

aurecon

**Project: Fairview Ecological
Assessment Report
Road and Watercourse Casements**

**Project No. 221708
Prepared for: Santos Ltd
Report ref: 221708-001
14 October 2011**

Santos Document Number: 0020-GLNG-4-1.3-0108_0

Document Control Record

Document prepared by:

Aurecon Australia Pty Ltd
 ABN 54 005 139 873
 Level 14, 32 Turbot Street
 Brisbane QLD 4000
 Locked Bag 331
 Brisbane QLD 4001
 Australia

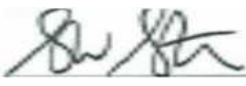

T +61 7 3173 8000
F +61 7 3173 8001
E brisbane@aurecongroup.com
w aurecongroup.com

A person using Aurecon documents or data accepts the risk of:

- Using the documents or data in electronic form without requesting and checking them for accuracy against the original hard copy version.
- Using the documents or data for any purpose not agreed to in writing by Aurecon.

This document is solely for the purposes of an ecological assessment and does not provide any legal advice regarding development locations and/or activities.

Document control						aurecon	
Report Title		Fairview Ecological Assessment Report – Road Corridors					
Document ID		221708-001		Project Number		221708	
File Path							
Client		Santos Ltd		Client Contact			
Rev	Date	Revision Details/Status	Prepared by	Author	Verifier	Approver	
0	13 Oct 2011	Draft for internal review	KH	SS	CS		
1	14 Oct 2011	Final for issue	SS	SS	CS	JS	
Current Revision		1					

Approval			
Author Signature			
Approver Signature			
Name	S Stone	Name	J Stark
Title	Ecologist	Title	Ecologist

Fairview Ecological Assessment Report

Date | 14 October 2011
Reference | 221708-001
Revision | 1

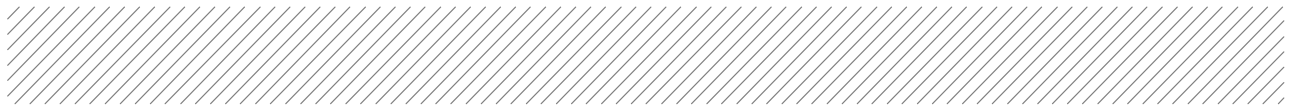
Aurecon Australia Pty Ltd
ABN 54 005 139 873
Level 14, 32 Turbot Street
Brisbane QLD 4000
Locked Bag 331
Brisbane QLD 4001
Australia

T +61 7 3173 8000
F +61 7 3173 8001
E brisbane@aurecongroup.com
W aurecongroup.com

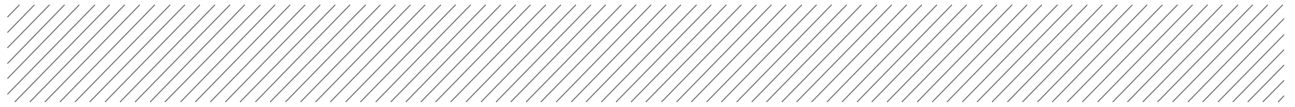


Contents

1	Background	1
1.1	Project description	1
1.2	Purpose of report	1
2	Methodology	2
2.1	Desktop methodology	2
2.2	Field methodology	2
3	Ecological assessment	3
3.1	Map sheet 1	3
3.1.1	General	3
3.1.2	Floristics	3
3.1.3	Habitat values	3
3.2	Map sheet 2	4
3.2.1	General	4
3.2.2	Floristics	4
3.2.3	Habitat values	5
3.3	Map sheet 3	5
3.3.1	General	5
3.3.2	Floristics	6
3.3.3	Habitat values	7
3.4	Map sheet 4	7
3.4.1	General	7
3.4.2	Floristics	8
3.4.3	Habitat values	8
3.5	Map sheet 5	9
3.5.1	General	9
3.5.2	Floristics	10
3.5.3	Habitat values	10
3.6	Map sheet 6	11
3.6.1	General	11
3.6.2	Floristics	11
3.6.3	Habitat values	12
3.7	Map sheet 7	12



3.7.1	General	12
3.7.2	Floristics	13
3.7.3	Habitat values	13
3.8	Map sheet 8	14
3.8.1	General	14
3.8.2	Floristics	14
3.8.3	Habitat values	15
3.9	Map sheet 9	16
3.9.1	General	16
3.9.2	Floristics	16
3.9.3	Habitat values	17
3.10	Map sheet 10	18
3.10.1	General	18
3.10.2	Floristics	18
3.10.3	Habitat values	19
3.11	Map Sheet 11	19
3.11.1	General	19
3.11.2	Floristics	20
3.11.3	Habitat values	20
3.12	Map sheet 12	21
3.12.1	General	21
3.12.2	Floristics	21
3.12.3	Habitat values	22
3.13	Map sheet 13	23
3.13.1	General	23
3.13.2	Floristics	23
3.13.3	Habitat values	24
3.14	Map sheet 14	24
3.14.1	General	24
3.14.2	Floristics	25
3.14.3	Habitat values	25
3.15	Map sheet 15	26
3.15.1	General	26
3.15.2	Floristics	26
3.15.3	Habitat values	27



3.16	Map sheet 16	28
3.16.1	General	28
3.16.2	Floristics	28
3.16.3	Habitat values	29
3.17	Map sheet 17	30
3.17.1	General	30
3.17.2	Floristics	30
3.17.3	Habitat values	31
3.18	Map sheet 18	31
3.18.1	General	31
3.18.2	Floristics	32
3.18.3	Habitat values	33
4	Conclusion	34
5	References	35

Appendices

Appendix A Map sheets of the proposed development area



1 Background

1.1 Project description

Santos Ltd (Santos) has commissioned Aurecon Australia Pty Ltd (Aurecon) to undertake ecological investigations of proposed areas of development for the Fairview gas fields.

The Fairview gas fields are situated approximately 40 km from Injune in southern Queensland. This area is characterised by elevated sandstone ranges including the Carnarvon and Expedition Ranges and part of the Mount Hutton and Kongabula Ranges. The Dawson River and other smaller watercourses drain this area and the vegetation is dominated by Eucalyptus and White Cypress Pine woodland, Brigalow and Semi-evergreen Vine Thicket (Eddie 2007).

Much of this area has been subjected to cattle grazing and other agricultural practices as well as previous development associated with the gas fields.

This report is specific to the ground-truthed areas of proposed development that are contained within existing road reserves and watercourse casements, within the Fairview gas fields (herewith referred to as proposed development areas).

The proposed development areas discussed within this report have been segregated into 18 map sheets for ease of reference (Appendix A). Each map sheet is reported upon separately within Section 3 of this report. Note that the subject of this report is solely related to proposed development areas that are contained within the existing road reserves and watercourse casements within the Fairview gas fields.

For information regarding the species composition and structural complexity of the proposed development area that are adjacent to those discussed within this report, refer to the Lot specific report of interest that has already been prepared.

1.2 Purpose of report

The aim of this report is to provide an ecological assessment of the proposed development areas that are contained within the existing road reserves and watercourse casements within the Fairview Gas fields (Appendix A), and to identify areas and species of notable ecological or conservation value. This report does not make any recommendations regarding the development in relation to any Santos environmental authorities or other approvals.



2 Methodology

2.1 Desktop methodology

Proposed development areas have been projected on a range of maps provided by Santos. These maps include Regional Ecosystem (RE) Mapping (version 6.1; Department of Environment and Resource Management [DERM]), Environmentally Sensitive Areas (ESA) mapping, drainage mapping and aerial photography. Where available ahead of time, these resources were reviewed to determine target areas for the field inspection. It is important to note that the RE classifications referred to in this report are based on the 'biodiversity status' of the vegetation and not the '*Vegetation Management Act 1999* (VM Act) status' of the vegetation. Note that the official DERM mapping (based on the VM Act status) is used to generate the figures within this report.

2.2 Field methodology

The proposed development areas were assessed by Aurecon ecologists over a six month period (ie during the months of March to August 2011). These assessments were to determine the existing vegetation communities and habitat value of the proposed clearing within the development areas as well as to verify the RE mapping as produced by DERM.

GIS environmental constraints layers (eg RE Mapping, ESA mapping etc) and high resolution aerial photography were uploaded onto a toughbook (C5 mobile clinical assistant CFT-001 – Motion computing), with an integrated GPS used to locate surveys areas. Handheld Garmin GPS units (GPS map 76) were also used during the field investigations. It should be noted that while efforts were made to ensure the GPS co-ordinates provided in this report are accurate, a margin of error approximately +/- 15 m is expected due to the limitations of the devices used and the recording environment.

The proposed development areas within road and watercourse casements vary in width and length (10 - 350 m).

The ground-truthing of the proposed development areas included undertaking detailed flora species surveys including sampling of unknown flora, and recording all incidental fauna observations. All species known to be of conservation significance (such as endangered, vulnerable, near threatened or Type A species as listed under the provisions of the *Nature Conservation Act 1992* [NC Act] or endangered, vulnerable or near threatened species as listed under the provisions of the *Environment Protection and Biodiversity Conservation Act 1999* [EPBC Act]) were recorded using the toughbook.

It is important to note that ecological data has primarily been collected on a lot-specific basis, and in some cases, distinction between the data collected within the proposed development areas (ie areas that intercept the road reserves and watercourse casements) and additional development areas (not subject to this report) is not possible. For further detail regarding species composition and structural complexity of the proposed development areas, please refer to the Lot specific ecological assessment reports that have previously been prepared for this project.



3 Ecological assessment

3.1 Map sheet 1

3.1.1 General

The proposed development area shown on Map Sheet 1 (Appendix A) occurs within and/or adjacent to the following Lot(s):

- Lot 4 WT217

This proposed development area occurs in association with:

- Road corridor
- Geotechnical survey location 6399-TP-57

The proposed development area is currently mapped as non-remnant vegetation on the DERM certified RE mapping, and does not occur within any areas identified as ESAs. The nearest ESA (Category C) is located approximately 800 m to the north, in association with an Of Concern RE.

No mapped watercourses occur within the proposed development area.

3.1.2 Floristics

The proposed development area has been previously cleared for grazing and for the construction and operation of the existing road.

The development area is largely devoid of canopy cover, and is dominated by *Pennisetum ciliare* (Buffel grass) and regrowth dominated by *Acacia* species. The ground stratum is composed of a high proportion of exotic species. Despite this, native grasses and forbs were well represented.

No species of conservation significance as listed under the provisions of the NC Act and/or the EPBC Act were detected within the proposed development area. Furthermore, no Type A restricted species as listed under the provisions of the NC Act, were detected within the proposed development area.


A list of flora species observed within and/or surrounding the proposed development area is provided in the Lot 4 WT217 report.

3.1.3 Habitat values

Habitat features associated with the proposed development area include:

- Limited canopy cover
- Dense ground cover vegetation
- Limited large woody debris (ie fallen/felled timber)

The habitat value of this survey area is considered low overall. The area contains limited woody vegetation and has been extensively disturbed by grazing stock, previous vegetation clearing and the



invasion of exotic pasture species. The presence of an existing cleared road reserve further reduces the likelihood of the area being used as primary nesting or foraging habitat.

No incidental fauna species were recorded within the proposed development area.

3.2 Map sheet 2

3.2.1 General

The proposed development area shown on Map Sheet 2 (Appendix A) occurs within and/or adjacent to the following Lot(s):

- Lot 5 WT217
- Lot 6 CP908635

This proposed development area occurs in association with:

- Corridors F215, F260, F291, F28, F31, F33, F39, FV804
- FV05 Contractor Yard 2
- Powerline and road corridor (Fairview Road)
- Geotechnical survey locations T3, BH-29, BH-30, BH-33, BH-34, 6399-RM-04

The proposed development area is currently mapped as non-remnant vegetation on the DERM certified RE mapping.

The proposed development area does not occur within any areas identified as ESA's. The nearest ESA (Category C) is located approximately 530 m to the south of Corridor F39 in association with a mapped Of Concern RE.

Two mapped watercourses occur within the development area (stream orders 1 and 2) associated with Corridor F291 and the powerline corridor.

3.2.2 Floristics

The proposed development area is contained within a highly modified environment, resultant from historical land clearing and the construction and operation of the existing road and powerline easements.

