure and species composition of the majority of the community. The mix of sparse low shrubs and native open grasslands, plus the small area of brigalow open-forest conforms to the mixed polygon 11.4.11/11.4.5/11.4.9, forming a mosaic across the polygon.

5. PMAV details

A total of 30 changes to existing RE mapping are proposed from the field surveys. This includes:

- 19 proposed changes to RE status
  - 7 endangered RE polygons to become non-remnant
  - 1 endangered RE polygon to become least concern
  - 9 of concern RE polygons to become non-remnant
  - 1 endangered RE polygons to become of concern
- 12 proposed changes to RE designation or proportion of constituent REs within heterogeneous polygons (i.e. where more than one RE occurs within a single polygon), with no resulting change in RE status. These include heterogeneous polygons of of concern REs that will become homogenous (i.e. where a single RE occurs within a polygon) of concern REs and a heterogeneous polygon of endangered RE that will have the proportion of component REs altered.

Proposed changes to current regional ecosystem mapping are shown in Figure 3 and Figure 4. Table 5 provides a summary of the regional ecosystem status within the Study Area.

Table 5 Summary or regional ecosystem status

Polygon	Current RE Mapping	RE Observed	Area (ha)
1	Least concern 10.3.4/10.3.6/ 10.3.3	Least concern 10.3.6a	4.52
2	Least concern 10.3.4/10.3.6/ 10.3.3	Least concern 10.3.6a	5.93
3	Least concern 10.3.4/10.3.3/ 10.3.6	Least concern 10.3.6a	17.09
4	Least concern 10.3.4/10.3.6/ 10.3.3/10.3.3	Least concern 10.3.6a/ 10.3.14	5.63
5	Least concern 10.4.5/10.4.3	Least concern 10.4.5	2.48
6	Least concern 10.3.4/10.3.6/ 10.3.3	Least concern 10.3.6a/ 10.3.14	5.45
7	Least concern 10.3.4/10.3.6/ 10.3.3/10.3.3	Least concern 10.3.6a	2.52
8	Least concern 10.3.4/10.3.6/ 10.3.3	Least concern 10.3.6a	6.33
9	Least concern 10.3.4/10.3.3/ 10.3.6	Least concern 10.3.6a	18.47
10	Endangered 11.3.25/11.3.37/11.3.1	Least concern 11.3.37/11.3.25	9.79
11	Of concern 11.4.11/11.4.5	Non-remnant	45.23
12	Of concern 11.4.11/11.4.5	Of concern 11.4.5	14.33
13	Of concern 11.4.11/11.4.5	Non-remnant	10.70
14	Of concern 11.4.11/11.4.5	Non-remnant	5.01
15	Of concern 11.4.11	Non-remnant	16.82
16	Endangered 11.4.11/11.4.9/ 11.4.5	Non-remnant	2.54
17	Endangered 11.4.11/11.4.9/ 11.4.5	Non-remnant	14.40
18	Of concern 11.4.11/11.4.5	Non-remnant	3.98
19	Of concern 11.4.11/11.4.5	Non-remnant	10.02
20	Of concern 11.4.11/11.4.5	Non-remnant	202.34
21	Of concern 11.4.11/11.4.5	Of concern 11.4.6	2.51
22	Of concern 11.4.11/11.4.5	Non-remnant	58.13

Polygon	Current RE Mapping	RE Observed	Area (ha)
23	Endangered 11.4.5/11.4.6/ 11.4.8	Non-remnant	16.05
24	Endangered 11.4.11/11.4.9/ 11.4.5	Non-remnant	65.00
25	Endangered 11.4.11/11.4.9/ 11.4.5	Non-remnant	0.58
26	Endangered 11.4.11/11.4.9/ 11.4.5	Non-remnant	8.40
27	Endangered 11.4.11/11.4.9/ 11.4.5	Non-remnant	2.80
28	Endangered 11.4.11/11.4.9/ 11.4.5 (85/10/5)	Endangered 11.4.11/11.4.5/11.4.9 (85/10/5)	189.77
29	Of concern 11.4.11	Non-remnant	12.53
30	Endangered 11.4.11/11.4.9/ 11.4.5	Of concern 11.4.5	16.36

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Appendices


GHD
adani

Appendix A – Quaternary and BioCondition Site Assessments

Endangered to Non-remnant

Polygon 16 (Vegetation assessment site 42)

Mapped RE: Endangered, 11.4.11/11.4.9/11.4.5 (85/10/5)

Observed RE: Non-remnant (100)

Polygon No.:	16	Recorder:	Peter Wagner	Date:	04/05/2013
Purpose:	Regional ecosystem verification assessment				
Locality:	Lot 662 PH1491 Isaac Regional Council				

Stratum	Median height (m)	Height interval (m)	Est. cover density (D, M, S, V)
E			
T1	Absent	Absent	Absent
T2	Absent	Absent	Absent
T3			
S1	3	1 – 5	Very sparse
S2	Absent	Absent	Absent
G	0.5	0 – 1	Dense
Structural formation:		Non-remnant pasture grassland	
Ecologically dominant layer:		G	

Transect – Crown Cover Measured (Transect intercept method)

GPS coordinates:		Datum:		MGA55		Transect length (m):	100
Start point:	Zone	5	5	E	443506	N	7565406
50 m point:	Zone	5	5	E	443550	N	7565412

Interval (m)	Intercept (m)	Stratum	Scientific name	Common name
11.1 – 12.2	1.1	S1	*Vachellia farnesiana*	mimosa bush
18.9 – 19.3	0.4	S1	*Atalaya hemiglauca*	cattle bush
33.1 – 34.0	0.9	S1	*Atalaya hemiglauca*	cattle bush
66.1 – 67.2	1.1	S1	*Lysiphyllum carronii*	red bauhinia
81.1 – 81.8	0.7	S1	*Vachellia farnesiana*	mimosa bush

Summary:	
Intercept of EDL 0 – 50 m:	N/A
Intercept of EDL 50 – 100 m:	N/A
Measured crown cover % of EDL 0 – 100 m:	N/A
Structural formation:	Non-remnant pasture grassland

Conclusions/notes:

- Structure does not meet remnant status
- Species not consistent with endangered RE polygon 11.4.11/11.4.9/11.4.5; species composition and community height not sufficient to be included as 11.4.9 or 11.4.5. Grass layer dominated by non-native buffel grass deeming it non-remnant (see Appendix 3, Neldner et al., 2012)
- Site condition measured as moderate (VAST 3), with weed encroachment and some cattle

Summary:

disturbance recorded throughout the study area

- Site is proposed as non-remnant

Plant Species

Str.	Rel.[1]	Scientific name	Common name
S1	D	*Atalaya hemiglauca*	cattle bush
S1	A	*Vachellia farnesiana**	mimosa bush
S1	A	*Lysiphyllum carronii*	red bauhinia
S1	A	*Apophyllum anomalum*	warrior bush
G	D	*Cenchrus ciliaris**	buffel grass
G	A	*Parthenium hysterophorus**	parthenium
G	A	*Rhychosia minima var. australis*	rhynchosia
G	A	*Desmodium campylocaulon*	creeping tick-trefoil
G	A	*Stemodia glabella*	smooth bluerod
G	A	*Polymeria ambigua*	creeping polymeria
G	A	*Sida cordifolia**	flannel weed
G	A	*Sida trichopoda*	high sida
G	A	*Neptunia gracilis*	native sensitive plant
G	A	*Trianthema portulacastrum**	black pigweed
G	A	*Cyperus sp.*	
G	A	*Glycine tabacina*	

[1]Rel. = Relative dominance: D, dominant; C, codominant; S, subdominant; A, associated
*indicates a non-native species

Vegetation DBH – Not applicable to vegetation community

Plate 1 Vegetation assessment polygon 16

Polygon 17 (Vegetation assessment site 43)

Mapped RE: Endangered, 11.4.11/11.4.9/11.4.5 (85/10/5)

Observed RE: Non-remnant (100)

Polygon No.:	17	Recorder:	Peter Wagner	Date:	04/05/2013
Purpose:	Regional ecosystem verification assessment				
Locality:	Lot 662 PH1491 Isaac Regional Council				

Stratum	Median height (m)	Height interval (m)	Est. cover density (D, M, S, V)
E			
T1	Absent	Absent	Absent
T2	Absent	Absent	Absent
T3			
S1	3.5	3 – 5	Very sparse
S2	1.5	1 – 3	Very sparse
G	0.5	0 – 1	Dense
Structural formation:		Non-remnant pasture grassland	
Ecologically dominant layer:		G	

Transect – Crown Cover Measured (Transect intercept method)

GPS coordinates:		Datum:		MGA55		Transect length (m):	100
Start point:	Zone	5	5	E	445990	N	7564800
50 m point:	Zone	5	5	E	456030	N	7564810

Interval (m)	Intercept (m)	Stratum	Scientific name	Common name
8.2 – 8.7	0.5	S2	*Vachellia farnesiana*	mimosa bush
13.4 – 13.9	0.5	S2	*Vachellia farnesiana*	mimosa bush
31.1 – 36.8	5.7	S1	*Lysiphyllum carronii*	red bauhinia
55.8 – 56.6	0.8	S1	*Atalaya hemiglauca*	cattle bush
79.9 – 80.8	0.9	S2	*Vachellia farnesiana*	mimosa bush

Summary:	
Intercept of EDL 0 – 50 m:	N/A
Intercept of EDL 50 – 100 m:	N/A
Measured crown cover % of EDL 0 – 100 m:	N/A
Structural formation:	Non-remnant pasture grassland

Conclusions/notes:

- Structure does not meet remnant status
- Species not consistent with endangered RE polygon 11.4.11/11.4.9/11.4.5; species composition and community height not sufficient to be included as 11.4.9 or 11.4.5. Grass layer dominated by non-native buffel grass deeming it non-remnant (see Appendix 3, Neldner et al., 2012)
- Site condition measured as moderate (VAST 3), with weed encroachment and some cattle disturbance recorded throughout the study area
- Site is proposed as non-remnant

Plant Species

Str.	Rel.[1]	Scientific name	Common name
S1	D	*Atalaya hemiglauca*	cattle bush
S1	A	*Vachellia farnesiana**	mimosa bush
S1	A	*Lysiphyllum carronii*	red bauhinia
S2	D	*Vachellia farnesiana**	mimosa bush
S2	A	*Apophyllum anomalum*	warrior bush
S2	A	*Atalaya hemiglauca*	cattle bush
G	D	*Cenchrus ciliaris**	buffel grass
G	A	*Parthenium hysterophorus**	parthenium
G	A	*Rhychosia minima var. australis*	rhynchosia
G	A	*Desmodium campylocaulon*	creeping tick-trefoil
G	A	*Stemodia glabella*	smooth bluerod
G	A	*Polymeria ambigua*	creeping polymeria
G	A	*Sida cordifolia**	flannel weed
G	A	*Sida trichopoda*	high sida
G	A	*Neptunia gracilis*	native sensitive plant
G	A	*Trianthema portulacastrum**	black pigweed
G	A	*Cyperus sp.*	
G	A	*Solanum sp.*	

[1]Rel. = Relative dominance: D, dominant; C, codominant; S, subdominant; A, associated
*indicates a non-native species

Vegetation DBH – Not applicable to vegetation community

Plate 2 Vegetation assessment polygon 17

Polygon 23 (Vegetation assessment site 47)

Mapped RE: Endangered, 11.4.5/11.4.6/11.4.8 (80/15/5)

Observed RE: Non-remnant (100)

Polygon No.:	23	Recorder:	Peter Wagner	Date:	05/05/2013
Purpose:	Regional ecosystem verification assessment				
Locality:	Lot 662 PH1491 Isaac Regional Council				

Stratum	Median height (m)	Height interval (m)	Est. cover density (D, M, S, V)
E	10	10 - 11	Very sparse
T1	Absent	Absent	Absent
T2	Absent	Absent	Absent
T3			
S1	3.5	3 – 5	Very sparse
S2	1.5	1 – 3	Very sparse
G	0.6	0 - 1	Dense
Structural formation:		Non-remnant shrubland	
Ecologically dominant layer:		S1	

Transect – Crown Cover Measured (Transect intercept method)

GPS coordinates:		Datum:		MGA55		Transect length (m):	100
Start point:	Zone	5	5	E	447716	N	7568882
50 m point:	Zone	5	5	E	447756	N	7568879