The ground layer within the development area is dominated by *Pennisetum ciliare* (Buffel grass), with a high proportion of exotic species present. The development area also contains a moderate cover of woody regrowth consisting primarily of *Eucalyptus populnea* (Poplar Box), *Eucalyptus melanophloia* (Broad-leaved Ironbark), *Eremophila mitchellii* (False Sandalwood) and *Acacia salicina* (Sally Wattle).

A total of eight (8) Type A restricted plant species (listed under the provisions of the NC Act) were recorded within the development area. The location of these species is provided in Table 3.1.

No species of conservation significance as listed under the provisions of the NC Act and/or EPBC Act were observed within the proposed development area.

A list of flora species observed within and/or surrounding the proposed development area is provided in the Lot 5 WT217 or Lot 6 CP908635 report.

Table 3.1 Location of Type A Restricted Plants (*Nature Conservation Act 1992*)

Species	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Brachychiton populneus</i>	695656	7164916
<i>Brachychiton rupestris</i>	695415	7164972
<i>Brachychiton rupestris</i>	695385	7164977
<i>Brachychiton rupestris</i>	695374	7164982
<i>Brachychiton rupestris</i>	695378	7164993
<i>Brachychiton rupestris</i>	695430	7164997
<i>Brachychiton populneus</i>	695380	716993
<i>Brachychiton populneus</i>	693725	7165132

3.2.3 Habitat values

Habitat features associated with the proposed development area include:

- Limited canopy cover
- Dense ground cover vegetation
- Woody debris (ie fallen/felled timber)
- Ephemeral watercourse habitat

The habitat value of this survey area is considered low overall. The area contains limited woody vegetation and has been extensively disturbed by grazing stock, previous vegetation clearing and the invasion of exotic pasture species. The presence of an existing cleared road reserve further reduces the likelihood of the area being used as primary nesting or foraging habitat.

No incidental fauna species were recorded within the proposed development area.

3.3 Map sheet 3

3.3.1 General

The proposed development area shown on Map Sheet 3 (Appendix A) occurs within:

- Lot 6 CP908635

This proposed development area occurs in association with:

- Corridor F252, F260, F41
- Road and powerline corridor
- Geotechnical survey locations 6399-RM-06, 6399-TP-52, 6399-TP-56, TP-F178, TP-F179, TP-F180, 6399-RM-11, 6399-TP-60, 6399-TP-96

A small area (~0.1 ha) of RE 11.10.3/11.3.25 (Of Concern) is intercepted by the proposed development area in the north, associated with Corridor F260. Ground-truthing of this area has determined that DERM certified RE mapping is inaccurate in this area (refer to Section 3.3.2).

In addition, 1.5 ha of RE 11.10.1/11.10.13a (No Concern at Present) is intercepted within the south-eastern region, associated with Corridor F41 and the powerline easement adjacent to 6399-TP-96. This RE community is considered accurately mapped (refer to Section 3.3.2).

No ESAs are mapped as occurring within the proposed development area. However, a number of ESAs are mapped proximally. The closest being a Category C ESA associated with an Of Concern RE

to the north of 6399-TP-96. A Category A ESA (associated with a National Park) is mapped approximately 440 m to the north of TP-F178.

Five (5) mapped watercourses traverse the proposed development area (one stream order 2, four stream order 1).

3.3.2 Floristics

The remnant community associated with Corridor F260 is dominated by *Eucalyptus* species (*Eucalyptus melanophloia* [Silver-leaved ironbark], *E. chloroclada* [Dirty gum], *Corymbia hendersonii* [Henderson's bloodwood]) and *Callitris glaucophylla* (White cypress) woodland, over a shrubby mid stratum dominated by *Acacia* species. The ground cover is grassy throughout. This is inconsistent with the species composition associated with the DERM mapping for this area (RE 11.10.3/11.3.25). Field investigations have concluded that the land zone and species composition within the proposed development area are analogous to RE 11.10.4/11.10.7 (50/50).

RE mapping (11.10.1/11.10.13) associated with the powerline in the south is considered to be correct. The non-remnant vegetation associated with the area is characterised by *Eucalyptus alba* (Chinchilla white gum) plantation.

The non-remnant vegetation within the proposed development area adjacent to Corridor F260 is characterised by sparse woody regrowth amongst *Pennisetum ciliare* (Buffel grass) dominated grassland with little woody vegetation. Regrowth includes vegetation includes scattered Eucalypts, *Acacia*, *Geigeria parviflora* (Wilga) and *Brachychiton* species. Shrubs are scattered throughout the grasslands.

A total of four (4) Type A restricted plants of a single species (listed under the provisions of the NC Act) ie *Brachychiton populneus* (Kurrajong) were recorded within the proposed development area. The location of these species is provided in Table 3.2.

Scattered *Gonocarpus urceolatus* (Rasp weed) specimens were detected within the proposed development area from 6399-TP-96 site and extended within the roadside corridor, east to Corridor F52. This species is listed as Vulnerable under the provisions of the NC Act. The location of this species is illustrated in Map Sheet 3 and is provided in Table 3.2.

A list of flora species observed within and/or surrounding the proposed development area is provided in the Lot 6 CP908635 report.

Table 3.2 Location of Type A Restricted and Conservation Significant Plants (as listed under the provisions of the Nature Conservation Act 1992)

Species	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Brachychiton populneus</i>	697715	7162429
<i>Brachychiton populneus</i>	698691	7163892
<i>Brachychiton populneus</i>	697598	7164449
<i>Brachychiton populneus</i>	696506	7164681
<i>Gonocarpus urceolatus</i>	697257	7162342
	697994	7162587
<i>Gonocarpus urceolatus</i>	698668	7162691
	698917	7162697
<i>Gonocarpus urceolatus</i>	699408	7162745
	699479	7162755

3.3.3 Habitat values

Habitat features associated with the proposed development area include:

- Canopy cover suitable for shelter, foraging and perching
- Fissured/exfoliating tree bark
- Dense ground cover vegetation
- Woody debris (ie fallen/felled timber)
- Ephemeral watercourse habitat

The remnant vegetation within the proposed development area offers a relatively undisturbed environment and therefore retains the intrinsic habitat values associated with that RE, and ultimately provide relatively high value fauna habitat. Mature trees and shrubby understorey provides a high level of cover and possible nesting hollows.

The areas of non-remnant regrowth and open pasture land within the remaining areas of the proposed development area are considered very limited in habitat value due to the lack of cover and high prevalence of exotic species.

At least three (3) incidental fauna species were recorded within the proposed development area, as indicated in Table 3.3, below. All of these species are listed as Least Concern under the provisions of the NC Act, and are not listed under the provisions of the EPBC Act.

Table 3.3 Incidental fauna species recorded

Common name	Species
Feral dog	<i>Canis familiaris</i>
Pretty face wallaby	<i>Macropus parryi</i>
Quoll	<i>Dasyurus sp</i>

3.4 Map sheet 4

3.4.1 General

The proposed development area shown on Map Sheet 4 (Appendix A) occurs within and/or adjacent to the following Lot(s):

- Lot 20 on FTY1805
- Lot 27 on NPW826

This proposed development area occurs in association with:

- Corridors F260, F263
- Road and powerline corridor
- Geotechnical survey locations 6399-RM-07, 6399-RM-08, 6399-TP-49, TP-F177

The proposed development area is largely mapped as occurring within a RE 11.3.39/11.3.2 (Of Concern) community. Field investigations have confirmed that the DERM certified RE mapping is accurate.

As a result of the presence of an Of Concern RE, the proposed development area largely occurs within a Category C ESA.

Two (2) mapped watercourses (both stream order 1) occur within the development area.

3.4.2 Floristics

Both remnant and non-remnant vegetation is contained within the areas of proposed disturbance.

Within areas containing remnant vegetation, vegetation community are characteristic of a mixed *Eucalyptus* and Cypress Pine Woodland. The dominant canopy species throughout this proposed development area include *Eucalyptus melanophloia* (Silver-leaved Ironbark) and *Corymbia citriodora* (Spotted Gum), and *Eucalyptus populnea* (Poplar Box). The mid stratum was comprised of a shrubby layer dominated by *Acacia* species. This vegetation community is analogous to the RE 11.3.39/11.3.2, in accordance with the RE mapping.

The non-remnant vegetation was comprised of scattered trees and sparse *Acacia* regrowth in grassland typically dominated by exotic pasture species such as *Pennisetum ciliare* (Buffel Grass) and *Melinis repens* (Red Natal Grass). Native species also present throughout this area.

A total of thirty-three (33) Type A restricted plants of a single species (listed under the provisions of the NC Act) were recorded within the development area, ie *Brachychiton populneus* (Kurrajong). The location of these species is provided in Table 3.4.

No species of conservation significance as listed under the provisions of the NC Act and/or the EPBC Act were observed within the development area.

A list of flora species observed within and/or surrounding the proposed development area is provided in the relevant Lot specific reports.

Table 3.4 Location of Type A Restricted Plants (Nature Conservation Act 1992)

Species	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Brachychiton populneus</i>	703025	7162868
<i>Brachychiton populneus</i>	703076	7162877
<i>Brachychiton populneus</i>	703064	7162888
<i>Brachychiton populneus</i>	702990	7162943
<i>Brachychiton populneus</i>	702932	7163017
<i>Brachychiton populneus</i>	702875	7163070
<i>Brachychiton populneus</i>	702882	7163079
<i>Brachychiton populneus</i>	702796	7163154
<i>Brachychiton populneus</i>	702661	7163279
<i>Brachychiton populneus</i>	701681	7163394
<i>Brachychiton populneus</i>	701514	7163406
<i>Brachychiton populneus</i> (x7)	701655	7163412
<i>Brachychiton populneus</i> (x14)	701641	7163419
<i>Brachychiton populneus</i>	701572	7163433

3.4.3 Habitat values

Habitat features associated with the proposed development area include:

- Canopy cover suitable for shelter, foraging and perching (including hollow-bearing trees)
- Fissured/exfoliating tree bark
- Dense ground cover vegetation
- Woody debris (ie fallen/felled timber)
- Ephemeral watercourse habitat
- Rocky outcrops

- Leaf litter
- Arboreal termite nests

The habitat value of the remnant vegetation within the proposed development area is considered to be moderate to high. This habitat is a predominantly undisturbed environment and therefore retains the intrinsic habitat values associated with the RE. Other habitat features observed within this proposed development area includes hollow-bearing trees, rocky areas, fallen timber and logs and leaf litter. This area would provide suitable habitat for a range of avian, reptile and mammalian fauna.

The area of non-remnant vegetation within the proposed development area is considered to offer a low habitat value, as it lacked the structural elements that are necessary to fulfil various functional roles for native fauna species. It generally lacks important habitat features such as hollow-bearing trees, termite nests, hollow-bearing logs, and leaf litter.

Four (4) incidental fauna species were recorded within the proposed development area, as indicated in Table 3.5. All of these species are listed as Least Concern under the provisions of the NC Act, and are not listed under the provisions of the EPBC Act.

Table 3.5 Incidental fauna species recorded

Common name	Species
Apostle Birds	<i>Struthidea cinerea</i>
Pale-headed Rosella	<i>Platycercus adscitus</i>
Pied Butcher Bird	<i>Cracticus nigrogularis</i>
Rufous Whistler	<i>Pachycephala rufiventris</i>

3.5 Map sheet 5

3.5.1 General

The proposed development area shown on Map Sheet 5 (Appendix A) occurs within and/or adjacent to the following Lot(s):

- Lot 20 on FTY1805
- Lot 27 on NPW826
- Lot 8 on AB200

The ground-truthed areas that intercept the existing road reserves and watercourse casements on Map Sheet 5 are:

- Corridors F248 and F261
- Road corridor

The proposed development area is largely mapped as occurring within remnant vegetation, ie RE 11.3.39/11.3.2 (Of Concern), RE 11.10.1/11 (No Concern at Present), and RE 11.10/13a/ 11.10.1/ 11.3.25 (No Concern at Present) community. Field investigations have confirmed that the DERM certified RE mapping is accurate.

The entire proposed development area is located within a National Park, and therefore occurs within a Category A ESA.

One (1) mapped, stream order 2, watercourse occurs within the development area.

3.5.2 Floristics

The area of disturbance within the proposed development area is primarily within remnant vegetation which can be described as a mixed *Eucalyptus* and Cypress Pine Woodland.

The remnant vegetation has a moderate to high structural complexity and floristic diversity; it has an intact canopy with an understorey dominated by native flora species. There was also a low number and abundance of exotic species.

The dominant canopy species throughout the proposed development area include *Eucalyptus melanophloia* (Silver-leaved ironbark) *Eucalyptus fibrosa* subsp. *nubila* (Blue-leaved ironbark), and *Corymbia citriodora* (Spotted gum). Other canopy species present in lower abundance include *Eucalyptus populnea* (Poplar box), *Eucalyptus exserta* (Peppermint), and *Corymbia tessellaris* (Moreton Bay Ash). Other canopy species including *Eucalyptus tereticornis* (Queensland blue gum), and *Eucalyptus tenuipes* (Narrow-leaved white mahogany) were restricted to the creek at the southern end of the proposed development area.

The mid stratum was primarily dominated by *Acacia* species throughout most of the proposed development area. Some small areas of non-remnant vegetation were present in previously disturbed areas along existing access tracks and consisted of sparse *Acacia* regrowth and exotic pasture grass species such as *Pennisetum ciliare* (Buffel grass) and *Melinis repens* (Red Natal grass).

One (1) Type A restricted plant (listed under the provisions of the NC Act) was recorded within the development area, ie *Brachychiton populneus* (Kurrajong). The location of these species is provided in Table 3.6.

No species of conservation significance under the provisions of the NC Act and/or the EPBC Act were observed within the development area.

A list of flora species observed within and/or surrounding the proposed development area is provided in the relevant Lot specific reports.

Table 3.6 Location of Type A Restricted Plant (*Nature Conservation Act 1992*)

Species	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Brachychiton populneus</i>	705238	7159353

3.5.3 Habitat values

Habitat features associated with the proposed development area include:

- Canopy cover suitable for shelter, foraging and perching (including hollow-bearing trees)
- Fissured/exfoliating tree bark
- Dense ground cover vegetation
- Woody debris (ie fallen/felled timber)
- Ephemeral watercourse habitat
- Leaf litter

Overall, the habitat value of the proposed development area is considered to be moderate to high due to large proportion of the area consisting of remnant vegetation. The remnant vegetation within the proposed development area consists of a predominantly undisturbed environment and therefore retains the intrinsic habitat values associated with the RE.

Other habitat features observed within this proposed development area includes hollow-bearing trees, fissured tree bark, rocky areas, fallen timber and logs and leaf litter.

Many of the mature trees within the proposed development area have scratch markings and evidence of recent use by arboreal fauna.

Habitat values of the non-remnant vegetation within the proposed development area are relatively low due to the limited structure and low floristic diversity as well as a lack of important habitat features such hollow-bearing trees, fissured bark, fallen woody debris and shrubs. These areas are typically dominated by exotic pasture grasses, with scattered native shrubs in some areas. Therefore, the species utilising resources in this area of the site are most likely to be limited to common, generalist species that are able to adapt to significant habitat disturbances (ie House mouse, macropods etc).

Five (5) incidental fauna species were recorded within the proposed development area, as indicated in Table 3.7. All of these species are listed as Least Concern under the provisions of the NC Act, and are not listed under the provisions of the EPBC Act.

Table 3.7 Incidental fauna species recorded

Common name	Species
Emu	<i>Dromaius novaehollandiae</i>
Grey Fantail	<i>Rhipidura fuliginosa</i>
Pale-headed Rosella	<i>Platycercus adscitus</i>
Tawny Frogmouth	<i>Podargus strigoides</i>
Tommy Roundhead Dragon	<i>Diporiphora australis</i>

3.6 Map sheet 6

3.6.1 General

The proposed development area shown on Map Sheet 6 (Appendix A) occurs within:

- Lot 8 on AB200

This proposed development area occurs in association with:

- Corridor F163
- Hutton Creek

The proposed development area is largely mapped as occurring within RE 11.10.7 (No Concern at Present). Field investigations have confirmed that the DERM certified RE mapping is accurate.

The proposed development area does not occur within any areas identified as ESA's, with the nearest ESA located approximately 540 m to the south-east in association with an Endangered RE community.

One (1) watercourse (stream order 6) (Hutton Creek) occurs within the proposed development area.

3.6.2 Floristics

The proposed development area is largely mapped as occurring within RE 11.10.7 (No Concern at Present). Recent field investigations found the RE mapping in this area to be correct. This vegetation community is dominated by *Eucalyptus crebra* (Narrow-leaved Ironbark) and *Eucalyptus melanophloia* (Silver-leaved ironbark), with a shrubby understorey.

One (1) Type A restricted plant (listed under the provisions of the NC Act) was recorded within the proposed development area, ie *Brachychiton populneus* (Kurrajong). The location of these species is provided in Table 3.8.

No species of conservation significance under the provisions of the NC Act and/or the EPBC Act were observed within the development area.

A list of flora species observed within and/or surrounding the proposed development area is provided in the Lot 8 (AB200) report.

Table 3.8 Location of Type A Restricted Plants (*Nature Conservation Act 1992*)

Species	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Brachychiton populneus</i>	694670	7157082

3.6.3 Habitat values

Habitat features associated with the proposed development area include:

- Canopy cover suitable for shelter, foraging and perching (including hollow-bearing trees)
- Fissured/exfoliating tree bark
- Dense ground cover vegetation
- Woody debris (ie fallen/felled timber)
- Watercourse habitat
- Leaf litter

The habitat values of the proposed development area are relatively high. The remnant vegetation has an intact canopy with a diverse mid-storey and ground layer dominated by native flora species. Multiple bird nests were observed within the canopy.

At least two (2) incidental fauna species were recorded within the proposed development area, as indicated in Table 3.9, below. All of these species are listed as Least Concern under the provisions of the NC Act, and are not listed under the provisions of the EPBC Act.

Table 3.9 Incidental fauna species recorded

Common name	Species
Brown quail	<i>Coturnix ypsilophora</i>
Red-backed fairy wren	<i>Malurus melanocephalus</i>

A diverse array of bird calls were heard during field investigations. Macropod scats were also recorded.

3.7 Map sheet 7

3.7.1 General

The proposed development area shown on Map Sheet 7 (Appendix A) occurs within:

- Lot 2 on AB247

This proposed development area occurs in association with:

- Corridor F284
- Road corridor
- Pipeline

The proposed development area is currently mapped as non-remnant vegetation on the DERM certified RE mapping. Field investigations have confirmed that the mapping is accurate.

The majority of the proposed development area occurs within a Category C ESA, associated with a DERM mapped referable wetland.

One (1) stream order 1 watercourse occurs within the development area.

3.7.2 Floristics

The majority of the proposed development area has been historically cleared for agricultural purposes. At the time of surveys, grazing was evident throughout the area.

Eucalyptus crebra (Narrow-leaved Ironbark), *Angophora leiocarpa* (Smooth-barked Apple), *Eucalyptus populnea* (Poplar Box) and *Callitris glaucophylla* (White Cypress Pine) dominates the sparse canopy layer.

The ground cover is typically dominated by *Pennisetum ciliare* (Buffel Grass) and scattered native grass species.

The proposed development area intercepts a mature patch (~ 0.1 ha; ~ 30m wide) of *Acacia harpophylla* (Brigalow). This vegetation community may be considered analogous to a Threatened Ecological Community (including Brigalow regrowth) under the provisions of the EPBC Act, and may therefore be referable.

No other flora species of conservation significance (under the provisions of the NC Act and/or the EPBC Act) were observed within the development area. Furthermore, no Type A restricted species (under the provisions of the NC Act) were detected within the proposed development area.

A list of flora species observed within and/or surrounding the proposed development area is provided in the Lot 2 (AB247) report.

3.7.3 Habitat values

Habitat features associated with the proposed development area include:

- Limited canopy cover suitable for shelter, foraging and perching
- Limited fissured/exfoliating tree bark
- Dense ground cover vegetation
- Woody debris (ie fallen/felled timber)
- Watercourse habitat
- Leaf litter

The proposed development area, as a result of its highly disturbed nature, is considered to offer limited habitat values. However, the proposed development area is situated adjacent to a large patch of remnant vegetation, and as such should be considered likely to be used as a regional fauna corridor.

Eighteen (18) incidental fauna species were recorded within (or adjacent to) the proposed development area, as indicated in Table 3.10. All of these species are listed as Least Concern under the provisions of the NC Act, and are not listed under the provisions of the EPBC Act.

Table 3.10 Incidental fauna species recorded

Common name	Species
Apostle Bird	<i>Struthidea cinerea</i>
Australian Magpie	<i>Gymnorhina tibicen</i>
Cane Toad	<i>Bufo marinus</i>
Dingo	<i>Canis lupis</i>
Eastern Grey Kangaroo	<i>Macropus giganteus</i>
Eastern Rosella	<i>Platycercus eximius</i>
Emu	<i>Dromaius novaehollandiae</i>
European Rabbit	<i>Oryctolagus cuniculus</i>
Feral Pig	<i>Sus scrofa</i>



Galah	<i>Cacatua roseicapilla</i>
Grey Butcher Bird	<i>Cracticus torquatus</i>
Nankeen Kestrel	<i>Falco cenchroides</i>
Pale-headed Parrot	<i>Platycercus adscitus</i>
Pied Butcher Bird	<i>Cracticus nigrogularis</i>
Red-necked Wallaby	<i>Macropus rufogriseus</i>
Richard's Pipit	<i>Anthus novaeseelandiae</i>
Sulfur-crested Cockatoo	<i>Cacatua galerita</i>
Torresian Crow	<i>Corvus orru</i>

The Squatter Pigeon (*Geophaps scripta scripta*), which is listed as a vulnerable fauna species under the provisions of the EPBC Act and the NC Act, was recorded approximately 800 m to the east of the proposed development area.

3.8 Map sheet 8

3.8.1 General

The proposed development area shown on Map Sheet 8 (Appendix A) occurs within and/or adjacent to the following Lot(s):

- Lot 1 on AB247
- Lot 62 on FTY1809
- Lot 1 on AB73

This proposed development area occurs in association with:

- Injune Road
- Stock route corridor
- Corridor F284
- Geotechnical survey location TP-F228

The proposed development area intercepts an area mapped as an Of Concern RE (11.3.2/11.3.25). Field investigations have confirmed that the DERM certified RE mapping is accurate.

This area is also mapped as a Category C ESA as a result of the presence of an Of Concern RE and a State Forest/Timber Reserve. A Category B ESA occurs approximately 440 m to the south-east of the proposed development area, near TP-F287.

No mapped watercourses occur within the proposed development area, however a stream order 2 watercourse occurs immediately adjacent, to the south.

3.8.2 Floristics

The majority of the proposed development area has been historically cleared for agricultural purposes. At the time of surveys, grazing was evident throughout the area. Surveys found that the DERM certified RE mapping was correct. RE 11.3.2/11.3.25 is described by DERM as a *Eucalyptus populnea* woodland.

The remnant vegetation community is represented by *Eucalyptus populnea* (Poplar Box), *Eucalyptus crebra* (Narrow-leaved Ironbark), *Angophora leiocarpa* (Smooth-barked Apple), and *Callitris glaucophylla* (White Cypress Pine) in the canopy layer. The mid-storey is dominated by *Geijera parviflora* (Wilga), and various *Acacia* species. The ground layer is typically grassy within the remnant

patches of vegetation and consists of native species including *Themeda triandra* (Kangaroo Grass) and several *Aristida* species.

The historically cleared areas within the proposed development area are dominated by *Pennisetum ciliare* (Buffel Grass) and scattered native grass species.

Three (3) Type A restricted plants of a single species (listed under the provisions of the NC Act) were recorded within the proposed development area, ie *Brachychiton populneus* (Kurrajong). The location of these species is provided in Table 3.11, below.

No species of conservation significance under the provisions of the NC Act and/or the EPBC Act were observed within the development area.

A list of flora species observed within and/or surrounding the proposed development area is provided in the relevant Lot specific reports.