Interval (m)	Intercept (m)	Stratum	Scientific name	Common name
26.2 – 26.9	0.7	S2	*Vachellia farnesiana*	mimosa bush
37.4 – 38.2	0.8	S2	*Atalaya hemiglauca*	cattle bush
40.0 – 40.5	0.5	S2	*Alectryon oleifolius*	western rosebush
45.4 – 47.0	1.6	S2	*Lysiphyllum carronii*	red bauhinia
87.9 – 93.2	5.3	S1	*Atalaya hemiglauca*	cattle bush
88.1 – 88.7	0.6	S2	*Atalaya hemiglauca*	cattle bush

Summary:	
Intercept of EDL 0 – 50 m:	0.0 m
Intercept of EDL 50 – 100 m:	5.3 m
Measured crown cover % of EDL 0 – 100 m:	5.3
Structural formation:	Non-remnant shrubland

Conclusions/notes:

- Structure does not meet remnant status
- Species not consistent with endangered RE polygon 11.4.5/11.4.6/11.4.8; dominant species not consistent to be included as 11.4.5, 11.4.6 and 11.4.8
- Site condition measured as moderate (VAST 2), with weed encroachment and some cattle disturbance recorded throughout the study area
- Site is proposed as non-remnant

Plant Species

Str.	Rel.[1]	Scientific name	Common name
E	D	*Atalaya hemiglauca*	cattle bush
S1	D	*Atalaya hemiglauca*	cattle bush
S1	A	*Acacia salicina*	sally wattle
S2	D	*Atalaya hemiglauca*	cattle bush
S2	A	*Vachellia farnesiana**	mimosa bush
S2	A	*Opuntia tomentosa**	velvety tree pear
S2	A	*Apophyllum anomalum*	warrior bush
S2	A	*Alectryon oleifolius*	western rosebush
G	D	*Cenchrus ciliaris**	buffel grass
G	A	*Parthenium hysterophorus**	parthenium
G	A	*Cyperus sp.*	
G	A	*Aristida latifolia*	feather-top wiregrass
G	A	*Chenopodium auricomum*	Queensland bluebush
G	A	*Rhychosia minima var. australis*	rhynchosia
G	A	*Tephrosia supina*	
G	A	*Aristida leptopoda*	white speargrass
G	A	*Sida trichopoda*	high sida
G	A	*Bulbine bulbosa*	native leek
G	A	*Commelina diffusa*	wandering jew
G	A	*Stemodia glabella*	smooth bluerod
G	A	*Polymeria ambigua*	creeping polymeria
G	A	*Euphorbia tannensis*	spurge
G	A	*Astrebla lappacea*	curly Mitchell grass
G	A	*Cullen tenax*	emu foot
G	A	*Portulaca oleracea**	common pigweed

[1]Rel. = Relative dominance: D, dominant; C, codominant; S, subdominant; A, associated
*indicates a non-native species

Vegetation DBH – Not applicable to vegetation community

Plate 3 Vegetation assessment polygon 23

Polygon 24 (Vegetation assessment site 23) and representative of Polygon 25

Mapped RE: Endangered, 11.4.11/11.4.9/11.4.5 (85/10/5)

Observed RE: Non-remnant (100)

Polygon No.:	24	Recorder:	Jessica Newton	Date:	05/05/2013
Purpose:	Regional ecosystem verification assessment				
Locality:	Lot 662 PH1491 Isaac Regional Council				

Stratum	Median height (m)	Height interval (m)	Est. cover density (D, M, S, V)
E			
T1	Absent	Absent	Absent
T2	Absent	Absent	Absent
T3			
S1	6	6 – 7	Very sparse
S2	2.5	1 – 6	Mid-dense
G	0.6	0 – 1	Dense
Structural formation:		Non-remnant shrubland	
Ecologically dominant layer:		S2	

Transect – Crown Cover Measured (Transect intercept method)

GPS coordinates:		Datum:		MGA55		Transect length (m):	100
Start point:	Zone	5	5	E	449392	N	7571835
50 m point:	Zone	5	5	E	449434	N	7571866

Interval (m)	Intercept (m)	Stratum	Scientific name	Common name
1.0 – 2.1	0.8	S2	*Atalaya hemiglauca*	cattle bush
48.1 – 52.4	4.3	S2	*Lysiphyllum carronii*	red bauhinia
64.3 – 66.8	2.5	S2	*Atalaya hemiglauca*	cattle bush
78.2 – 81.9	3.7	S2	*Santalum lanceolatum*	sandalwood
82.1 – 83.0	0.9	S2	*Eremophila deserti*	Ellangowan poison bush
87.5 – 90.1	2.6	S2	*Lysiphyllum carronii*	red bauhinia
96.3 – 99.0	2.7	S2	*Lysiphyllum carronii*	red bauhinia

Summary:	
Intercept of EDL 0 – 50 m:	5.1 m
Intercept of EDL 50 – 100 m:	12.4 m
Measured crown cover % of EDL 0 – 100 m:	17.5
Structural formation:	Non-remnant shrubland

Conclusions/notes:

- Structure does not meet remnant status
- Species not consistent with endangered RE polygon 11.4.11/11.4.9/11.4.5; species composition and community height not sufficient to be included as 11.4.9 or 11.4.5 Vegetation structure (EDL = S2) is inconsistent with the grassland community RE 11.4.11

Summary:
• Site condition measured as moderate (VAST 3), with weed encroachment and some cattle disturbance recorded throughout the study area • Site is proposed as non-remnant

Plant Species

Str.	Rel.[1]	Scientific name	Common name
S1	D	*Lysiphyllum carronii*	red bauhinia
S2	A	*Eremophila mitchellii*	false sandalwood
S2	A	*Santalum lanceolatum*	sandalwood
S2	A	*Eremophila deserti*	Ellangowan poison bush
S2	A	*Geijera parviflora*	wilga
S2	A	*Terminalia oblongata*	yellow wood
S2	A	*Lysiana subfalcata*	lemon-flowered mistletoe
S2	A	*Carissa lanceolata*	conkerberry
G	D	*Cenchrus ciliaris**	buffel grass
G	A	*Parthenium hysterophorus**	parthenium
G	A	*Tephrosia supina*	
G	A	*Stachytarpheta jamaicensis**	snakeweed
G	A	*Abutilon fraseri*	dwarf lantern flower
G	A	*Neptunia gracilis*	native sensitive plant
G	A	*Ocimum tenuiflorum*	native thyme
G	A	*Sida trichopoda*	high sida
G	A	*Capparis lasiantha*	wait-a-while
G	A	*Vittadinia pustulata*	daisy
G	A	*Bulbine bulbosa*	native leek
G	A	*Glycine falcata*	glycine
G	A	*Rhychosia minima var. australis*	rhynchosia

[1]Rel. = Relative dominance: D, dominant; C, codominant; S, subdominant; A, associated
*indicates a non-native species

Vegetation DBH – Not applicable to vegetation community

Plate 4 Vegetation assessment polygon 24

Polygon 26 (Vegetation assessment site 24)

Mapped RE: Endangered, 11.4.11/11.4.9/11.4.5 (85/10/5)

Observed RE: Non-remnant (100)

Polygon No.:	26	Recorder:	Jessica Newton	Date:	05/05/2013
Purpose:	Regional ecosystem verification assessment				
Locality:	Lot 662 PH1491 Isaac Regional Council				

Stratum	Median height (m)	Height interval (m)	Est. cover density (D, M, S, V)
E			
T1	Absent	Absent	Absent
T2	Absent	Absent	Absent
T3			
S1	6	6 – 7	Very sparse
S2	2.5	1 – 6	Sparse
G	0.6	0 – 1	Dense
Structural formation:		Non-remnant shrubland	
Ecologically dominant layer:		S2	

Transect – Crown Cover Measured (Transect intercept method)

GPS coordinates:		Datum:		MGA55		Transect length (m):	100
Start point:	Zone	5	5	E	451516	N	7569896
50 m point:	Zone	5	5	E	451524	N	7569940

Interval (m)	Intercept (m)	Stratum	Scientific name	Common name
51.0 – 53.2	2.2	S2	*Lysiphyllum carronii*	red bauhinia
51.0 – 52.8	1.8	S2	*Atalaya hemiglauca*	cattle bush
87.3 – 89.1	1.8	S2	*Lysiphyllum carronii*	red bauhinia
90.1 – 90.5	0.4	S2	*Carissa lanceolata*	conkerberry

Summary:	
Intercept of EDL 0 – 50 m:	0.0 m
Intercept of EDL 50 – 100 m:	6.2 m
Measured crown cover % of EDL 0 – 100 m:	6.2
Structural formation:	Non-remnant shrubland

Conclusions/notes:

- Structure does not meet remnant status
- Species not consistent with endangered RE polygon 11.4.11/11.4.9/11.4.5; species composition and community height not sufficient to be included as 11.4.9 or 11.4.5. Vegetation structure (EDL = S2) is inconsistent with the grassland community RE 11.4.11
- Site condition measured as moderate (VAST 3), with weed encroachment and some cattle disturbance recorded throughout the study area
- Site is proposed as non-remnant

Plant Species

Str.	Rel.[1]	Scientific name	Common name
S1	D	*Lysiphyllum carronii*	red bauhinia
S2	A	*Eremophila mitchellii*	false sandalwood
S2	A	*Santalum lanceolatum*	sandalwood
S2	A	*Eremophila deserti*	Ellangowan poison bush
S2	A	*Geijera parviflora*	wilga
S2	A	*Terminalia oblongata*	yellow wood
S2	A	*Lysiana subfalcata*	lemon-flowered mistletoe
S2	A	*Carissa lanceolata*	conkerberry
G	D	*Cenchrus ciliaris**	buffel grass
G	A	*Parthenium hysterophorus**	parthenium
G	A	*Tephrosia supina*	
G	A	*Stachytarpheta jamaicensis**	snakeweed
G	A	*Abutilon fraseri*	dwarf lantern flower
G	A	*Neptunia gracilis*	native sensitive plant
G	A	*Ocimum tenuiflorum*	native thyme
G	A	*Sida trichopoda*	high sida
G	A	*Capparis lasiantha*	wait-a-while
G	A	*Vittadinia pustulata*	daisy
G	A	*Bulbine bulbosa*	native leek
G	A	*Glycine falcata*	glycine
G	A	*Rhychosia minima var. australis*	rhynchosia

[1]Rel. = Relative dominance: D, dominant; C, codominant; S, subdominant; A, associated
*indicates a non-native species

Vegetation DBH – Not applicable to vegetation community

Plate 5 Vegetation assessment polygon 26

Polygon 27 (Vegetation assessment site 25)

Mapped RE: Endangered, 11.4.11/11.4.9/11.4.5 (85/10/5)

Observed RE: Non-remnant - high value regrowth containing of concern RE 11.4.5 (100)

Polygon No.:	27	Recorder:	Jessica Newton	Date:	05/05/2013
Purpose:	Regional ecosystem verification assessment				
Locality:	Lot 662 PH1491 Isaac Regional Council				

Stratum	Median height (m)	Height interval (m)	Est. cover density (D, M, S, V)
E			
T1	8	7 – 8	Sparse
T2			
T3			
S1	3	1 - 6	Mid-dense
S2	Absent	Absent	Absent
G	0.6	0 – 1	Dense
Structural formation:		High value regrowth	
Ecologically dominant layer:		S1	

Transect – Crown Cover Measured (Transect intercept method)

GPS coordinates:		Datum:		MGA55			Transect length (m):	100
Start point:	Zone	5	5	E	451475	N	7569849	
50 m point:	Zone	5	5	E	451412	N	7569855	

Interval (m)	Intercept (m)	Stratum	Scientific name	Common name
0 – 3.2	3.2	S1	*Lysiphyllum carronii*	red bauhinia
3.0 – 5.1	2.1	S1	*Atalaya hemiglauca*	cattle bush
13.6 – 14.2	0.6	S1	*Eremophila mitchellii*	false sandalwood
31.2 – 32.0	0.8	S1	*Atalaya hemiglauca*	cattle bush
54.0 – 62.1	8.1	S1	*Atalaya hemiglauca*	cattle bush
75.1 – 84.9	9.8	S1	*Lysiphyllum carronii*	red bauhinia

Summary:	
Intercept of EDL 0 – 50 m:	6.7 m
Intercept of EDL 50 – 100 m:	17.9 m
Measured crown cover % of EDL 0 – 100 m:	24.6
Structural formation:	Non-remnant shrubland

Conclusions/notes:

- Structure does not meet remnant status
- Species not consistent with endangered RE polygon 11.4.11 and 11.4.9; species composition and community height not sufficient to be included as 11.4.9. Vegetation structure (EDL = S2) is inconsistent with the grassland community RE 11.4.11. Species composition consistent with regrowth 11.4.5
- Site condition measured as moderate (VAST 3), with weed encroachment and some cattle disturbance recorded throughout the study area

Summary:
• Site is proposed as non-remnant, high value regrowth containing RE 11.4.5

Plant Species

Str.	Rel.[1]	Scientific name	Common name
T1	D	*Lysiphyllum carronii*	red bauhinia
T1	A	*Atalaya hemiglauca*	cattle bush
S1	D	*Eremophila mitchellii*	false sandalwood
S1	A	*Owenia acidula*	emu apple
S1	A	*Capparis lasiantha*	wait-a-while
S1	A	*Atalaya hemiglauca*	cattle bush
S1	A	*Vachellia farnesiana**	mimosa bush
S1	A	*Santalum lanceolatum*	sandalwood
S1	A	*Lysiphyllum carronii*	red bauhinia
G	D	*Cenchrus ciliaris**	buffel grass
G	A	*Desmodium campylocaulon*	creeping tick-trefoil

[1]Rel. = Relative dominance: D, dominant; C, codominant; S, subdominant; A, associated
*indicates a non-native species

Vegetation DBH – Not applicable to vegetation community

Plate 6 Vegetation assessment polygon 27

Polygon 29 (Vegetation assessment site 31)

Mapped RE: Of concern, 11.4.11 (100)

Observed RE: Non-remnant (100)

Polygon No.:	29	Recorder:	Peter Wagner	Date:	01/05/2013
Purpose:	Regional ecosystem verification assessment				
Locality:	Lot 662 PH1491 Isaac Regional Council.				