Table 3.11 Location of Type A Restricted Plants (Nature Conservation Act 1992)

Species	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Brachychiton populneus</i>	718530	7154653
<i>Brachychiton populneus</i>	719184	7154861
<i>Brachychiton populneus</i>	719216	7154879

3.8.3 Habitat values

Habitat features associated with the proposed development area include:

- Canopy cover suitable for shelter, foraging and perching
- Fissured/exfoliating tree bark
- Dense ground cover vegetation
- Woody debris (ie fallen/felled timber)
- Neighbouring watercourse habitat
- Leaf litter

The remnant vegetation community is considered to offer a high habitat value. These areas exhibit key habitat attributes including mature trees, nearby flowing water, arboreal and terrestrial hollows, fallen timber, structural complexity, rocky ridges, and fissured bark.

However, the remainder of the proposed development area has undergone severe clearing and as such is considered to have low habitat value. The lack of any over-storey and mid-storey within the proposed development area reduces the habitat quality significantly. Generalist fauna species such as macropods, birds of prey, and emus potentially may utilise the cleared areas for foraging.

Eighteen (18) incidental fauna species were recorded within (or adjacent to) the proposed development area, as indicated in Table 3.12. All of these species are listed as Least Concern under the provisions of the NC Act, and are not listed under the provisions of the EPBC Act.

Table 3.12 Incidental fauna species recorded

Common name	Species
Apostle Bird	<i>Struthidea cinerea</i>
Australian Magpie	<i>Gymnorhina tibicen</i>
Cane Toad	<i>Bufo marinus</i>
Dingo	<i>Canis lupis</i>
Eastern Grey Kangaroo	<i>Macropus giganteus</i>
Eastern Rosella	<i>Platycercus eximius</i>

Emu	<i>Dromaius novaehollandiae</i>
European Rabbit	<i>Oryctolagus cuniculus</i>
Feral Pig	<i>Sus scrofa</i>
Galah	<i>Cacatua roseicapilla</i>
Grey Butcher Bird	<i>Cracticus torquatus</i>
Nankeen Kestrel	<i>Falco cenchroides</i>
Pale-headed Parrot	<i>Platycercus adscitus</i>
Pied Butcher Bird	<i>Cracticus nigrogularis</i>
Red-necked Wallaby	<i>Macropus rufogriseus</i>
Richard's Pipit	<i>Anthus novaeseelandiae</i>
Sulfur-crested Cockatoo	<i>Cacatua galerita</i>
Torresian Crow	<i>Corvus orru</i>

3.9 Map sheet 9

3.9.1 General

The proposed development area shown on Map Sheet 9 (Appendix A) occurs within and/or adjacent to the following Lot(s):

- Lot 1 on AB73
- Lot 46 on FTY1813

This proposed development area occurs in association with:

- Dawson River
- Injune Road
- Stock route corridor
- Corridor F284
- Geotechnical survey locations TP-F222, TP-F230

The proposed development area intercepts three RE 11.3.2/11.3.25 (Of Concern) communities. Field investigations have confirmed that the DERM certified RE mapping is accurate. As a result, these areas are also mapped as a Category C ESAs.

Three (3) mapped watercourses (stream order 3) occur within the proposed development area.

3.9.2 Floristics

The majority of the proposed development area has been historically cleared for agricultural purposes. At the time of surveys, grazing was evident throughout the area.

Surveys found that the DERM certified RE mapping was correct. RE 11.3.2/11.3.25 is described by DERM as a *Eucalyptus populnea* (Poplar Box) woodland. The remnant vegetation community is represented by *Eucalyptus populnea* (Poplar Box), *Eucalyptus crebra* (Narrow-leaved Ironbark), *Angophora leiocarpa* (Smooth-barked Apple), and *Callitris glaucophylla* (White Cypress Pine) in the canopy layer. The mid-storey is dominated by *Geijera parviflora* (Wilga), and various *Acacia* species. The ground layer is typically grassy within the remnant patches of vegetation and consists of native species including *Themeda triandra* (Kangaroo Grass) and several *Aristida* species.

The historically cleared areas within the proposed development area are dominated by *Pennisetum ciliare* (Buffel Grass) and scattered native grass species.

No species of conservation significance as listed under the provisions of the NC Act and/or the EPBC Act were observed within the development area.

A list of flora species observed within and/or surrounding the proposed development area is provided in the relevant Lot specific reports.

3.9.3 Habitat values

Habitat features associated with the proposed development area include:

- Canopy cover suitable for shelter, foraging and perching
- Fissured/exfoliating tree bark
- Dense ground cover vegetation
- Woody debris (ie fallen/felled timber)
- Neighbouring watercourse habitat
- Leaf litter

The remnant vegetation community is considered to provide relatively high habitat value. These areas exhibit key habitat attributes including mature trees, nearby flowing water, arboreal and terrestrial hollows, fallen timber, structural complexity, rocky ridges, and fissured bark.

However, the remainder of the proposed development area has undergone severe clearing and as such is considered to have low habitat value. The lack of any over-storey and mid-storey within the proposed development area reduces the habitat quality significantly. Generalist fauna species such as macropods, birds of prey, and emus potentially may utilise the cleared areas for foraging.

Eighteen (18) incidental fauna species were recorded within (or adjacent to) the proposed development area, as indicated in Table 3.13, below. All of these species are listed as Least Concern under the provisions of the NC Act, and are not listed under the provisions of the EPBC Act.

Table 3.13 Incidental fauna species recorded

Common name	Species
Apostle Bird	<i>Struthidea cinerea</i>
Australian Magpie	<i>Gymnorhina tibicen</i>
Cane Toad	<i>Bufo marinus</i>
Dingo	<i>Canis lupis</i>
Eastern Grey Kangaroo	<i>Macropus giganteus</i>
Eastern Rosella	<i>Platycercus eximius</i>
Emu	<i>Dromaius novaehollandiae</i>
European Rabbit	<i>Oryctolagus cuniculus</i>
Feral Pig	<i>Sus scrofa</i>
Galah	<i>Cacatua roseicapilla</i>
Grey Butcher Bird	<i>Cracticus torquatus</i>
Nankeen Kestrel	<i>Falco cenchroides</i>
Pale-headed Parrot	<i>Platycercus adscitus</i>
Pied Butcher Bird	<i>Cracticus nigrogularis</i>
Red-necked Wallaby	<i>Macropus rufogriseus</i>
Richard's Pipit	<i>Anthus novaeseelandiae</i>
Sulfur-crested Cockatoo	<i>Cacatua galerita</i>
Torresian Crow	<i>Corvus orru</i>

3.10 Map sheet 10

3.10.1 General

The proposed development area shown on Map Sheet 10 (Appendix A) occurs within and/or adjacent to the following Lot(s):

- Lot 20 on WT32
- Lot 13 on WT18
- Lot 8 on AB200

This proposed development area occurs in association with:

- Hutton Creek
- Corridors F164, and F237
- Road and powerline corridor
- Geotechnical survey locations 6399-TP-33, and BH-38

The proposed development area is largely located within non-remnant vegetation. However, DERM certified RE mapping indicates that the proposed development infringes on approximately 1 ha of Of Concern RE 11.3.2/11.3.25. Field investigations have confirmed that the DERM certified RE mapping is accurate. As a result, the proposed development area infringes on approximately 1 ha of Category C ESA.

Three (3) mapped watercourses occur within the development area (stream orders 6, 4, and 1).

3.10.2 Floristics

While the majority of the proposed development area occurs within non-remnant vegetation, a small (ie ~ 1 ha) patch of remnant vegetation ('of concern' RE 11.3.2/11.3.25) is intercepted by the proposed development area. Field investigations within this area have confirmed the DERM certified RE mapping to be correct. The area is characterised by mature *E. camaldulensis* (River red gum) and *Angophora floribunda* (Rough-barked apple) with scattered *E. populnea* (Poplar box). *E. melanophloia* (Silver-leaved ironbark) grows in association with *Callitris glaucophylla* (White cypress pine) on the hill slope.

The non-remnant vegetation that is present within the remainder of the proposed development area is considered highly disturbed as a result of historical land clearing. These areas are characterised by *Pennisetum ciliare* dominated pasture lands.

One (1) Type A restricted plant (listed under the provisions of the NC Act) was recorded within the proposed development area, ie *Brachychiton populneus* (Kurrajong). The location of these species is provided in Table 3.14, below.

No other species of conservation significance under the provisions of the NC Act and/or the EPBC Act were observed within the development area.

A list of flora species observed within and/or surrounding the proposed development area is provided in the Lot 20 on WT32, Lot 13 on WT18 or Lot 8 on AB200 reports.

Table 3.14 Location of Type A Restricted Plants (*Nature Conservation Act 1992*)

Species	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Brachychiton populneus</i>	693356	7151697

3.10.3 Habitat values

Habitat features associated with the proposed development area include:

- Canopy cover suitable for shelter, foraging and perching
- Limited hollow-bearing trees
- Fissured/exfoliating tree bark
- Dense ground cover vegetation
- Limited large woody debris (ie fallen/felled timber)
- Leaf litter

Habitat features associated with the non-remnant vegetation within the proposed development area are limited to dense groundcover vegetation (ie grassy tussocks) and limited canopy cover. Despite this, the portion of the proposed development area that intercepts remnant vegetation (adjacent to 6399-TP-33) provides moderate habitat values, including mature, hollow-bearing trees and large woody debris.

Overall, however, the habitat value of the site is considered low, and generally lacks important habitat features such hollow-bearing trees, fissured bark, fallen woody debris and shrubs. Accordingly, the fauna utilising resources in this area are most likely to be limited to common, generalist species that are able to adapt to significant habitat disturbances (eg House mouse [*Mus musculus*], macropods). Common birds of prey known from the area (eg Wedge-tailed eagle [*Aquila audax*] and Nankeen kestrel [*Falco cenchroides*]) would also be expected to utilise this site for foraging purposes.

No incidental fauna species were recorded within this proposed development area.

3.11 Map Sheet 11

3.11.1 General

The proposed development area shown on Map Sheet 11 (Appendix A) occurs within:

Lot 12 on WT18

This proposed development area occurs in association with:

- Corridors F166, F167, F172, F174, FV331
- Road corridor
- Geotechnical survey locations 6399-RM-39, TP-F062, TP-F065

The proposed development area is entirely located within non-remnant vegetation.

DERM certified RE mapping indicates that the proposed development infringes on approximately 0.8 ha of RE 11.10.1 (No Concern at Present). However, ground-truthing of the proposed development area has concluded that the extent of the mapping is inaccurate (refer to Section 3.12.2). The area mapped by DERM consists predominately of regrowth vegetation, and satellite imagery clearly shows that the remnant boundary is approximately 80 metres to the east of the proposed development area (Map Sheet 11).

The proposed development area intercepts a mature *Acacia harpophylla* (Brigalow) community (measuring approximately 1.5 ha). This vegetation community may be analogous to a Threatened Ecological Community (including Brigalow regrowth community) under the provisions of the EPBC Act, and may therefore be referable.

The proposed development area does not occur within any known ESAs.

No mapped watercourses occur within the development area.

3.11.2 Floristics

The proposed development area has been extensively cleared as a result of historical clearing and agricultural practices (ie grazing) .The proposed development area consists of non-remnant vegetation which has a very low structural complexity consisting primarily of dense groundcover vegetation (ie grassy tussocks) and sparsely scattered native trees and shrubs.

Some occasional trees and woody shrubs are scattered throughout the area, however there was a lack of defined strata (ie shrub, midstorey, and canopy). Indicative trees and shrubs recorded include *Eucalyptus populnea* (Poplar box), *Eremophila mitchellii* (False sandalwood) and *Acacia decora* (Pretty wattle).

The ground cover is dominated by *Pennisetum ciliare* (Buffel Grass) and a mixture of other exotic and native species including *Melinis repens* (Red Natal Grass), *Sporobolus creber* (Western Rats Tail Grass) and *Heteropogon contortus* (Black Spear-grass).

As discussed, the DERM certified RE mapping indicates that the proposed development infringes on approximately 0.8 ha of RE 11.10.1 (No Concern at Present). Ground-truthing of this region of the proposed development area has concluded that the extent of the mapping is inaccurate, and no remnant vegetation occurs within the proposed development area.