Stratum	Median height (m)	Height interval (m)	Est. cover density (D, M, S, V)
E	7	6 – 9	Very dense
T1			
T2			
T3			
S1	5.5	4 – 6	Very dense
S2	2	1 – 4	Very dense
G	0.8	0 – 1	Dense
Structural formation:		Non-remnant sparse shrubland	
Ecologically dominant layer:		S1	

Transect – Crown Cover Measured (Transect intercept method)

GPS coordinates:		Datum:		MGA55		Transect length (m):	100
Start point:	Zone	5	5	E	447185	N	7567144
50 m point:	Zone	5	5	E	447236	N	7567148

Interval (m)	Intercept (m)	Stratum	Scientific name	Common name
0 – 1.2	1.2	S2	*Apophyllum anomalum*	warrior bush
24.6 – 27.2	2.6	S1	*Atalaya hemiglauca*	cattle bush
26.6 – 30.0	3.4	S1	*Eremophila mitchellii*	false sandalwood
26.8 – 32.3	5.5	S2	*Lysiphyllum carronii*	red bauhinia
32.0 – 32.6	0.6	S2	*Apophyllum anomalum*	warrior bush
32.1 – 34.4	2.3	S1	*Lysiphyllum carronii*	red bauhinia
67.3 – 68.1	0.8	S2	*Lysiphyllum carronii*	red bauhinia
93.1 – 93.4	0.3	S2	*Vachellia farnesiana**	mimosa bush

Summary:	
Intercept of EDL 0 – 50 m:	8.3 m
Intercept of EDL 50 – 100 m:	0.0 m
Measured crown cover % of EDL 0 – 100 m:	8.3
Structural formation:	Non-remnant sparse shrubland
Conclusions/notes:	

- Structure does not meet remnant status
- Species and structure consistent with non-remnant vegetation; the community structure

Summary:
(EDL = S1) is not consistent with a grassland community, where the EDL must be the G layer • Site condition measured as moderate (VAST 2), with weed encroachment and some cattle disturbance recorded throughout the study area • Site is proposed as non-remnant

Plant Species

Str.	Rel.[1]	Scientific name	Common name
E	D	*Lysiphyllum carronii*	red bauhinia
E	A	*Acacia cambagei*	gidgee
S1	D	*Eremophila mitchellii*	false sandalwood
S1	A	*Owenia acidula*	emu apple
S1	A	*Geijera parviflora*	wilga
S1	A	*Parsonsia lanceolata*	rough silkpod
S2	C	*Atalaya hemiglauca*	cattle bush
S2	C	*Vachellia farnesiana**	Mimosa bush
S2	A	*Owenia acidula*	emu apple
S2	A	*Apophyllum anomalum*	warrior bush
S2	A	*Citrus glauca*	wild lime
S2	A	*Capparis mitchellii*	bumble tree
S2	A	*Alectryon diversifolius*	scrub boonaree
S2	A	*Capparis lasiantha*	wait-a-while
S2	A	*Capparis loranthifolia*	
G	D	*Cenchrus ciliaris**	buffel grass
G	A	*Desmodium campylocaulon*	creeping tick-trefoil
G	A	*Rhychosia minima var. australis*	rhynchosia
G	A	*Neptunia gracilis*	native sensitive plant
G	A	*Cyperus sp.*	
G	A	*Parthenium hysterophorus**	parthenium
G	A	*Hibiscus trionum*	bladder ketmia
G	A	*Tribulus terrestris*	caltrop

[1]Rel. = Relative dominance: D, dominant; C, codominant; S, subdominant; A, associated
*indicates a non-native species

Plate 7 Vegetation assessment polygon 29

Endangered to least concern

Polygon 10 (Vegetation assessment site 7)

Mapped RE: Endangered, 11.3.25/11.3.37/11.3.1 (80/10/10)

Observed RE: Least concern, 10.3.37/11.3.25 (70/30) – 11.3.37was assessed

Polygon No.:	10	Recorder:	Jessica Newton	Date:	02/05/2013
Purpose:	Regional ecosystem verification and BioCondition assessment				
Locality:	Lot 662 PH1491 Isaac Regional Council				

Stratum	Median height (m)	Height interval (m)	Est. cover density (D, M, S, V)
E			
T1	17	15 – 18	Very Sparse
T2	13	8 – 14	Mid-dense
T3			
S1	3	1 – 6	Very sparse
S2			
G	0.5	0 – 1	Dense
Structural formation:		Remnant eucalypt open-woodland fringing watercourse	
Ecologically dominant layer:		T1	

Transect – Crown Cover Measured (Transect intercept method)

GPS coordinates:		Datum:		MGA55			Transect length (m):	100
Start point:	Zone	5	5	E	461831	N	7574157	
50 m point:	Zone	5	5	E	461798	N	7574123	

Interval (m)	Intercept (m)	Stratum	Scientific name	Common name
44.0 – 50.0	6.0	T2	*Eucalyptus coolabah*	coolabah
45.7 – 56.9	11.2	T2	*Eucalyptus coolabah*	coolabah
55.8 – 61.6	5.8	T2	*Eucalyptus coolabah*	coolabah
66.6 – 68.8	2.2	T2	*Eucalyptus coolabah*	coolabah
96.5 – 100.0	3.5	T1	*Eucalyptus coolabah*	coolabah
99.6 – 100.0	0.4	S1	*Grewia retusifolia*	dog's balls

Summary:	
Intercept of EDL 0 – 50 m:	0.0 m
Intercept of EDL 50 – 100 m:	3.5 m
Measured crown cover % of EDL 0 – 100 m:	3.5 m
Structural formation:	Remnant eucalypt open-woodland

Summary:
Conclusions/notes: • Structure meets remnant status • Species consistent with least concern RE 11.3.25 and 11.3.37; no species consistent with the endangered RE 11.3.1 were recorded within the remnant polygon • Site condition measured as moderate (VAST 2), with some cattle disturbance recorded throughout the study area • Site is proposed as least concern RE polygon 11.3.37/11.3.25 (70/30)

Plant Species

Str.	Rel.[1]	Scientific name	Common name
T1	D	*Eucalyptus coolabah*	coolabah
T1	S	*Eucalyptus camaldulensis var. camaldulensis*	river red gum
T2	A	*Cymbidium canaliculatum*	black orchid
T2	D	*Eucalyptus coolabah*	coolabah
T2	S	*Eucalyptus camaldulensis var. camaldulensis*	river red gum
T2	A	*Terminalia oblongata*	yellow wood
T2	A	*Lysiphyllum carronii*	red bauhina
S1	A	*Grewia retusifolia*	dog's balls
S1	C	*Acacia stenophylla*	belalie
S1	C	*Acacia salicina*	sally wattle
S1	A	*Melaleuca trichostachya*	river teatree
G	A	*Eulalia aurea*	silky browntop
G	A	*Cyperus exaltatus*	giant sedge
G	A	*Paspalidium distans*	
G	A	*Alternanthera denticulata var. micrantha*	joyweed
G	A	*Aeschynomene indica*	budda pea
G	A	*Echinochloa colona**	awnless barnyard grass
G	A	*Marsilea mutica*	smooth nardoo
G	A	*Aristida jerichoensis var. jerichoensis*	Jericho wiregrass
G	A	*Chloris ventricosa*	tall chloris
G	A	*Chrysopogon fallax*	golden beard grass
G	A	*Urochloa mosambicensis**	
G	A	*Abutilon oxycarpum*	flannel flower
G	A	*Hybanthus monopetalus*	spade flower
G	A	*Phyllanthus virgatus*	spurge
G	A	*Chamaesyce dallachyana*	caustic weed
G	A	*Cullen tenax*	emu foot
G	A	*Alloteropsis semialata*	cockatoo grass
G	A	*Eragrostis elongata*	clustered lovegrass

[1]Rel. = Relative dominance: D, dominant; C, codominant; S, subdominant; A, associated
*indicates a non-native species

Vegetation DBH (from BioCondition Assessment)

Scientific name	Common name	DBH (mm)	Average DBH (mm)
Eucalypts			
Eucalyptus coolabah	coolabah	620, 720, 426, 328, 397, 700, 750, 350, 520, 350, 1000, 950, 1000, 580, 360, 700, 620, 700, 900, 750	636
Eucalyptus camaldulensis var. camaldulensis	river red gum	490, 480, 300, 300, 360, 420, 450, 550, 900, 340, 350	449
Average DBH for eucalypts:			569
Non-eucalypts			
Lysiphyllum carronii	red bauhinia	261, 300	281
Average DBH for non-eucalypts:			281

Plate 8 Vegetation assessment polygon 10

Endangered to of concern

Polygon 30 and representative of Polygon 12 (Vegetation assessment site 34)

Mapped RE: Endangered, 11.4.11/11.4.9/11.4.5 (85/10/5)

Observed RE: Of concern, 11.4.6 (100)

Polygon No.:	30	Recorder:	Peter Wagner	Date:	02/05/2013
Purpose:	Regional ecosystem verification and BioCondition assessment				
Locality:	Lot 662 PH1491 Isaac Regional Council				

Stratum	Median height (m)	Height interval (m)	Est. cover density (D, M, S, V)
E			
T1	8	6 – 12	Sparse
T2			
T3			
S1	4.5	3 – 6	Mid-dense
S2	1.5	1 – 3	Sparse
G	0.7	0 – 1	Dense
Structural formation:		Remnant open-woodland	
Ecologically dominant layer:		T1	

Transect – Crown Cover Measured (Transect intercept method)

GPS coordinates:		Datum:		MGA55			Transect length (m):	100
Start point:	Zone	5	5	E	446364	N	7566156	
50 m point:	Zone	5	5	E	446397	N	7566191	

Interval (m)	Intercept (m)	Stratum	Scientific name	Common name
1.5 – 3.5	2.0	S2	*Carissa ovata*	currant bush
14.7 – 16.2	1.5	S2	*Carissa ovata*	currant bush
23.8 – 24.3	0.5	S2	*Apophyllum anomalum*	warrior bush
44.1 – 44.6	0.5	S1	*Lysiphyllum carronii*	red bauhinia
46.0 - 48.0	2.0	T1	*Lysiphyllum carronii*	red bauhinia
69.5 – 76.0	6.5	T1	*Eremophila mitchellii*	false sandalwood
77.0 – 79.5	2.5	S1	*Atalaya hemiglauca*	cattle bush
81.2 – 84.7	3.5	T1	*Lysiphyllum carronii*	red bauhinia
91.3 – 97.3	6.0	T1	*Atalaya hemiglauca*	cattle bush