Ground-truthing exercises have detected a mature *Acacia harpophylla* (Brigalow) community (measuring approximately 1.5 ha) partially located within the proposed development area. This vegetation community may be analogous to a Threatened Ecological Community (including Brigalow regrowth community) under the provisions of the EPBC Act, and may therefore be referable.

One (1) Type A restricted plant (listed under the provisions of the NC Act) was recorded within the proposed development area, ie *Brachychiton populneus* (Kurrajong). The location of these species is provided in Table 3.15.

No species of conservation significance as listed under the provisions of the NC Act and/or the EPBC Act were observed within the development area.

A list of flora species observed within and/or surrounding the proposed development area is provided in the Lot 12 on WT18 report.

Table 3.15 Location of Type A Restricted Plants (*Nature Conservation Act 1992*)

Species	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Brachychiton populneus</i>	690373	7146051

3.11.3 Habitat values

Habitat features associated with the proposed development area include:

- Limited canopy cover suitable for shelter, foraging and perching
- Limited fissured/exfoliating tree bark
- Dense ground cover vegetation
- Limited large woody debris (ie fallen/felled timber)
- Leaf litter

This site generally lacks important habitat features such hollow-bearing trees, fissured bark, fallen woody debris and leaf litter and as such is considered to provide relatively low value habitat. Due to the low level of cover and absence of important habitat features, the species utilising this area of the site are most likely to be limited to common, generalist species that are able to adapt to significant habitat disturbances (ie House mouse, macropods etc).

Five (5) incidental fauna species were recorded within (or adjacent to) the proposed development area, as indicated in Table 3.16. All of these species are listed as Least Concern under the provisions of the NC Act, and are not listed under the provisions of the EPBC Act.

Table 3.16 Incidental fauna species recorded

Common name	Species
Australian Raven	<i>Corvus coronoides</i>
Crested Pigeon	<i>Ocyphaps lophotes</i>
Masked Lapwing	<i>Vanellus miles</i>
Noisy miners	<i>Manorina melanocephala</i>
Richard's Pipit	<i>Anthus novaeseelandiae</i>

3.12 Map sheet 12

3.12.1 General

The proposed development area shown on Map Sheet 12 (Appendix A) occurs within and/or adjacent to the following Lot(s):

- Lot 22 on WT277
- Lot 55 on FTY1153
- Lot 8 on AB200

This proposed development area occurs in association with:

- Corridors F170, F169, F181, F238, F239, F282
- The Basin Road
- Road and powerline corridor
- Geotechnical survey locations 6399-RM-38, 6399-TP-94, 6399-RM-40, 6399-TP-97, BH-45, TP-C42, TP-F088

The development area is currently mapped as non-remnant vegetation on the DERM certified RE mapping. Field investigations have confirmed that this mapping is accurate.

The survey area does not occur within any areas identified as ESA's, however, a Category C ESA (associated with a State Forest/Timber Reserve) occurs immediately to the east of the proposed development area.

No mapped watercourses occur within the development area.

3.12.2 Floristics

The proposed development area is located on land which has been historically cleared for agricultural purposes.

This area primarily consists of grassland dominated by *Pennisetum ciliare* (Buffel Grass), with other exotic and native grass species also present including *Melinis repens* (Red Natal Grass), *Sporobolus creber* (Western Rats Tail Grass) and *Heteropogon contortus* (Black Spear-grass).

Some scattered native trees and shrubs were also present within the proposed development area, including *Eucalyptus populnea* (Poplar Box), *Acacia decora* (Pretty Wattle) and *Eremophila mitchellii* (False Sandalwood).

A small drainage line occurs in association with 6399-RM-40 and 6399- TP-97. This vegetation community is represented by sparse canopy and shrub layer including Rough-barked Apple (*Angophora floribunda*), *Eucalyptus melanophloia* (Silver-leaved Ironbark), *Eucalyptus populnea*

(Poplar Box), *Petalostigma pubescens* (Quinine), *Alectryon diversifolius* (Scrub Boonaree), and *Geijera parviflora* (Wilga). The ground layer within this area consists of both native and exotic species; native ground layer species present include *Lomandra longifolia* (Spiny-headed Mat-rush), *Bothriochloa bladhii* (Forest Bluegrass) and *Aristida ramosa* (Purple Wiregrass).

One (1) Type A restricted plant (listed under the provisions of the NC Act) was recorded within the proposed development area, ie *Brachychiton populneus* (Kurrajong). The location of these species is provided in Table 3.17, below.

No other species of conservation significance under the provisions of the NC Act and/or the EPBC Act were observed within the development area.

A list of flora species observed within and/or surrounding the proposed development area is provided in the Lot 22 on WT277, Lot 55 on FTY1153 or the Lot 8 on AB200 report.

Table 3.17 Location of Type A Restricted Plants (*Nature Conservation Act 1992*)

Species	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Brachychiton populneus</i>	692592	7147218

3.12.3 Habitat values

Habitat features associated with the proposed development area include:

- Limited canopy cover suitable for shelter, foraging and perching
- Limited fissured/exfoliating tree bark
- Dense ground cover vegetation
- Woody debris (ie fallen/felled timber)
- Leaf litter

A small portion (~0.1 ha) of the proposed development area (ie associated with 6399-RM-40 and 6399-TP-97) consists of vegetation exhibiting moderate structural complexity and floristic diversity. The vegetation within this area is characterised by some mature trees and a distinct shrub layer. Other habitat features include potential hollow-bearing trees, some fallen timber and leaf litter.

Overall, however, the habitat value of the proposed development area is considered low. The proposed development area generally lacks important habitat features such hollow-bearing trees, arboreal termite nests, and structurally complex vegetation.

Four (4) incidental fauna species were recorded within (or adjacent to) the proposed development area, as indicated in Table 3.18. All of these species are listed as Least Concern under the provisions of the NC Act, and are not listed under the provisions of the EPBC Act.

Table 3.18 Incidental fauna species recorded

Common name	Species
Apostlebird	<i>Struthidea cinerea</i>
Australian Magpie	<i>Cracticus tibicen</i>
Pied Butcherbird	<i>Cracticus nigrogularis</i>
Richard's Pipit	<i>Anthus novaeseelandiae</i>

3.13 Map sheet 13

3.13.1 General

The proposed development area shown on Map Sheet 13 (Appendix A) occurs within and/or adjacent to the following Lot(s):

- Lot 55 on FTY1153
- Lot 2 on AB200

This proposed development area occurs in association with:

- Injune Road
- Corridor F225

Previous land clearing as part of forestry operations and gas pipeline infrastructure has resulted in the non-remnant status of the majority of vegetation within this proposed development area.

DERM certified RE mapping indicates that the proposed development infringes on approximately 0.25 ha of Of Concern RE 11.3.2. Field investigations within the mapped RE community have found that DERM mapping is incorrect due to inconsistencies in the land zone classification. This area is considered analogous with RE 11.10.9 (No Concern at Present) (refer to section 3.14.2).

As a result of inaccurate RE mapping, the proposed development area infringes on approximately 0.25 ha of Category C ESA. Furthermore, a Category C ESA is located to the immediate north and south of the proposed development area in association with a State Forest/Timber Reserve.

No mapped watercourses occur within the proposed development area.

3.13.2 Floristics

As discussed, field investigations have detected DERM RE mapping inaccuracies within the proposed development area. The proposed development area infringes on approximately 0.25 ha of remnant vegetation analogous to No Concern at Present RE 11.10.9. This RE community is described as *Callitris glaucophylla* woodland on coarse-grained sedimentary rocks.

The proposed development area is represented by canopy species including *Callitris glaucophylla* (White Cypress), *Eucalyptus populnea* (Poplar Box) and *Eucalyptus melanophloia* (Silver Leaved Ironbark). The midstorey layer is sparsely vegetated with woody shrubs including *Acacia leiocalyx* (Black Wattle) and *Acacia excelsa* (Iron Wood). Ground cover is dominated by both introduced and native grasses/herbs. The dominant introduced grasses include *Pennisetum ciliare* (Buffel grass) and *Chloris virgata* (Feathertop rhodes grass). Additional indicative groundcover species include *Themeda triandra* (Kangaroo grass), *Cymbopogon refractus* (Barbed wire grass), *Cheilanthes seiberi* (Mulga fern) and *Wahlenbergia gracilis* (Sprawling bluebell).

One (1) Type A restricted plant (listed under the provisions of the NC Act) was recorded within the proposed development area, ie *Brachychiton populneus* (Kurrajong). The location of these species is provided in Table 3.19.

No species of conservation significance as listed under the provisions of the NC Act and/or the EPBC Act were observed within the development area.

A list of flora species observed within and/or surrounding the proposed development area is provided in the relevant Lot specific reports.

Table 3.19 Location of Type A Restricted Plants (*Nature Conservation Act 1992*)

Species	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Brachychiton populneus</i>	712106	7146844

3.13.3 Habitat values

Habitat features associated with the proposed development area include:

- Limited canopy cover suitable for shelter, foraging and perching
- Hollow-bearing trees and stags
- Limited fissured/exfoliating tree bark
- Dense ground cover vegetation
- Limited large woody debris (ie fallen/felled timber)
- Leaf litter
- Adjoining remnant vegetation offering suitable habitat and movement opportunities

The habitat value of the proposed development area is considered low to moderate. Despite the majority of the proposed development area occurring within non-remnant vegetation, the immediate surrounds are characterised by large tracks of remnant vegetation. The adjoining remnant vegetation would offer suitable foraging and nesting/roosting for a range of native fauna species. Furthermore, it is likely that the large tracks of adjoining remnant vegetation would provide an opportunity for fauna movement through the proposed development area.

Dead stags and tree hollows were identified within and/or adjacent to the proposed development area, and offer potential habitat for arboreal mammals and foraging/nesting birds. Fallen timber and woody debris was identified as potential habitat for reptiles and other terrestrial species.

Three (3) incidental fauna species were recorded within (or adjacent to) the proposed development area, as indicated in Table 3.20. All of these species are listed as Least Concern under the provisions of the NC Act, and are not listed under the provisions of the EPBC Act.

Table 3.20 Incidental fauna species recorded

Common name	Species
Apostlebird	<i>Struthidea cinerea</i>
Cane Toad	<i>Rhinella marina</i>
Green Tree Frog	<i>Litoria caerulea</i>

3.14 Map sheet 14

3.14.1 General

The proposed development area shown on Map Sheet 14 (Appendix A) occurs within and/or adjacent to the following Lot(s):

- Lot 25 on WT22
- Lot 7 on WT258
- Lot 11 on WT15

This proposed development area occurs in association with:

- Duck Creek Road
- Injune Taroom Road

- Stock route corridor
- Corridors FV15-16, F181, F185
- Powerline corridor
- Geotechnical survey locations BH-10, BH-11, BH-41, BH-42, TP-F097

The development area is currently mapped as non-remnant vegetation on the DERM certified RE mapping. Ground-truthing has confirmed that the RE mapping is accurate.

The survey area does not occur within any areas identified as ESA's, with the nearest ESA located approximately 85 m to the east (associated with a mapped Of Concern RE community).

Two (2) mapped watercourses occur within the development area (stream order 4).

3.14.2 Floristics

The proposed development area is located entirely within non-remnant vegetation, and was dominated by *Pennisetum ciliare* (Buffel grass) with scattered native grasses and forbs.

A creek with limited riparian vegetation occurs in association with FV-15-16 and the powerline corridor (Map Sheet 14). The riparian vegetation is represented by scattered *Eucalyptus chloroclada* (Baradine red gum) and *Acacia decora* (Pretty wattle).

No species of conservation significance listed under the provisions of the NC Act and/or the EPBC Act were observed within the development area.

A list of flora species observed within and/or surrounding the proposed development area is provided in the relevant Lot specific reports.

3.14.3 Habitat values

Habitat features associated with the proposed development area include:

- Limited canopy cover suitable for shelter, foraging and perching
- Limited fissured/exfoliating tree bark
- Dense ground cover vegetation
- Woody debris (ie fallen/felled timber)
- Ephemeral watercourse habitat with limited riparian vegetation

Overall, the habitat value of the site is considered low, and generally lacks important habitat features such hollow-bearing trees/logs and leaf litter. Accordingly, the fauna utilising resources in this area are most likely to be limited to common, generalist species that are able to adapt to significant habitat disturbances (eg House mouse [*Mus musculus*], macropods). Common birds of prey known from the area (eg Wedge-tailed eagle [*Aquila audax*] and Nankeen kestrel [*Falco cenchroides*]) would also be expected to utilise this site for foraging purposes.

Eight (8) incidental fauna species were recorded within (or adjacent to) the proposed development area, as indicated in Table 3.21. All of these species are listed as Least Concern under the provisions of the NC Act, and are not listed under the provisions of the EPBC Act.

Table 3.21 Incidental fauna species recorded

Common name	Species
Brown Quail	<i>Coturnix ypsilophora</i>
Butcherbird	<i>Cracticus</i> sp.
Galah	<i>Eolophus roseicapilla</i>
Magpie-lark	<i>Grallina cyanoleuca</i>
Pardalote	<i>Pardalotus</i> sp.

Sulphur-Crested Cockatoo	<i>Cacatua galerita</i>
Torresian Crow	<i>Corvus orru</i>
Willie Wagtail	<i>Rhipidura leucophrys</i>

3.15 Map sheet 15

3.15.1 General

The proposed development area shown on Map Sheet 15 (Appendix A) occurs within and/or adjacent to the following Lot(s):

- Lot 55 on FTY1153
- Lot 7 on WT258
- Lot 12 on WT18
- Lot 22 on WT277
- Lot 1 on RP58256
- Lot 3 on RP58256

This proposed development area occurs in association with:

- Injune Taroom Road
- The Basin Road
- Stock route corridor
- Duck Creek
- Corridor F183, F177, F181, F183, F184, FV15-17, FV16-31, FV311, FV312, FV313, FV15-14
- OK Station 1 Water Flowline
- Road and powerline corridor
- Geotechnical survey locations 6399-TP-78, 6399-TP-79, BH-12, TP-F091, 6399-RM-42, 6399-TP-80

The western region of the proposed development area, (associated with Corridor F181 and OK Station 1 Water Flowline) intercepts remnant vegetation mapped on DERM certified RE mapping as Of Concern RE11.3.2/11.10.11. The remainder of the proposed development area is largely located within mapped RE 11.10.9 (No Concern at Present) and non-remnant vegetation. Field investigations have confirmed that the DERM certified RE mapping is accurate.

As a result of the presence of the Of Concern RE community, this proposed development area intercepts a Category C ESA.

Six (6) mapped watercourses occur within the proposed development area (one Stream Order 4; two Stream Order 2; three Stream Order 1 watercourse).

3.15.2 Floristics

The proposed development area largely occurs within remnant vegetation. The majority of the proposed development area is correctly mapped by DERM as RE 11.10.9 (No Concern at Present). This community is described as a *Callitris glaucophylla* woodland to open forest, often associated with *Eucalyptus melanophloia* in the canopy layer.

Three (3) Type A restricted plants (under the provisions of the NC Act) were recorded within the proposed development area, ie *Brachychiton populneus* (Kurrajong) and *Cymbidium canaliculatum* (Black orchid). The location of these species is provided in Table 3.22, below.

No other flora species of conservation significance under the provisions of the NC Act and/or the EPBC Act were observed within the development area.

A list of flora species observed within and/or surrounding the proposed development area is provided in the relevant Lot specific reports.

Table 3.22 Location of Type A Restricted Plants (*Nature Conservation Act 1992*)

Species	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Cymbidium canaliculatum</i>	693794	7143705
<i>Brachychiton populneus</i>	693699	7143724
<i>Brachychiton rupestris</i>	693595	7143748

3.15.3 Habitat values

Habitat features associated with the proposed development area include:

- Hollow-bearing trees
- Exfoliating tree bark
- Fallen woody debris
- Leaf litter
- Rocky gullies
- Watercourses

Overall, the habitat value of remnant areas of the proposed development area is considered to be moderate to high. Typically, the remnant vegetation within the proposed development area has a moderate structural complexity and floristic diversity, and exhibits very few weeds.

Nineteen (19) incidental fauna species were recorded within the proposed development area, as indicated in Table 3.23.

Table 3.23 Incidental fauna species recorded within the proposed development area

Common name	Species
Apostlebird	<i>Struthidea cinerea</i>
Australian Magpie	<i>Gymnorhina tibicen</i>
Australian Raven	<i>Corvus coronoides</i>
Dingo	<i>Canis lupis</i>
Double-barred Finch	<i>Taeniopygia bichenovii</i> .
Eastern Grey Kangaroo	<i>Macropus giganteus</i>
Eastern Rosella	<i>Platycercus eximius</i>
European Rabbit	<i>Oryctolagus cuniculus</i>
Feral Pig	<i>Sus scrofa</i>
Galah	<i>Eolophus roseicapilla</i>
Grey Fantail	<i>Rhipidura fuliginosa</i>
Noisy Miner	<i>Manorina melanocephala</i>
Pale-headed rosella	<i>Platycercus adscitus</i>
Pied Butcherbird	<i>Cracticus nigrogularis</i>
Richard's Pipit	<i>Anthus novaeseelandiae</i>
Squatter pigeon	<i>Geophaps scripta scripta</i> *

Sulphur-crested Cockatoo	<i>Cacatua galerita</i>
Torresian Crow	<i>Corvus orru</i>
White-winged Chough	<i>Corcorax melanorhamphos</i>

*Vulnerable (EPBC Act and NC Act)

Squatter pigeon (*Geophaps scripta scripta*) was detected within the development area. This species is listed as Vulnerable under the provisions of the EPBC Act and NC Act. The location of the Squatter pigeons are presented in Table 3.24.

All other species detected are listed as Least Concern under the provisions of the NC Act, and are not listed under the provisions of the EPBC Act.

Table 3.24 Location of Endangered, Vulnerable or Near Threatened Species observed (*Nature Conservation Act 1992, EPBC Act 1999*)

Species	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Squatter pigeon</i>	693693	7143705
<i>Squatter pigeon</i>	693818	7143709

3.16 Map sheet 16

3.16.1 General

The proposed development area shown on Map Sheet 16 (Appendix A) occurs within and/or adjacent to the following Lot(s):

- Lot 55 on FTY1153

This proposed development area occurs in association with:

- Injune Taroom Road
- Stock route corridor
- Corridors F191, F192, F194, F198, FV16-33, FV16-33-1, FV16-34, FV16-34-1, FV16-35
- Powerline corridor
- Proposed Pony Hills Drilling Camp
- Geotechnical survey locations 6399-RM-45, TP-F113, TP-F114, TP-F115, TP-F116, TP-F126

The majority of the proposed development area is mapped as occurring within RE 11.10.9 (No Concern at Present). Field investigations have confirmed that this mapping is accurate. An Of Concern RE (11.3.2/11.3.25) is intercepted within the eastern portion of the proposed development area by Corridor F191 and two powerline corridors. Field investigations have determined that RE mapping in this area is inaccurate (refer to section 3.17.2).

The proposed development area is mapped as intercepting one Category B ESA, associated with the mapped Of Concern RE. However, as a result of RE mapping inaccuracies (associated with Corridor F191) vegetation in this area is incorrectly mapped as an ESA.

Six (6) mapped watercourses occur within the proposed development area (one Stream Order 3; two Stream Order 2; three Stream Order 1 watercourse).

3.16.2 Floristics

The proposed development area largely occurs within remnant vegetation. The majority of the proposed development area is correctly mapped by DERM as RE 11.10.9 (No Concern at Present).

This community is described as a *Callitris glaucophylla* woodland to open forest, often associated with *Eucalyptus melanophloia* in the canopy layer.

However, inaccuracies have been discovered within the vegetation intercepted by Corridor F191. This corridor is mapped as occurring within Of Concern RE 11.3.2/11.3.25 (*Eucalyptus populnea* woodland and *Eucalyptus camaldulensis* or *E. tereticornis* open forest/woodland on alluvial soils). Field investigations have confirmed that no alluvial soils occur within the proposed development area. Furthermore, the species composition within this area is analogous to RE 11.10.9 (No Concern at Present), as described above. As a result, the associated ESA mapping for this area is deemed inaccurate (ie this area is incorrectly mapped as a Category B ESA).

No flora species of conservation significance under the provisions of the NC Act and/or the EPBC Act were observed within the development area.

A list of flora species observed within and/or surrounding the proposed development area is provided in the Lot 55 on FTY1153 report.

3.16.3 Habitat values

Habitat features associated with the proposed development area include:

- Hollow-bearing trees
- Exfoliating tree bark
- Fallen woody debris
- Leaf litter
- Rocky gullies
- Watercourses

Overall, the habitat value of remnant areas of the proposed development area is considered to be moderate to high. Typically, the remnant vegetation within the proposed development area has a moderate structural complexity and floristic diversity, and exhibits very few weeds.

Eighteen (18) incidental fauna species were recorded within the proposed development area, as indicated in Table 3.25. All of the species detected are listed as Least Concern under the provisions of the NC Act, and are not listed under the provisions of the EPBC Act.

Table 3.25 Incidental fauna species recorded within the proposed development area

Common name	Species
Apostlebird	<i>Struthidea cinerea</i>
Australian Magpie	<i>Gymnorhina tibicen</i>
Australian Raven	<i>Corvus coronoides</i>
Dingo	<i>Canis lupis</i>
Double-barred Finch	<i>Taeniopygia bichenovii</i>
Eastern Grey Kangaroo	<i>Macropus giganteus</i>
Eastern Rosella	<i>Platycercus eximius</i>
European Rabbit	<i>Oryctolagus cuniculus</i>
Feral Pig	<i>Sus scrofa</i>
Galah	<i>Eolophus roseicapilla</i>
Grey Fantail	<i>Rhipidura fuliginosa</i>
Noisy Miner	<i>Manorina melanocephala</i>
Pale-headed rosella	<i>Platycercus adscitus</i>
Pied Butcherbird	<i>Cracticus nigrogularis</i>



Common name	Species
Richard's Pipit	<i>Anthus novaeseelandiae</i>
Sulphur-crested Cockatoo	<i>Cacatua galerita</i>
Torresian Crow	<i>Corvus orru</i>
White-winged Chough	<i>Corcorax melanorhamphos</i>

3.17 Map sheet 17

3.17.1 General

The proposed development area shown on Map Sheet 17 (Appendix A) occurs within:

- Lot 55 on FTY1153

This proposed development area occurs in association with:

- Injune Taroom Road
- Stock route corridor
- Corridors F197, F198, F200, FV307
- Geotechnical location 6399-RM-49, TP-F107

The majority of the proposed development area is mapped as occurring within RE 11.10.11 (No Concern at Present). The remainder of the proposed development area is mapped as non-remnant vegetation. Ground-truthing has confirmed that the DERM certified RE mapping is accurate.

The proposed development area occurs entirely within a Category C ESA, associated with a State Forest/Timber Reserve.

One (1) stream order 3 watercourse occurs within the proposed development area, adjacent to TP-F107.

3.17.2 Floristics

The remnant vegetation within the proposed development area is mapped as 11.10.11 (No Concern at Present), which was confirmed during field investigations. Previous land clearing as part of forestry operations has resulted in the non-remnant status of the remaining vegetation within this proposed development area.

The remnant vegetation community is represented by *Eucalyptus populnea* (Poplar Box), *Eucalyptus melanophloia* (Silver-leaved Ironbark), *Corymbia tessellaris* (Moreton Bay Ash), *Callitris glaucophylla* (White Cypress Pine) and *Allocasuarina leuhmannii* (Bull Oak). *Angophora floribunda* (Rough-barked Apple) and *Eucalyptus chloroclada* (Dirty Gum) were dominant along the watercourse. The midstorey and shrub layers were comprised of *Acacia leiocalyx* (Black Wattle), *Eremophila mitchellii* (False Sandalwood) and *Grevillea striata* (Beefwood).

The non-remnant areas of the proposed development area consist primarily of *Callitris glaucophylla* (White Cypress Pine) regrowth with scattered shrubs. The understorey is dominated by native and exotic grasses including *Pennisetum ciliare* (Buffel Grass), *Melinis repens* (Red Natal Grass), *Sporobolus creber* (Western Rats Tail Grass), *Themeda triandra* (Kangaroo Grass), and *Bothriochloa bladhii* (Forest Blue Grass).