Summary:	
Intercept of EDL 0 – 50 m:	2.0 m
Intercept of EDL 50 – 100 m:	16.0 m
Measured crown cover % of EDL 0 – 100 m:	18.0
Structural formation:	Remnant open-woodland

Summary:
Conclusions/notes: • Structure meets remnant status • Species consistent with of concern RE 11.4.6; species and structure inconsistent with the endangered RE 11.4.9 and 11.4.5, and vegetation structure (EDL = T1) is inconsistent with the grassland community RE 11.4.11 • Site condition measured as moderate (VAST 2), with weed encroachment and some cattle disturbance recorded throughout the study area • Site is proposed as of concern RE 11.4.6

Plant Species

Str.	Rel.[1]	Scientific name	Common name
T1	D	*Acacia cambagei*	gidgee
T1	S	*Acacia argyrodendron*	blackwood
T1	A	*Lysiphyllum carronii*	red bauhinia
T1	A	*Cymbidium canaliculatum*	black orchid
T1	A	*Terminalia oblongata*	yellow wood
S1	C	*Eremophila mitchellii*	false sandalwood
S1	C	*Atalaya hemiglauca*	cattle bush
S1	A	*Terminalia oblongata*	yellow wood
S1	A	*Capparis loranthifolia*	
S2	D	*Atalaya hemiglauca*	cattle bush
S2	A	*Owenia acidula*	emu apple
S2	A	*Apophyllum anomalum*	warrior bush
S2	A	*Vachellia farnesiana**	mimosa bush
S2	A	*Capparis lasiantha*	wait-a-while
S2	A	*Alectryon diversifolius*	scrub boonaree
S2	A	*Opuntia tomentosa**	velvety tree pear
S2	A	*Lysiphyllum carronii*	red bauhinia
S2	A	*Carissa ovata*	currant bush
G	D	*Cenchrus ciliaris*	buffel grass
G	A	*Parthenium hysterophorus**	parthenium
G	A	*Desmodium campylocaulon*	creeping tick-trefoil
G	A	*Neptunia gracilis*	native sensitive plant

[1]Rel. = Relative dominance: D, dominant; C, codominant; S, subdominant; A, associated
*indicates a non-native species

Vegetation DBH (from BioCondition Assessment)

Scientific name	Common name	DBH (mm)	Average DBH (mm)
Non-eucalypts			
Atalaya hemiglauca	cattle bush	180, 190, 160	177
Terminalia oblongata	yellow wood	320, 210, 230	253
Acacia cambagei	gidgee	300, 190, 230, 160, 180, 290, 180, 250, 220, 230, 165, 230, 210, 210, 180, 360, 360, 180, 160, 150	204

Scientific name	Common name	DBH (mm)	Average DBH (mm)
Acacia argyrodendron	blackwood	200, 260, 235, 350, 285, 190, 170, 325, 255, 170	244
Lysiphyllum carronii	red bauhinia	300	300
Average DBH for eucalypts:			229

Plate 9 Vegetation assessment polygon 30

Endangered to endangered

Polygon 28 (Vegetation assessment site 29) and representative of polygon 12

Mapped RE: Endangered, 11.4.11/11.4.9/11.4.5 (85/10/5)

Observed RE: Endangered, 11.4.11/11.4.5/11.4.9 (85/10/5)

Polygon No:	28	Recorder:	Peter Wagner	Date:	01/05/2013
Purpose:	Regional ecosystem verification and BioCondition assessment				
Locality:	Lot 662 PH1491 Isaac Regional Council				

Stratum	Median height (m)	Height interval (m)	Est. cover density (D, M, S, V)
E			
T1			
T2			
T3			
S1	2	1 – 5	Very sparse
S2			
G	0.6	0 – 1	Dense
Structural formation:		Remnant grassland	
Ecologically dominant layer:		G	

Transect – Crown Cover Measured (Transect intercept method)

GPS coordinates:		Datum:		MGA55		Transect length (m):	100
Start point:	Zone	5	5	E	448695	N	7567907
50 m point:	Zone	5	5	E	448695	N	7567957

Interval (m)	Intercept (m)	Stratum	Scientific name	Common name
50.1 – 50.4	0.3	S1	*Alectryon diversifolius*	scrub boonaree

Summary:	
Intercept of EDL 0 – 50 m:	N/A
Intercept of EDL 50 – 100 m:	0.3
Measured crown cover % of EDL 0 – 100 m:	0.3
Structural formation:	Grassland

Conclusions/notes:

- Structure meets remnant status
- Species consistent with of concern RE 11.4.11 and 11.4.5
- Site condition measured as moderate (VAST 2), with some cattle disturbance recorded throughout the study area
- Site is proposed as of concern RE polygon 11.4.11/11.4.5 (85/10) – forming part of RE polygon 11.4.11/11.4.5/11.4.9 (85/10/5) (see assessment site 30)

Plant Species

Str.	Rel.[1]	Scientific name	Common name
S1	C	*Atalaya hemiglauca*	cattle bush
S1	C	*Acacia argyrodendron*	blackwood
S1	A	*Vachellia farnesiana**	mimosa bush
S1	A	*Terminalia oblongata*	yellow wood
S1	A	*Capparis mitchellii*	bumble tree
S1	A	*Capparis lasiantha*	wait-a-while
S1	A	*Alectryon diversifolius*	scrub boonaree
S1	A	*Owenia acidula*	emu apple
G	C	*Aristida leptopoda*	white speargrass
G	C	*Astrebla pectinata*	barley Mitchell grass
G	S	*Digitaria divaricatissima*	umbrella grass
G	A	*Dichanthium sericeum*	Queensland blue grass
G	A	*Cenchrus ciliaris**	buffel grass
G	A	*Panicum decompositum var. decompositum*	native millet
G	A	*Enneapogon polyphyllus*	leafy nineawn
G	A	*Parthenium hysterophorus**	parthenium
G	A	*Aristida personata*	purple wiregrass
G	A	*Desmodium campylocaulon*	creeping tick-trefoil
G	A	*Neptunia gracilis*	native sensitive plant
G	A	*Solanum esuriale*	quena
G	A	*Iseilema vaginiflorum*	red Flinders grass
G	A	*Bulbine bulbosa*	native leek
G	A	*Tribulus terrestris*	caltrop
G	A	*Rhychosia minima var. australis*	rhynchosia
G	A	*Phyllanthus virgatus*	spurge
G	A	*Commelina diffusa*	wandering jew
G	A	*Aster sp.*	

[1]Rel. = Relative dominance: D, dominant; C, codominant; S, subdominant; A, associated
*indicates a non-native species

Plate 10 Vegetation assessment polygon 28

Polygon 28 (Vegetation assessment site 30)

Mapped RE: Endangered, 11.4.11/11.4.9/11.4.5 (85/10/5)

Observed RE: Endangered, 11.4.11/11.4.5/11.4.9 (85/10/5)

Polygon No.:	28	Recorder:	Peter Wagner	Date:	01/05/2013
Purpose:	Regional ecosystem verification and BioCondition assessment				
Locality:	Lot 662 PH1491 Isaac Regional Council				

Stratum	Median height (m)	Height interval (m)	Est. cover density (D, M, S, V)
E			
T1	7.5	6 – 9	Sparse
T2			
T3			
S1	4	3 – 6	Very sparse
S2	1.5	1 – 3	Verysparse
G	0.6	0 – 1	Dense
Structural formation:		Remnant open-woodland	
Ecologically dominant layer:		T1	

Transect – Crown Cover Measured (Transect intercept method)

GPS coordinates:		Datum:		MGA55		Transect length (m):	100
Start point:	Zone	5	5	E	449780	N	7568210
50 m point:	Zone	5	5	E	449815	N	7568220

Interval (m)	Intercept (m)	Stratum	Scientific name	Common name
0 – 2.1	2.1	S1	*Terminalia oblongata*	yellow wood
5.1 – 8.8	3.7	T1	*Acacia harpophylla*	brigalow
12.8 – 62.8	60.0	S1	*Acacia harpophylla*	brigalow
32.3 – 41.1	8.8	T1	*Acacia harpophylla*	brigalow
75.4 – 79.1	3.7	S1	*Terminalia oblongata*	yellow wood
81.1 – 84.3	3.2	S2	*Acacia harpophylla*	brigalow
87.0 – 87.6	0.6	S2	*Acacia harpophylla*	brigalow
91.1 – 96.5	5.4	T1	*Acacia harpophylla*	brigalow

Summary:	
Intercept of EDL 0 – 50 m:	12.5
Intercept of EDL 50 – 100 m:	5.4
Measured crown cover % of EDL 0 – 100 m:	17.9
Structural formation:	Remnant open-woodland
Conclusions/notes: • Structure meets remnant status	

Summary:
• Species consistent with endangered RE 11.4.9 • Site condition measured as moderate (VAST 2), with weed encroachment and some cattle disturbance recorded throughout the study area • Site is proposed as endangered RE polygon 11.4.9 (100) – forming part of RE polygon 11.4.11/11.4.5/11.4.9 (85/10/5) (see assessment site 29)

Plant Species

Str.	Rel.[1]	Scientific name	Common name
T1	D	*Acacia harpophylla*	brigalow
T1	A	*Terminalia oblongata*	yellow wood
T1	A	*Lysiphyllum carronii*	red bauhinia
T1	A	*Lysiana subfalcata*	lemon-flowered mistletoe
S1	D	*Acacia harpophylla*	brigalow
S1	A	*Terminalia oblongata*	yellow wood
S2	D	*Vachellia farnesiana**	mimosa bush
G	D	*Parthenium hysterophoris**	parthenium
G	A	*Astrebla elymoides*	Mitchell grass
G	A	*Echinochloa colona**	awnless barnyard grass
G	A	*Hibiscus trionum*	bladder ketmia
G	A	*Portulaca oleracea**	common pigweed
G	A	*Cenchrus ciliaris**	buffel grass
G	A	*Solanum nigrum**	black-berry nightshade
G	A	*Cucumis myriocarpus subsp. myriocarpus**	prickly paddy-melon
G	A	*Neptunia gracilis*	native sensitive plant
G	A	*Bothriochloa pertusa**	Indian bluegrass
G	A	*Panicum decompositum var. decompositum*	native millet

[1]Rel. = Relative dominance: D, dominant; C, codominant; S, subdominant; A, associated
*indicates a non-native species

Plate 11 Vegetation assessment polygon 28

Of concern to non-remnant

Polygon 11 (Vegetation assessment site 39) and representative of Polygon 18

Mapped RE: Of concern, 11.4.11/11.4.5 (90/10)

Observed RE: Non-remnant (100)

Polygon No.:	11	Recorder:	Peter Wagner	Date:	04/05/2013
Purpose:	Regional ecosystem verification assessment				
Locality:	Lot 662 PH1491 Isaac Regional Council				

Stratum	Median height (m)	Height interval (m)	Est. cover density (D, M, S, V)
E			
T1	Absent	Absent	Absent
T2	Absent	Absent	Absent
T3			
S1	3.5	2 – 5	Very sparse
S2	1.5	1 – 2	Very sparse
G	0.6	0 – 1	Dense
Structural formation:		Non-remnant pasture grassland	
Ecologically dominant layer:		G	

Transect – Crown Cover Measured (Transect intercept method)

GPS coordinates:		Datum:		MGA55		Transect length (m):	100
Start point:	Zone	5	5	E	440738	N	7567675
50 m point:	Zone	5	5	E	440781	N	7567678

Interval (m)	Intercept (m)	Stratum	Scientific name	Common name
11.1 – 12.8	1.7	S1	*Acacia salicina*	sally wattle
33.2 – 35.6	2.4	S1	*Lysiphyllum carronii*	red bauhinia

Summary:	
Intercept of EDL 0 – 50 m:	0.0
Intercept of EDL 50 – 100 m:	0.0
Measured crown cover % of EDL 0 – 100 m:	0.0
Structural formation:	Non-remnant pasture grassland

Conclusions/notes:

- Structure does not meet remnant status
- Species not consistent with of concern RE polygon 11.4.11/11.4.5; species composition and community height not sufficient to be included as 11.4.5. Grass layer dominated by non-native buffel grass deeming it non-remnant (see Appendix 3, Neldner et al., 2012)
- Site condition measured as moderate (VAST 3), with weed encroachment and some cattle disturbance recorded throughout the study area

Summary:
• Site is proposed as non-remnant

Plant Species

Str.	Rel.[1]	Scientific name	Common name
S1	D	*Lysiphyllum carronii*	red bauhinia
S1	A	*Vachellia farnesiana**	mimosa bush
S1	A	*Acacia salicina*	sally wattle
S1	A	*Capparis mitchellii*	bumble tree
S2	D	*Atalaya hemiglauca*	cattle bush
S2	A	*Opuntia tomentosa**	velvety tree pear
S2	A	*Vachellia farnesiana**	mimosa bush
G	D	*Cenchrus ciliaris**	buffel grass
G	A	*Desmodium sp.*	
G	A	*Trianthema portulacastrum**	black pigweed
G	A	*Parthenium hysterophorus**	parthenium
G	A	*Tribulus terrestris*	caltrop
G	A	*Cyperus sp.*	
G	A	*Cucumis melo subsp. agrestis*	Ulcardo melon
G	A	*Aster sp.*	
G	A	*Neptunia gracilis*	native sensitive plant

[1]Rel. = Relative dominance: D, dominant; C, codominant; S, subdominant; A, associated
*indicates a non-native species

Vegetation DBH – Not applicable to vegetation community

Plate 12 Vegetation assessment polygon 11

Polygon 13 (Vegetation assessment site 41)

Mapped RE: Of concern, 11.4.11/11.4.5 (90/10)

Observed RE: Non-remnant (100)

Polygon No.:	13	Recorder:	Peter Wagner	Date:	04/05/2013
Purpose:	Regional ecosystem verification assessment				
Locality:	Lot 662 PH1491 Isaac Regional Council				

Stratum	Median height (m)	Height interval (m)	Est. cover density (D, M, S, V)
E			
T1	Absent	Absent	Absent
T2	Absent	Absent	Absent
T3			
S1	1.5	1 – 2	Very sparse
S2	Absent	Absent	Absent
G	0.5	0 – 1	Dense
Structural formation:		Non-remnant pasture grassland	
Ecologically dominant layer:		G	

Transect – Crown Cover Measured (Transect intercept method)

GPS coordinates:		Datum:		MGA55		Transect length (m):	100
Start point:	Zone	5	5	E	440924	N	7566044
50 m point:	Zone	5	5	E	440971	N	7566061

Interval (m)	Intercept (m)	Stratum	Scientific name	Common name
15.1 – 15.4	0.3	S1	*Atalaya hemiglauca*	cattle bush
25.8 – 27.3	1.5	S1	*Atalaya hemiglauca*	cattle bush
33.2 – 35.5	2.3	S1	*Lysiphyllum carronii*	red bauhinia
87.2 – 87.9	0.7	S1	*Atalaya hemiglauca*	cattle bush

Summary:	
Intercept of EDL 0 – 50 m:	0.0
Intercept of EDL 50 – 100 m:	0.0
Measured crown cover % of EDL 0 – 100 m:	0.0
Structural formation:	Non-remnant pasture grassland

Conclusions/notes:

- Structure does not meet remnant status
- Species not consistent with of concern RE polygon 11.4.11/11.4.5; species composition and community height not sufficient to be included as 11.4.5. Grass layer dominated by non-native buffel grass deeming it non-remnant (see Appendix 3, Neldner et al., 2012)
- Site condition measured as moderate (VAST 3), with weed encroachment and some cattle disturbance recorded throughout the study area
- Site is proposed as non-remnant

Plant Species

Str.	Rel.[1]	Scientific name	Common name
S1	D	*Atalaya hemiglauca*	cattle bush
S1	A	*Lysiphyllum carronii*	red bauhinia
S1	A	*Vachellia farnesiana**	mimosa bush
G	D	*Cenchrus ciliaris**	buffel grass
G	A	*Hibiscus sturtii*	hill hibiscus
G	A	*Brachyscome dentata*	
G	A	*Rhychosia minima var. australis*	rhynchosia
G	A	*Parthenium hysterophorus**	parthenium
G	A	*Evolvulus alsinoides*	tropical speedwell
G	A	*Stemodia glabella*	smooth bluerod
G	A	*Sida cordifolia**	flannel weed
G	A	*Solanum sp.*	
G	A	*Polymeria ambigua*	creeping polymeria
G	A	*Trianthema portulacastrum**	black pigweed
G	A	*Neptunia gracilis*	native sensitive plant

[1]Rel. = Relative dominance: D, dominant; C, codominant; S, subdominant; A, associated
*indicates a non-native species

Vegetation DBH – Not applicable to vegetation community

Plate 13 Vegetation assessment polygon 13

Polygon 14 (Vegetation assessment site 40)

Mapped RE: Of concern, 11.4.11/11.4.5 (90/10)

Observed RE: Non-remnant (100)

Polygon No.:	14	Recorder:	Peter Wagner	Date:	04/05/2013
Purpose:	Regional ecosystem verification assessment				
Locality:	Lot 662 PH1491 Isaac Regional Council				

Stratum	Median height (m)	Height interval (m)	Est. cover density (D, M, S, V)
E			
T1	Absent	Absent	Absent
T2	Absent	Absent	Absent
T3			
S1	3	2 – 5	Very sparse
S2	1.5	1 – 2	Very sparse
G	0.6	0 – 1	Dense
Structural formation:		Non-remnant pasture grassland	
Ecologically dominant layer:		G	

Transect – Crown Cover Measured (Transect intercept method)

GPS coordinates:		Datum:		MGA55		Transect length (m):	100
Start point:	Zone	5	5	E	441280	N	7565822
50 m point:	Zone	5	5	E	441335	N	7565833

Interval (m)	Intercept (m)	Stratum	Scientific name	Common name
31.6 – 32.5	1.5	S1	*Atalaya hemiglauca*	cattle bush
32.5 – 33.6	1.1	S1	*Atalaya hemiglauca*	cattle bush
98.1 – 88.5	0.4	S1	*Atalaya hemiglauca*	cattle bush

Summary:	
Intercept of EDL 0 – 50 m:	0.0
Intercept of EDL 50 – 100 m:	0.0
Measured crown cover % of EDL 0 – 100 m:	0.0
Structural formation:	Non-remnant pasture grassland

Conclusions/notes:

- Structure does not meet remnant status
- Species not consistent with of concern RE polygon 11.4.11/11.4.5; species composition and community height not sufficient to be included as 11.4.5. Grass layer dominated by non-native buffel grass deeming it non-remnant (see Appendix 3, Neldner et al., 2012)
- Site condition measured as moderate (VAST 3), with weed encroachment and some cattle disturbance recorded throughout the study area
- Site is proposed as non-remnant

Plant Species

Str.	Rel.[1]	Scientific name	Common name
S1	D	*Atalaya hemiglauca*	cattle bush
S1	S	*Vachellia farnesiana**	mimosa bush
S1	A	*Lysiphyllum carronii*	red bauhinia
S2	D	*Atalaya hemiglauca*	cattle bush
S2	A	*Vachellia farnesiana**	mimosa bush
S2	A	*Opuntia tomentosa**	velvety tree pear
G	D	*Cenchrus ciliaris**	buffel grass
G	A	*Rhychosia minima var. australis*	rhynchosia
G	A	*Aristida latifolia*	feather-top wiregrass
G	A	*Stemodia glabella*	smooth bluerod
G	A	*Desmodium campylocaulon*	creeping tick-trefoil
G	A	*Parthenium hysterophorus**	parthenium
G	A	*Polymeria ambigua*	creeping polymeria
G	A	*Alternanthera denticulata var. micrantha*	joyweed
G	A	*Sida cordifolia**	flannel weed
G	A	*Solanum sp.*	
G	A	*Commelina diffusa*	wandering jew
G	A	*Neptunia gracilis*	native sensitive plant
G	A	*Cyperus sp.*	
G	A	*Trianthema portulacastrum**	black pigweed

[1]Rel. = Relative dominance: D, dominant; C, codominant; S, subdominant; A, associated
*indicates a non-native species

Vegetation DBH – Not applicable to vegetation community

Plate 14 Vegetation assessment polygon 14

Polygon 15 (Vegetation assessment Site 32)

Mapped RE: Of concern, 11.4.11 (100)

Observed RE: Non-remnant (100)

Polygon No.:	15	Recorder:	Peter Wagner	Date:	01/05/2013
Purpose:	Regional ecosystem verification assessment				
Locality:	Lot 662 PH1491 Isaac Regional Council				

Stratum	Median height (m)	Height interval (m)	Est. cover density (D, M, S, V)
E			
T1			
T2			
T3			
S1	3.5	2 – 6	Very sparse
S2	1.5	2 – 6	Very sparse
G	0.7	0 - 1	Dense
Structural formation:		Non-remnant pasture grassland	
Ecologically dominant layer:		G	

Transect – Crown Cover Measured (Transect intercept method)

GPS coordinates:		Datum:		MGA55		Transect length (m):	100
Start point:	Zone	5	5	E	441108	N	7565019
50 m point:	Zone	5	5	E	441150	N	7565026

Interval (m)	Intercept (m)	Stratum	Scientific name	Common name
45.1 – 45.6	0.5	S2	*Capparis lasiantha*	wait-a-while
78.3 – 82.2	3.9	S1	*Lysiphyllum carronii*	red bauhinia
91.1 – 91.3	0.2	S2	*Capparis lasiantha*	wait-a-while

Summary:	
Intercept of EDL 0 – 50 m:	N/A
Intercept of EDL 50 – 100 m:	N/A
Measured crown cover % of EDL 0 – 100 m:	N/A
Structural formation:	Non-remnant pasture grassland

Conclusions/notes:

- Structure does not meet remnant status
- Species not consistent with of concern RE 11.4.11; grass layer dominated by non-native buffel grass deeming it non-remnant (see Appendix 3, Neldner et al., 2012)
- Site condition measured as moderate (VAST 3), with weed encroachment and some cattle disturbance recorded throughout the study area
- Site is proposed as non-remnant

Plant Species

Str.	Rel.[1]	Scientific name	Common name
S1	D	*Lysiphyllum carronii*	red bauhinia
S1	A	*Atalaya hemiglauca*	cattle bush
S1	A	*Alectryon oleifolius*	western rosewood
S2	C	*Capparis lasiantha*	wait-a-while
S2	C	*Apophyllum anomalum*	warrior bush
G	D	*Cenchrus ciliaris**	buffel grass
G	A	*Stemodia glabella*	smooth bluerod
G	A	*Desmodium campylocaulon*	creeping tick-trefoil
G	A	*Neptunia gracilis*	native sensitive plant
G	A	*Aster sp.*	
G	A	*Sida cordifolia**	flannel weed
G	A	*Aristida personata*	purple wiregrass
G	A	*Astrebla elymoides*	Mitchell grass
G	A	*Parthenium hysterophorus**	parthenium
G	A	*Solanum esuriale*	quena
G	A	*Cyperus sp.*	
G	A	*Physalis angulata**	
G	A	*Dichanthium sericeum*	Queensland bluegrass
G	A	*Aristida leptopoda*	white speargrass
G	D	*Panicum decompositum var. decompositum*	native millet
G	A	*Sesbania cannabina*	sesbania pea
G	A	*Bothriochloa pertusa**	Indian bluegrass
G	A	*Iseilema vaginiflorum*	red Flinders grass

[1]Rel. = Relative dominance: D, dominant; C, codominant; S, subdominant; A, associated
*indicates a non-native species

Vegetation DBH – Not applicable to vegetation community

Plate 15 Vegetation assessment polygon 15

Polygon 19 (Vegetation assessment site 44)

Mapped RE: Of concern, 11.4.11/11.4.5 (90/10)

Observed RE: Non-remnant - high value regrowth containing of concern RE 11.4.5 (100)

Polygon No.:	19	Recorder:	Jessica Newton	Date:	05/05/2013
Purpose:	Regional ecosystem verification assessment				
Locality:	Lot 662 PH1491 Isaac Regional Council				

Stratum	Median height (m)	Height interval (m)	Est. cover density (D, M, S, V)
E			
T1	Absent	Absent	Absent
T2	Absent	Absent	Absent
T3			
S1	4.5	3 – 6.5	Sparse
S2	1.5	1 – 3	Sparse
G	0.7	0 – 1	Dense
Structural formation:		High value regrowth	
Ecologically dominant layer:		S1	

Transect – Crown Cover Measured (Transect intercept method)

GPS coordinates:		Datum:		MGA55		Transect length (m):	100
Start point:	Zone	5	5	E	443871	N	7568603
50 m point:	Zone	5	5	E	443915	N	7568611