No species of conservation significance as listed under the provisions of the NC Act and/or the EPBC Act were observed within the development area.

A list of flora species observed within and/or surrounding the proposed development area is provided in the Lot 55 on FTY1153 report.

3.17.3 Habitat values

Habitat features associated with the proposed development area include:

- Canopy cover suitable for shelter, foraging and perching
- Hollow-bearing trees
- Fissured/exfoliating tree bark
- Dense ground cover vegetation
- Woody debris (ie fallen/felled timber)
- Leaf litter
- Ephemeral watercourse habitat

The habitat value of the proposed development area is considered moderate to high as the majority of the proposed development area consists of intact, remnant, vegetation. The remnant vegetation has a moderate structural complexity and floristic diversity. The remnant vegetation within this proposed development area consists largely of an undisturbed environment and therefore retains the intrinsic habitat values associated with the RE. The vegetation and features within the remnant vegetation provides suitable habitat for a range of native avian, reptile and mammalian fauna.

The small area of non-remnant vegetation has moderate habitat value. This vegetation has a low to moderate structural complexity, consisting primarily of *Callitris glaucophylla* (White cypress pine) regrowth and lacks mature trees. There was a moderate level of weed infestations in these areas.

Seven (7) incidental fauna species were recorded within (or adjacent to) the proposed development area, as indicated in 3.26. All of these species are listed as Least Concern under the provisions of the NC Act, and are not listed under the provisions of the EPBC Act.

Table 3.26 Incidental fauna species recorded

Common name	Species
Apostlebird	<i>Struthidea cinerea</i>
Crested Pigeon	<i>Ocyphaps lophotes</i>
Double Barred Finch	<i>Taeniopygia bichenovii</i>
Grey-crowned Babbler	<i>Pomatostomus temporalis</i>
Kookaburra	<i>Dacelo novaeguineae</i>
Noisy Miner	<i>Manorina melanocephala</i>
Willy Wagtail	<i>Rhipidura leucophrys</i>

3.18 Map sheet 18

3.18.1 General

The proposed development area shown on Map Sheet 18 (Appendix A) occurs within and/or adjacent to the following Lot(s):

- Lot 55 on FTY1153
- Lot 4 on SP204532

This proposed development area occurs in association with:

- Injune Road

- Injune Taroom Road
- Stock route corridor
- Powerline corridor
- Geotechnical survey locations 6399-TP-71, 6399-RM-50, 6399-TP-75

The majority of the proposed development area is mapped as occurring within RE 11.10.1, RE 11.10.9, and RE 11.10.11/11.10.7a (all of which are classified as No Concern at Present). The remainder of the proposed development area is mapped as non-remnant vegetation. Field investigations have confirmed that the DERM certified RE mapping is accurate.

The proposed development area occurs entirely within a Category C ESA, associated with a State Forest/Timber Reserve.

One (1) stream order 1 watercourse occurs within the proposed development area, to the east of 6399-TP-75.

3.18.2 Floristics

The remnant vegetation that occurs within the proposed development area is represented by *Callitris glaucophylla* (White Cypress Pine) with occurrences of *Eucalyptus melanophloia* (Silver Leaved Ironbark) and *Eucalyptus populnea* (Poplar Box).

The shrub layer is typically sparse throughout the proposed development area, and includes species such as *Acacia leiocalyx* (Black Wattle), *Petalostigma pubescens* (Quinine) and *Grevillea striata* (Beefwood). The shrub layer associated with the proposed development area adjacent to 6399-TP-71 is densely vegetated with woody shrubs, the dominant species being *Eremophila mitchellii* (False Sandalwood).

The dense groundcover is characterised by native grasses, dominated by *Themeda triandra* (Kangaroo Grass), *Perotis rara* (Comet Grass) and *Aristida caput medusa* (Curly Head Wire Grass).

Twelve (12) Type A restricted plants (listed under the provisions of the NC Act) were recorded within the proposed development area, ie *Brachychiton populneus* (Kurrajong) and *Cymbidium canaliculatum* (Black orchid). The location of these species is provided in Table 3.27, below.

No other flora species of conservation significance under the provisions of the NC Act and/or the EPBC Act were observed within the development area.

A list of flora species observed within and/or surrounding the proposed development area is provided in the relevant Lot specific reports.

Table 3.27 Location of Type A Restricted Plants (*Nature Conservation Act 1992*)

Species	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Cymbidium canaliculatum</i> (x 5)	705865	7142083
<i>Brachychiton populneus</i>	705848	7142087
<i>Brachychiton populneus</i>	705844	7142092
<i>Brachychiton populneus</i>	704935	7142123
<i>Brachychiton populneus</i>	705775	7142120
<i>Brachychiton populneus</i>	705670	7142127
<i>Brachychiton populneus</i>	704969	7142167
<i>Brachychiton populneus</i>	705425	7142184

3.18.3 Habitat values

Habitat features associated with the proposed development area include:

- Canopy cover suitable for shelter, foraging and perching
- Hollow-bearing trees and stags
- Fissured/exfoliating tree bark
- Dense ground cover vegetation
- Woody debris (ie fallen/felled timber)
- Leaf litter
- Ephemeral watercourse habitat

The habitat value of the proposed development area is considered high due to the presence of extensive remnant vegetation. Dead stags and tree hollows were identified as potential habitat for arboreal mammals and foraging/nesting birds. Fallen timber and woody debris was identified as potential habitat for reptiles and other terrestrial species.

Three (3) incidental fauna species were recorded within (or adjacent to) the proposed development area, as indicated in Table 3.28.

Table 3.28 Incidental fauna species recorded

Common name	Species
Apostle Bird	<i>Struthidea cinerea</i>
Rufous Bettong	<i>Aepyprymnus rufescens</i>
Squatter Pigeons	<i>Geophaps scripta scripta</i> *

*Vulnerable (EPBC Act and NC Act)

Squatter pigeon (*Geophaps scripta scripta*) was detected, and is listed as Vulnerable under the provisions of the EPBC Act and NC Act. The location of the Squatter pigeons are presented in Table 3.29, below.

All other species detected are listed as Least Concern under the provisions of the NC Act, and are not listed under the provisions of the EPBC Act.

Table 3.29 Location of Endangered, Vulnerable or Near Threatened Species observed (*Nature Conservation Act 1992, EPBC Act 1999*)

Species	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Squatter pigeon</i>	706325	7142630
<i>Squatter pigeon</i>	706354	7142612



4 Conclusion

The proposed development areas discussed in this report occur within non-remnant vegetation, and RE communities classified as No Concern at Present and Of Concern.

A number of ESAs (typically associated with State Forests/Timber Reserves and Of Concern REs) have been identified within and within close proximity to the proposed development areas, however, the design has largely avoided mapped ESAs, wherever possible.

Unmapped stands of Brigalow (EPBC Threatened Ecological Community) have been identified within and adjacent to the proposed development areas. These vegetation communities are discussed in further detail throughout the report.

The NC Act listed Vulnerable *Gonocarpus urceolatus* (Rasp weed) has also been identified within the proposed development area. Squatter pigeons (*Geophaps scripta scripta*), which are listed as Vulnerable under the provisions of the EPBC Act and NC Act, were detected within the proposed development area. The location of these species is discussed within the report.

A number of Type A species as listed under the provisions of the NC Act were identified within the proposed development areas.

Typically, the habitat values associated with the proposed development areas are low to moderate. As to be expected, the riparian and/or remnant stands of vegetation offer the highest habitat value within the proposed development area.



5 References

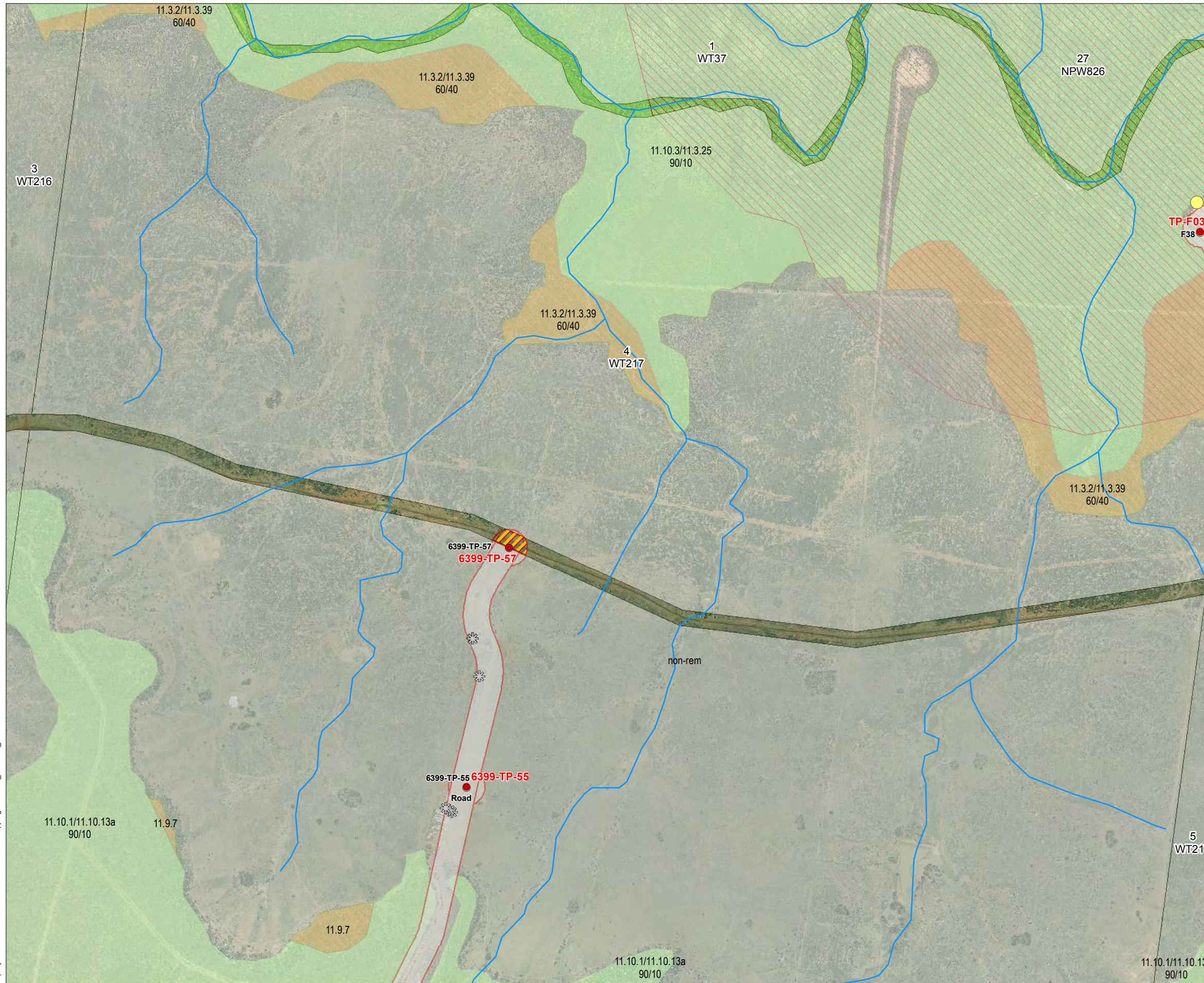
Eddie, C (2007) Field Guide to Trees and Shrubs of Eastern Queensland Oil and Gas Fields, First Edition, Santos Ltd, Adelaide.

Regional Ecosystem Mapping, Version 6.1, Queensland Government Department of Environment and Resource Management (DERM).