Interval (m)	Intercept (m)	Stratum	Scientific name	Common name
6.8 – 7.9	1.1	S1	*Atalaya hemiglauca*	cattle bush
15.1 – 15.7	0.6	S2	*Vachellia farnesiana*	mimosa bush
52.3 – 61.6	9.3	S1	*Acacia argyrodendron*	blackwood
68.2 – 69.1	0.9	S2	*Atalaya hemiglauca*	cattle bush
81.1 – 81.9	0.8	S2	*Vachellia farnesiana*	mimosa bush
90.1 – 92.0	1.9	S2	*Lysiphyllum carronii*	red bauhinia

Summary:	
Intercept of EDL 0 – 50 m:	1.1 m
Intercept of EDL 50 – 100 m:	9.3 m
Measured crown cover % of EDL 0 – 100 m:	10.4
Structural formation:	Non-remnant shrubland

Conclusions/notes:

- Structure does not meet remnant status
- Species not consistent with endangered RE polygon 11.4.11/11.4.5; Community height not sufficient to be included as 11.4.5. Vegetation structure (EDL = S1) is not consistent with the grassland community RE 11.4.11 and the grass layer is dominated by non-native buffel grass deeming it non-remnant (see Appendix 3, Neldner et al., 2012). Species composition consistent with regrowth 11.4.5

Summary:
• Site condition measured as moderate (VAST 3), with weed encroachment and some cattle disturbance recorded throughout the study area • Site is proposed as non-remnant, high value regrowth containing RE 11.4.5

Plant Species

Str.	Rel.[1]	Scientific name	Common name
S1	D	*Acacia argyrodendron*	blackwood
S1	A	*Acacia cambagei*	gidgee
S1	A	*Lysiphyllum carronii*	red bauhina
S1	A	*Capparis loranthifolia*	
S2	D	*Acacia argyrodendron*	blackwood
S2	A	*Atalaya hemiglauca*	cattle bush
S2	A	*Vachellia farnesiana**	mimosa bush
S2	A	*Capparis lasiantha*	wait-a-while
S2	A	*Lysiphyllum carronii*	red bauhina
S2	A	*Alectryon oleifolius*	western rosewood
S2	A	*Apophyllum anomalum*	warrior bush
G	D	*Cenchrus ciliaris**	buffel grass
G	A	*Desmodium campylocaulon*	creeping tick-trefoil
G	A	*Rhychosia minima var. australis*	rhynchosia
G	A	*Bothriochloa bladhii subsp. bladhii*	forest bluegrass
G	A	*Aster sp.*	
G	A	*Glycine tabacina*	
G	A	*Parthenium hysterophorus**	parthenium
G	A	*Portulaca pilosa**	akulikuli
G	A	*Neptunia gracilis*	native sensitive plant

[1]Rel. = Relative dominance: D, dominant; C, codominant; S, subdominant; A, associated
*indicates a non-native species

Vegetation DBH – Not applicable to vegetation community

Plate 16 Vegetation assessment polygon 19

Polygon 20 (Vegetation assessment site 45) and representative of Polygon 22

Mapped RE: Of concern, 11.4.11/11.4.5 (90/10)

Observed RE: Non-remnant (100)

Polygon No.:	20	Recorder:	Peter Wagner	Date:	05/05/2013
Purpose:	Regional ecosystem verification assessment				
Locality:	Lot 662 PH1491 Isaac Regional Council				

Stratum	Median height (m)	Height interval (m)	Est. cover density (D, M, S, V)
E			
T1	Absent	Absent	Absent
T2	Absent	Absent	Absent
T3			
S1	4.5	4 – 5	Very sparse
S2	1.75	1 – 4	Very sparse
G	0.6	0 - 1	Dense
Structural formation:		Non-remnant pasture grassland	
Ecologically dominant layer:		G	

Transect – Crown Cover Measured (Transect intercept method)

GPS coordinates:		Datum:		MGA55			Transect length (m):	100
Start point:	Zone	5	5	E	445621	N	7569270	
50 m point:	Zone	5	5	E	445670	N	7569279	

Interval (m)	Intercept (m)	Stratum	Scientific name	Common name
1.2 – 1.4	0.2	S2	*Vachellia farnesiana*	mimosa bush
31.1 – 31.5	0.4	S2	*Vachellia farnesiana*	mimosa bush
65.6 – 67.1	1.5	S2	*Vachellia farnesiana*	mimosa bush
78.2 – 79.0	0.8	S2	*Atalaya hemiglauca*	cattle bush
92.3 – 92.9	0.6	S2	*Vachellia farnesiana*	mimosa bush
95.0 – 95.9	0.9	S2	*Lysiphyllum carronii*	red bauhinia

Summary:	
Intercept of EDL 0 – 50 m:	0.0
Intercept of EDL 50 – 100 m:	0.0
Measured crown cover % of EDL 0 – 100 m:	0.0
Structural formation:	Non-remnant pasture grassland

Conclusions/notes:

- Structure does not meet remnant status
- Species not consistent with endangered RE polygon 11.4.11/11.4.5; dominant species not consistent and community height not sufficient to be included as 11.4.5. The grass layer is dominated by non-native buffel grass deeming it non-remnant (see Appendix 3, Neldner et al., 2012)
- Site condition measured as moderate (VAST 3), with weed encroachment and some cattle

Summary:

disturbance recorded throughout the study area

- Site is proposed as non-remnant

Plant Species

Str.	Rel.[1]	Scientific name	Common name
S1	D	*Atalaya hemiglauca*	cattle bush
S2	D	*Vachellia farnesiana**	mimosa bush
S2	A	*Capparis mitchellii*	bumble tree
S2	A	*Atalaya hemiglauca*	cattle bush
S2	A	*Lysiphyllum carronii*	red bauhinia
S2	A	*Acacia harpophylla*	brigalow
S2	A	*Santalum lanceolatum*	sandalwood
G	D	*Cenchrus ciliaris**	buffel grass
G	A	*Parthenium hysterophorus**	parthenium
G	A	*Desmodium sp.*	
G	A	*Neptunia gracilis*	native sensitive plant
G	A	*Aster sp.*	
G	A	*Sida cordifolia**	flannel weed
G	A	*Tephrosia supina*	
G	A	*Bulbine bulbosa*	native leek
G	A	*Stemodia glabella*	smooth bluerod
G	A	*Bothriochloa bladhii subsp. bladhii*	forest bluegrass
G	A	*Sida trichopoda*	high sida

[1]Rel. = Relative dominance: D, dominant; C, codominant; S, subdominant; A, associated
*indicates a non-native species

Vegetation DBH – Not applicable to vegetation community

Plate 17 Vegetation assessment polygon 20

Of concern to of concern

Polygon 21 (Vegetation assessment site 46)

Mapped RE: Of concern, 11.4.11/11.4.5 (90/10)

Observed RE: Of concern 11.4.6 (100)

Polygon No.:	21	Recorder:	Peter Wagner	Date:	05/05/2013
Purpose:	Regional ecosystem verification assessment				
Locality:	Lot 662 PH1491 Isaac Regional Council				

Stratum	Median height (m)	Height interval (m)	Est. cover density (D, M, S, V)
E			
T1	10	8 – 12	Mid-dense
T2	6.5	6 – 8	Sparse
T3			
S1	2	1 – 4	Very sparse
S2			
G	0.6	0 - 1	Mid-dense
Structural formation:		Remnant open-forest	
Ecologically dominant layer:		T1	

Transect – Crown Cover Measured (Transect intercept method)

GPS coordinates:		Datum:		MGA55		Transect length (m):	100
Start point:	Zone	5	5	E	446260	N	7569600
50 m point:	Zone	5	5	E	446202	N	7569601

Interval (m)	Intercept (m)	Stratum	Scientific name	Common name
0 – 4.8	4.8	T1	*Acacia cambagei*	gidgee
2.0 – 3.1	1.1	S1	*Geijera parviflora*	wilga
4.1 – 8.6	4.5	T2	*Acacia cambagei*	gidgee
5.5 – 6.7	1.2	S1	*Santalum lanceolatum*	sandalwood
10 – 25.5	15.5	T1	*Acacia cambagei*	gidgee
27.1 – 28.0	0.9	S1	*Eremophila mitchellii*	false sandalwood
30.0 – 44.6	14.6	T1	*Acacia cambagei*	gidgee
45.2 – 46.3	1.1	T2	*Lysiphyllum carronii*	red bauhinia
51.3 – 64.2	12.9	T2	*Acacia cambagei*	gidgee
55.2 – 56.5	1.3	S1	*Eremophila mitchellii*	false sandalwood
65.3 – 68.4	3.1	T1	*Acacia cambagei*	gidgee
66.2 – 68.6	2.4	T2	*Lysiphyllum carronii*	red bauhinia
71.3 – 80.5	9.2	T2	*Acacia cambagei*	gidgee
85.1 – 98.6	13.5	T2	*Acacia cambagei*	gidgee
82.3 – 86.3	4.0	T1	*Acacia cambagei*	gidgee

Summary:	
Intercept of EDL 0 – 50 m:	34.9 m
Intercept of EDL 50 – 100 m:	7.1 m
Measured crown cover % of EDL 0 – 100 m:	42.0
Structural formation:	Remnant open-forest

Conclusions/notes:

- Structure meets remnant status
- Species not consistent with endangered RE polygon 11.4.11/11.4.5; species and community structure not consistent with 11.4.5 and 11.4.11.
- Site condition measured as moderate (VAST 2), with weed encroachment and some cattle disturbance recorded throughout the study area
- Site is proposed as of concern RE 11.4.6 (100)

Plant Species

Str.	Rel.[1]	Scientific name	Common name
T1	D	*Acacia cambagei*	gidgee
T1	A	*Lysiphyllum carronii*	red bauhinia
T2	D	*Acacia cambagei*	gidgee
T2	A	*Lysiana sp.*	
S1	D	*Eremophila mitchellii*	false sandalwood
S1	A	*Santalum lanceolatum*	sandalwood
S1	A	*Geijera parviflora*	wilga
S1	A	*Carissa ovata*	currant bush
G	D	*Cenchrus ciliaris**	buffel grass
G	A	*Parthenium hysterophorus**	parthenium
G	A	*Sida cordifolia**	flannel weed

[1]Rel. = Relative dominance: D, dominant; C, codominant; S, subdominant; A, associated
*indicates a non-native species

Vegetation DBH – Not available for vegetation community

Plate 18 Vegetation assessment polygon 21

Least concern to least concern

Polygon 3 (Vegetation assessment site 3) and representative of Polygons 1, 2 and 8

Mapped RE: Least concern, 10.3.4b/10.3.3b/10.3.6a (80/10/10)

Observed RE: Least concern, 10.3.6a (100)

Polygon No.:	3	Recorder:	Jessica Newton	Date:	03/05/2013
Purpose:	Regional ecosystem verification and BioCondition assessment				
Locality:	Lot 662 PH1491 Isaac Regional Council				

Stratum	Median height (m)	Height interval (m)	Est. cover density (D, M, S, V)
E			
T1	11	8 – 13	Mid-dense
T2	Absent	Absent	Absent
T3			
S1	5	4-7	Sparse
S2	1.5	1-2	Sparse
G	0.7	0-1	Mid-dense
Structural formation:		Remnant eucalypt open-woodland	
Ecologically dominant layer:		T1	

Transect – Crown Cover Measured (Transect intercept method)

GPS coordinates:		Datum:		MGA55		Transect length (m):	100
Start point:	Zone	5	5	E	439703	N	7570525
50 m point:	Zone	5	5	E	439678	N	7570569

Interval (m)	Intercept (m)	Stratum	Scientific name	Common name
0 - 1	1.0	T1	*Eucalyptus brownii*	Reid River box
9.1 – 13.5	4.4	T1	*Eucalyptus brownii*	Reid River box
18.4 – 32.4	14.0	T1	*Eucalyptus brownii*	Reid River box
39.9 – 41.1	1.2	S1	*Acacia excelsa subsp. excelsa*	ironwood
50.5 – 53.1	2.5	T1	*Eucalyptus coolabah*	Coolabah
51.1 - 62.7	11.6	T1	*Eucalyptus brownii*	Reid River box
58.5 – 59.0	0.5	S2	*Acacia excelsa subsp. excelsa*	ironwood
60.3 – 62.9	2.6	T1	*Eucalyptus brownii*	Reid River box
63.8 – 66.0	2.2	T1	*Eucalyptus brownii*	Reid River box
69.8 – 71.0	1.4	T1	*Eucalyptus brownii*	Reid River box
73.6 – 83.8	10.2	T1	*Eucalyptus brownii*	Reid River box
83.9 – 86.5	2.6	S2	*Acacia excelsa subsp. excelsa*	ironwood
95.0 –	5.0	T1	*Eucalyptus coolabah*	coolabah

Interval (m)	Intercept (m)	Stratum	Scientific name	Common name
100.0				

Summary:	
Intercept of EDL 0 – 50 m:	19.4 m
Intercept of EDL 50 – 100 m:	35.4 m
Measured crown cover % of EDL 0 – 100 m:	54.9
Structural formation:	Remnant eucalypt open-woodland

Conclusions/notes:

- Structure meets remnant status
- Species consistent with least concern RE 10.3.6a; no species consistent with the least concern REs 10.3.3 or 10.3.3 were recorded within the remnant polygon
- Site condition measured as moderate (VAST 2), with some cattle disturbance recorded throughout the study area
- Site is proposed as least concern RE 10.3.6a

Plant Species

Str.	Rel.[1]	Scientific name	Common name
T1	D	*Eucalyptus brownii*	Reid River box
T1	S	*Eucalyptus coolabah*	coolabah
T1	A	*Grevillea striata*	beefwood
T1	A	*Eucalyptus moluccana*	Silver-leaved ironbark
T1	A	*Corymbia clarksoniana*	Clarkson's bloodwood
S1	D	*Acacia excelsa subsp. excelsa*	ironwood
S1	A	*Pittosporum spinescens*	wallaby apple
S1	A	*Grevillea striata*	beefwood
S2	D	*Carissa lanceolata*	conkerberry
S2	A	*Grewia retusifolia*	dog's balls
S2	S	*Acacia excelsa subsp. excelsa*	ironwood
S2	A	*Capparis mitchellii*	bumble tree
S2	A	*Citrus glauca*	wild lime
S2	A	*Acacia bidwillii*	corkwood wattle
G	D	*Cenchrus ciliaris**	buffel grass
G	S	*Aristida calycina var. calycina*	dark wiregrass
G	A	*Chrysopogon fallax*	golden beard grass
G	A	*Abutilon fraseri*	dwarf lantern flower
G	A	*Cyanthillium cinereum*	vernonia
G	A	*Rostellularia adscendens var. hispida*	pink tongues
G	A	*Heteropogon contortus*	black spear grass
G	A	*Stylosanthes scabra**	stylo
G	A	*Commelina diffusa*	wandering jew
G	A	*Pterocaulon sphacelatum*	fruit salad plant

[1]Rel. = Relative dominance: D, dominant; C, codominant; S, subdominant; A, associated
*indicates a non-native species

Vegetation DBH (from BioCondition Assessment)

Scientific name	Common name	DBH (mm)	Average DBH (mm)
Eucalypts			
Eucalyptus brownii	Reid River box	375	375
Eucalyptus coolabah	coolabah	540, 420, 410	457
Corymbia clarksoniana	Clarkson's bloodwood	530	530
Average DBH for eucalypts:			455

Plate 19 Vegetation assessment polygon 3

Polygon 4 (Vegetation assessment site 15) and representative of Polygon 6

Mapped RE: Least concern, 10.3.4b/10.3.6a/10.3.3b/10.3.3a (40/40/10/10)

Observed RE: Least concern, 10.3.6a/10.3.14 (70/30)

Polygon No.:	4	Recorder:	Jessica Newton	Date:	03/05/2013
Purpose:	Regional ecosystem verification and BioCondition assessment				
Locality:	Lot 662 PH1491 Isaac Regional Council				

Stratum	Median height (m)	Height interval (m)	Est. cover density (D, M, S, V)
E			
T1	15	13 – 16	Sparse
T2	10	7 – 12	Mid-dense
T3			
S1	5	3.5 – 6	Mid-dense
S2	2	1 – 3	Mid-dense
G	0.6	0 – 1	Dense
Structural formation:		Remnant eucalypt open-woodland	
Ecologically dominant layer:		T1	

Transect – Crown Cover Measured (Transect intercept method)

GPS coordinates:		Datum:		MGA55			Transect length (m):	100
Start point:	Zone	5	5	E	440739	N	7574056	
50 m point:	Zone	5	5	E	440711	N	7574097	

Interval (m)	Intercept (m)	Stratum	Scientific name	Common name
15.3 – 25.6	10.3	T2	*Eucalyptus brownii*	Reid River box
31.0 – 37.8	6.8	T1	*Eucalyptus brownii*	Reid river box
56.1 – 57.3	1.2	T2	*Lysiphyllum carronii*	red bauhinia
96.2 - 100	3.8	T2	*Eucalyptus brownii*	Reid River box

Summary:	
Intercept of EDL 0 – 50 m:	6.8 m
Intercept of EDL 50 – 100 m:	0.0 m
Measured crown cover % of EDL 0 – 100 m:	6.8
Structural formation:	Remnant eucalypt open-woodland

Conclusions/notes:

- Structure meets remnant status
- Species consistent with least concern RE 10.3.6a and 10.3.14; no species consistent with the least concern REs 10.3.4b, 10.3.3a or 10.3.3b were recorded within the remnant polygon
- Site condition measured as moderate (VAST 2), with some cattle disturbance recorded throughout the study area
- Site is proposed as least concern RE 10.3.6a/10.3.14 (70/30)

Plant Species

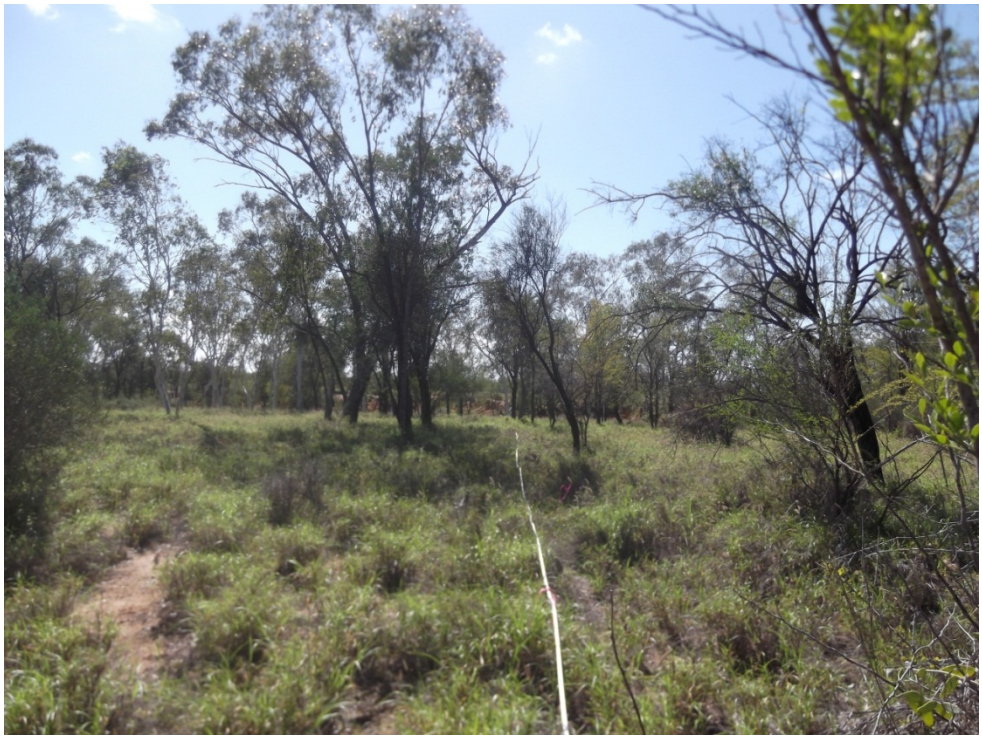
Str.	Rel.[1]	Scientific name	Common name
T1	D	*Eucalyptus brownii*	Reid River box
T1	S	*Eucalyptus camaldulensis var. obtusa*	river red gum
T2	D	*Eucalyptus brownii*	Reid River box
T2	A	*Acacia excelsa subsp. excelsa*	ironwood
T2	A	*Lysiphyllum carronii*	red bauhinia
S1	D	*Acacia excelsa subsp. excelsa*	ironwood
S1	A	*Grevillea striata*	beefwood
S1	A	*Terminalia oblongata*	yellow wood
S1	A	*Lysiphyllum carronii*	red bauhinia
S1	A	*Atalaya hemiglauca*	cattle bush
S2	A	*Pittosporum spinescens*	wallaby apple
S2	A	*Acacia excelsa subsp. excelsa*	ironwood
S2	A	*Citrus glauca*	wild lime
S2	A	*Capparis lasiantha*	wait-a-while
S2	A	*Opuntia tomentosa**	velvety tree pear
S2	A	*Grewia retusifolia*	dog's balls
S2	A	*Carissa lanceolata*	conkerberry
S2	A	*Eremophila mitchellii*	false sandalwood
S2	A	*Capparis canescens*	Wild orange
G	A	*Abutilon fraseri*	dwarf lantern flower
G	A	*Aristida calycina var. calycina*	dark wiregrass
G	D	*Cenchrus ciliaris**	buffel grass
G	A	*Urochloa mosambicensis**	
G	A	*Enneapogon gracilis*	slender bottlewashers
G	A	*Sida cordifolia**	flannel weed

[1]Rel. = Relative dominance: D, dominant; C, codominant; S, subdominant; A, associated
*indicates a non-native species

Vegetation DBH (from BioCondition Assessment)

Scientific name	Common name	DBH (mm)	Average DBH (mm)
Eucalypts			
Eucalyptus brownii	Reid River box	530, 310	420
Average DBH for eucalypts:			
Lysiphyllum carronii	red bauhinia	330	330
Average DBH for non-eucalypts:			330

Plate 20 Vegetation assessment polygon 4



Polygon 5 (Vegetation assessment site 26)

Mapped RE: Least concern, 10.4.5/10.4.3a (95/5)

Observed RE: Least concern, 10.4.5 (100)

Polygon No.:	5	Recorder:	Jessica Newton	Date:	05/05/2013
Purpose:	Regional ecosystem verification and BioCondition assessment				
Locality:	Lot 662 PH1491 Isaac Regional Council				

Stratum	Median height (m)	Height interval (m)	Est. cover density (D, M, S, V)
E			
T1	12	8 – 15	Sparse
T2	Absent	Absent	Absent
T3			
S1	5	3 – 6	Mid-dense
S2	1.5	1 – 3	Sparse
G	0.6	0 – 1	Mid-dense
Structural formation:		Remnant acacia open-forest	
Ecologically dominant layer:		T1	

Transect – Crown Cover Measured (Transect intercept method)

GPS coordinates:		Datum:		MGA55		Transect length (m):	100
Start point:	Zone	5	5	E	441389	N	7572255
50 m point:	Zone	5	5	E	441347	N	7572237

Interval (m)	Intercept (m)	Stratum	Scientific name	Common name
2.2 – 2.5	0.3	S2	*Carissa lanceolata*	conkerberry
3.9 – 4.7	0.8	S2	*Carissa lanceolata*	conkerberry
8.6 – 15.5	6.9	S1	*Eremophila mitchellii*	false sandalwood
15.6 – 18.0	2.4	T1	*Acacia cambagei*	gidgee
19.4 – 20.4	1.0	S2	*Carissa lanceolata*	conkerberry
24.5 – 30.0	5.5	S1	*Casuarina cristata*	belah
30.6 – 34.0	3.4	T1	*Acacia cambagei*	gidgee
33.1 – 35.2	2.1	S1	*Santalum lanceolatum*	sandalwood
36.2 – 39.8	3.6	T1	*Acacia cambagei*	gidgee
36.7 – 42.6	5.9	S1	*Eremophila mitchellii*	false sandalwood
60.0 – 69.2	9.2	T1	*Acacia cambagei*	gidgee
44.4 – 47.5	3.1	S1	*Terminalia oblongata*	yellow wood
50.5 – 54.4	3.9	S1	*Acacia cambagei*	gidgee
65.2 – 69.2	4.0	S2	*Eremophila mitchellii*	false sandalwood
85.1 – 87.9	2.8	T1	*Acacia harpophylla*	brigalow
91.1 – 93.5	2.4	S1	*Acacia cambagei*	gidgee
95.3 – 100	4.7	S2	*Acacia cambagei*	gidgee
95.5 – 95.6	0.1	S2	*Carissa lanceolata*	conkerberry

Summary:	
Intercept of EDL 0 – 50 m:	9.4 m
Intercept of EDL 50 – 100 m:	12.0 m
Measured crown cover % of EDL 0 – 100 m:	21.4
Structural formation:	Remnant acacia open-forest

Conclusions/notes:

- Structure meets remnant status
- Species consistent with least concern RE 10.4.5; species composition inconsistent with the least concern RE 10.4.3a were recorded within the remnant polygon
- Site condition measured as moderate (VAST 2), with some cattle disturbance recorded throughout the study area
- Site is proposed as least concern RE 10.4.5 (100)

Plant Species

Str.	Rel.[1]	Scientific name	Common name
T1	D	*Acacia cambagei*	gidgee
T1	S	*Acacia harpophylla*	brigalow
T1	A	*Casuarina cristata*	belah
S1	D	*Acacia cambagei*	gidgee
S1	A	*Eremophila mitchellii*	false sandalwood
S1	A	*Santalum lanceolatum*	sandalwood
S1	S	*Acacia harpophylla*	brigalow
S1	A	*Terminalia oblongata*	yellow wood
S1	A	*Casuarina cristata*	belah
S2	D	*Carissa lanceolata*	conkerberry
S2	A	*Alectryon diversifolius*	scrub boonaree
S2	A	*Eremophila deserti*	Ellangowan poison bush
S2	A	*Casuarina cristata*	belah
S2	A	*Parsonsia lanceolata*	rough silkpod
S2	A	*Jasminum didymum*	jasmine
G	D	*Cenchrus ciliaris**	buffel grass
G	A	*Parthenium hysterophorus**	parthenium
G	A	*Leptochloa digitata*	umbrella canecgrass
G	A	*Echinochloa colona**	awnless barnyard grass
G	A	*Passiflora sp.**	
G	A	*Tribulus terrestris*	caltrop
G	A	*Alternanthera miraculosa var. micrantha*	joyweed
G	A	*Glinus lotoides*	hairy carpet-weed
G	A	*Portulaca oleracea**	common pigweed

[1]Rel. = Relative dominance: D, dominant; C, codominant; S, subdominant; A, associated
*indicates a non-native species

Vegetation DBH (from BioCondition Assessment)

Scientific name	Common name	DBH (mm)	Average DBH (mm)
Average DBH for eucalypts:			
Acacia cambagei	gidgee	196, 225, 234, 248, 289, 215, 204, 304, 266, 226, 328, 160, 280, 150, 150, 150, 160 210, 170, 230, 200, 460, 210, 240, 180, 210, 180, 160, 350, 160, 250, 240, 220, 220, 230, 350, 320, 300, 420, 150, 150, 210, 180, 190, 320, 320, 170, 160, 170, 200, 150, 150, 160, 150, 340, 370, 180, 380, 180, 390, 250, 240, 340, 200, 270, 200, 310, 160, 430, 210, 160, 190, 200, 280, 480	247
Acacia harpophylla	brigalow	530, 270, 320, 290, 210, 410, 220, 280, 280, 190, 280	273
Average DBH for non-eucalypts:			238

Plate 21 Vegetation assessment polygon 5

Polygon 7 (Vegetation assessment site 27) and representative of Polygons 1, 2 and 8

Mapped RE: Least concern, 10.3.4b/10.3.6a/10.3.3b/10.3.3a (40/40/10/10)

Observed RE: Least concern, 10.3.6a (100)

Polygon No.:	7	Recorder:	Jessica Newton	Date:	06/05/2013
Purpose:	Regional ecosystem verification and BioCondition assessment				
Locality:	Lot 662 PH1491 Isaac Regional Council				

Stratum	Median height (m)	Height interval (m)	Est. cover density (D, M, S, V)
E			
T1	12	7 – 14	Mid-dense
T2	Absent	Absent	Absent
T3			
S1	3	1 – 6	Very sparse
S2			
G	0.6	0 - 1	Mid-dense
Structural formation:		Remnant eucalypt open-woodland	
Ecologically dominant layer:		T1	

Transect – Crown Cover Measured (Transect intercept method)

GPS coordinates:		Datum:		MGA55			Transect length (m):	100
Start point:	Zone	5	5	E	442939	N	7571336	
50 m point:	Zone	5	5	E	442895	N	7571312	

Interval (m)	Intercept (m)	Stratum	Scientific name	Common name
0.0 – 2.2	2.2	T1	*Eucalyptus brownii*	Reid River box
4.7 – 6.2	1.5	T1	*Eucalyptus brownii*	Reid River box
8.2 – 14.2	6.0	T1	*Eucalyptus brownii*	Reid River box
44.9 – 48.0	3.1	S1	*Carissa lanceolata*	conkerberry
45.2 – 48.7	3.5	T1	*Eucalyptus melanophloia*	silver-leaved ironbark
51.2 – 58.0	6.8	T1	*Eucalyptus brownii*	Reid River box
76.1 – 82.6	6.5	T1	*Eucalyptus brownii*	Reid River box
96.0 – 100.0	4.0	T1	*Corymbia dallachiana*	ghost gum

Summary:	
Intercept of EDL 0 – 50 m:	13.2 m
Intercept of EDL 50 – 100 m:	17.3 m
Measured crown cover % of EDL 0 – 100 m:	30.5
Structural formation:	Remnant eucalypt open-woodland
Conclusions/notes: • Structure meets remnant status	

Summary:
• Species consistent with least concern RE 10.3.6a; no species consistent with the least concern REs 10.3.4b, 10.3.3b or 10.3.3a were recorded within the remnant polygon • Site condition measured as moderate (VAST 2), with some cattle disturbance recorded throughout the study area • Site is proposed as least concern RE 10.3.6a

Plant Species

Str.	Rel.[1]	Scientific name	Common name
T1	C	*Eucalyptus melanophloia*	silver-leaved ironbark
T1	C	*Eucalyptus brownii*	Reid River box
T1	A	*Corymbia clarksoniana*	Clarkson's bloodwood
T1	A	*Amyema quandang var. bancroftii*	grey mistletoe
T1	A	*Corymbia dallachiana*	ghost gum
S1	D	*Petalostigma pubescens*	quinine berry bush
S1	A	*Alstonia constricta*	bitter bark
S1	A	*Acacia salicina*	sally wattle
S1	A	*Carissa lanceolata*	conkerberry
G	A	*Arundinella nepalensis*	reed grass
G	A	*Rostellularia adscendens var. hispida*	pink tongues
G	A	*Sida sp.*	
G	A	*Perotis rara*	comet grass
G	A	*Sida trichopoda*	high sida
G	A	*Chrysopogon fallax*	golden beard grass
G	A	*Heteropogon contortus*	black spear grass
G	A	*Cenchrus ciliaris**	buffel grass
G	A	*Themeda triandra*	kangaroo grass
G	A	*Aristida jerichoensis var. jerichoensis*	Jericho wiregrass
G	A	*Aristida calycina var. calycina*	dark wiregrass
G	A	*Eriachne mucronata*	mountain wanderrie
G	A	*Spermacoce brachystema*	
G	A	*Phyllanthus virgatus*	spurge
G	A	*Enneapogon avenaceus*	ridge grass
G	A	*Oxalis corniculata**	yellow wood-sorrel

[1]Rel. = Relative dominance: D, dominant; C, codominant; S, subdominant; A, associated
*indicates a non-native species

Vegetation DBH (from BioCondition Assessment)

Scientific name	Common name	DBH (mm)	Average DBH (mm)
Eucalypts			
Eucalyptus melanophloia	silver-leaved ironbark	300, 360, 330	330
Eucalyptus brownii	Reid River box	380, 350	365
Average DBH for eucalypts:			344

Scientific name	Common name	DBH (mm)	Average DBH (mm)
Non-eucalypts			
Petalostigma pubescens	quinine berry bush	270, 210	240
Acacia salicina	sally wattle	200	200
Average DBH for non-eucalypts			227

Plate 22 Vegetation assessment polygon 7

Polygon 9 (Vegetation assessment site 9) and representative of Polygons 1, 2 and 8

Mapped RE: Least concern, 10.3.4b/10.3.3b/10.3.6a (80/10/10)

Observed RE: Least concern, 10.3.6a (100)

Polygon No.:	9	Recorder:	Jessica Newton	Date:	02/05/2013
Purpose:	Regional ecosystem verification and BioCondition assessment				
Locality:	Lot 662 PH1491 Isaac Regional Council				

Stratum	Median height (m)	Height interval (m)	Est. cover density (D, M, S, V)
E			
T1	17	15 – 17	Very sparse
T2	12	9 – 15	Mid-dense
T3			
S1	4	1 – 6	Very sparse
S2	Absent	Absent	Absent
G	0.5	0 – 1	Dense
Structural formation:		Remnant eucalypt open-woodland	
Ecologically dominant layer:		T1	

Transect – Crown Cover Measured (Transect intercept method)

GPS coordinates:		Datum:		MGA55			Transect length (m):	100
Start point:	Zone	5	5	E	451712	N	7574630	
50 m point:	Zone	5	5	E	451730	N	7574596	

Interval (m)	Intercept (m)	Stratum	Scientific name	Common name
0 – 6.8	6.8	T2	*Acacia excelsa subsp. excelsa*	ironwood
14.1 – 17.8	3.7	S1	*Carissa ovata*	currant bush
33.2 – 39.0	5.8	T2	*Acacia salicina*	sally wattle
51.6 – 55.5	3.9	T2	*Acacia salicina*	sally wattle
85.6 – 100	14.4	T1	*Eucalyptus brownii*	Reid River box
95.5 – 100	4.5	T2	*Acacia excelsa subsp. excelsa*	ironwood

Summary:	
Intercept of EDL 0 – 50 m:	0.0 m
Intercept of EDL 50 – 100 m:	14.4 m
Measured crown cover % of EDL 0 – 100 m:	14.4
Structural formation:	Remnant eucalypt open-woodland
Conclusions/notes:	

- Structure meets remnant status
- Species consistent with least concern RE 10.3.6a; no species consistent with the least concern REs 10.3.3b or 10.4.3b were recorded within the remnant polygon
- Site condition measured as moderate (VAST 2), with some cattle disturbance recorded

Summary:
throughout the study area • Site is proposed as least concern RE 10.3.6a

Plant Species

Str.	Rel.[1]	Scientific name	Common name
T1	C	*Eucalyptus brownii*	Reid River box
T1	C	*Corymbia clarksoniana*	Clarkson's bloodwood
T1	S	*Eucalyptus camaldulensis var. obtusa*	river red gum
T2	D	*Acacia salicina*	sally wattle
T2	A	*Acacia excelsa subsp. excelsa*	ironwood
T2	A	*Amyema miraculosa subsp. boormanii*	fleshy mistletoe
S1	A	*Carissa ovata*	currant bush
S1	A	*Acacia excelsa subsp. excelsa*	ironwood
S1	A	*Petalostigma pubescens*	quinine berry bush
S1	A	*Stylosanthes scabra**	stylo
S1	A	*Lysiphyllum carronii*	red bauhinia
S1	A	*Alstonia constricta*	bitter bark
G	A	*Perotis rara*	comet grass
G	A	*Sida cunninghamii*	ridge sidea
G	A	*Chrysocephalum apiculatum*	billy-buttons
G	D	*Cenchrus ciliaris**	buffel grass
G	S	*Aristida sp.*	
G	A	*Sida filiformis*	fine sida
G	A	*Eragrostis parviflora*	weeping lovegrass
G	A	*Chamaesyce dallachyana*	caustic weed
G	A	*Enneapogon robustissimus*	
G	A	*Tribulus terrestris*	caltrop

[1]Rel. = Relative dominance: D, dominant; C, codominant; S, subdominant; A, associated
*indicates a non-native species

Vegetation DBH (from BioCondition Assessment)

Scientific name	Common name	DBH (mm)	Average DBH (mm)
Eucalypts			
Eucalyptus brownii	Reid River box	470, 300, 900, 850, 350, 500, 400, 320, 380, 400	487
Eucalyptus camaldulensis var. obtusa	river red gum	300, 500	400
Corymbia clarksoniana	Clarkson's bloodwood	300	300
Average DBH for eucalypts:			459
Acacia salicina	sally wattle	300	300
Average DBH for non-eucalypts:			300

Plate 23 Vegetation AssessmentPolygon 9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