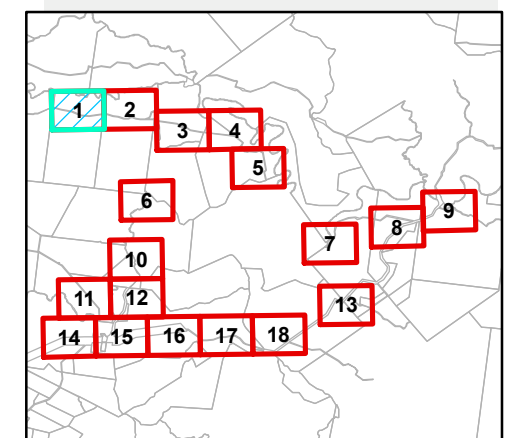
Appendix A

Map sheets of the proposed development area



Legend

- Notable Species
 - Notable Species Areas
 - Geotech Borehole Locations
 - Ground Truthed Areas
 - Drainage (100K)
 - ESA Category A
 - ESA Category B
 - ESA Category C
- Regional Ecosystem Mapping**
- Non-remnant / regrowth
 - Endangered - Sub-dominant
 - Endangered - Dominant
 - Of Concern - Sub-dominant
 - Of Concern - Dominant
 - Not Of Concern
 - Plantation forest
 - Water

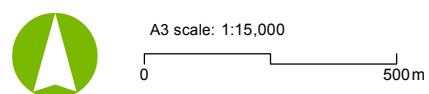


Notes: Regional Ecosystem (RE) colours depicted in this map are based on the Vegetation Management Status of the RE as described in the Regional Ecosystem Description Database. The Biodiversity Status of the vegetation is not shown on this map.

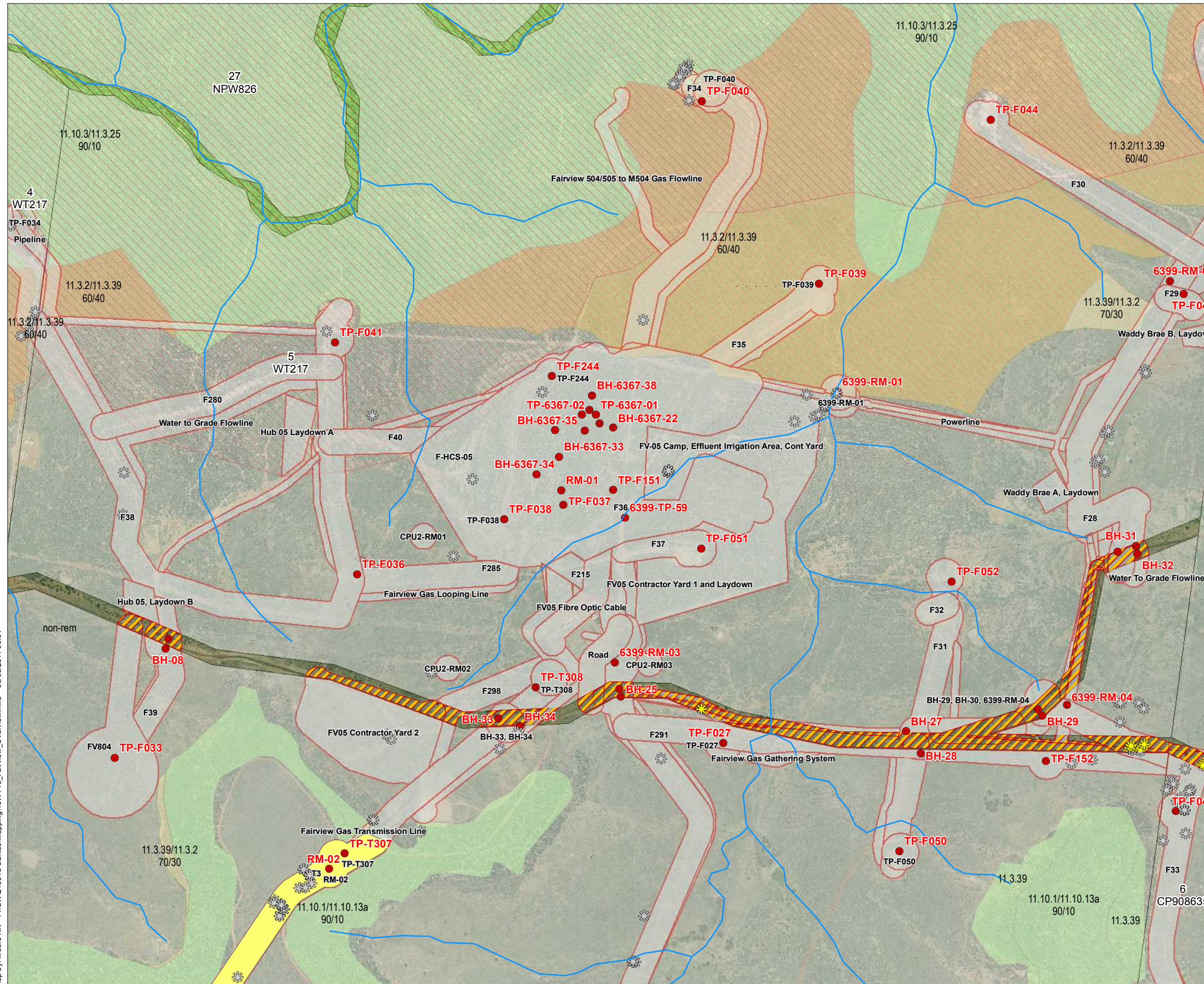
Date: 11/10/2011

Version: 1

Map by: Moore NK P:\CW\215648 Santos\Mapping\3\WT18_Fairview_Overview.mxd 09/06/2011 09:01

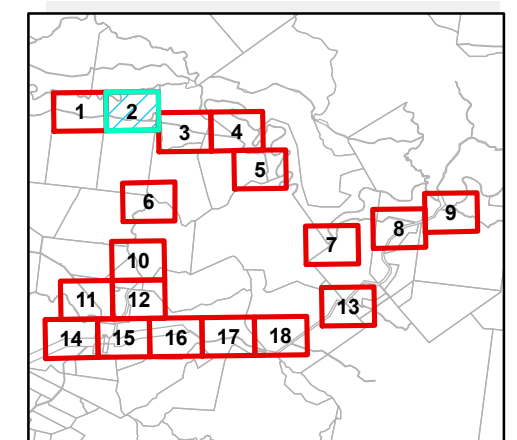


Job No: 215648
Coordinate system: GDA 1994 MGA Zone 55



Legend

- Notable Species
 - Notable Species Areas
 - Geotech Borehole Locations
 - Ground Truthed Areas
 - Drainage (100K)
 - ESA Category A
 - ESA Category B
 - ESA Category C
- Regional Ecosystem Mapping**
- Non-remnant / regrowth
 - Endangered - Sub-dominant
 - Endangered - Dominant
 - Of Concern - Sub-dominant
 - Of Concern - Dominant
 - Not Of Concern
 - Plantation forest
 - Water

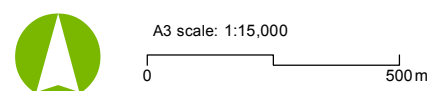


Notes: Regional Ecosystem (RE) colours depicted in this map are based on the Vegetation Management Status of the RE as described in the Regional Ecosystem Description Database. The Biodiversity Status of the vegetation is not shown on this map.

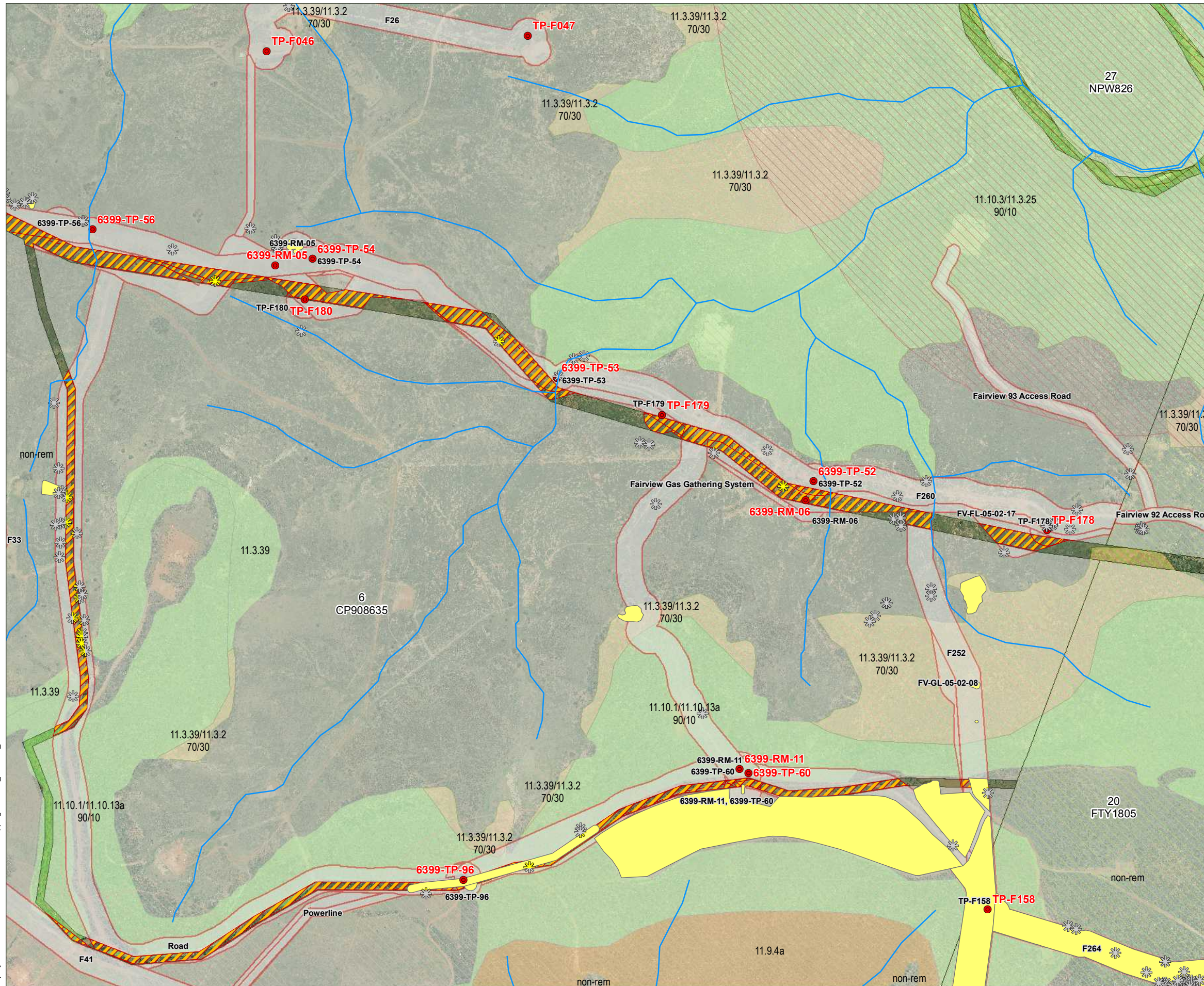
Date: 11/10/2011

Version: 1

Map by: Moore NK P:\CW\215648 Santos\Mapping\3\WT18_Fairview_Overview.mxd 09/06/2011 09:01

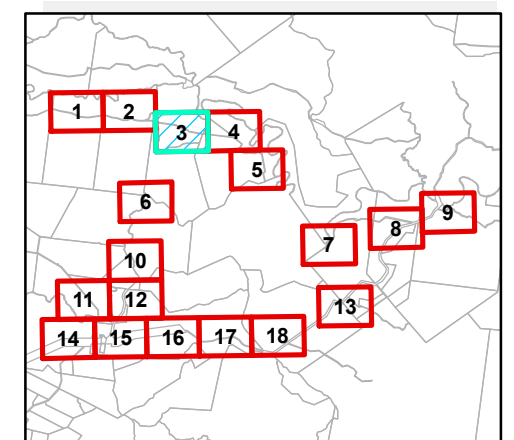


Job No: 215648
Coordinate system: GDA 1994 MGA Zone 55



Legend

- Notable Species
- Notable Species Areas
- Geotech Borehole Locations
- Ground Truthed Areas
- Drainage (100K)
- ESA Category A
- ESA Category B
- ESA Category C
- Regional Ecosystem Mapping**
- Non-remnant / regrowth
- Endangered - Sub-dominant
- Endangered - Dominant
- Of Concern - Sub-dominant
- Of Concern - Dominant
- Not Of Concern
- Plantation forest
- Water

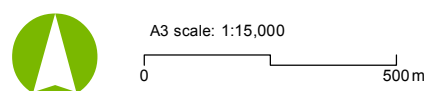


Notes: Regional Ecosystem (RE) colours depicted in this map are based on the Vegetation Management Status of the RE as described in the Regional Ecosystem Description Database. The Biodiversity Status of the vegetation is not shown on this map.

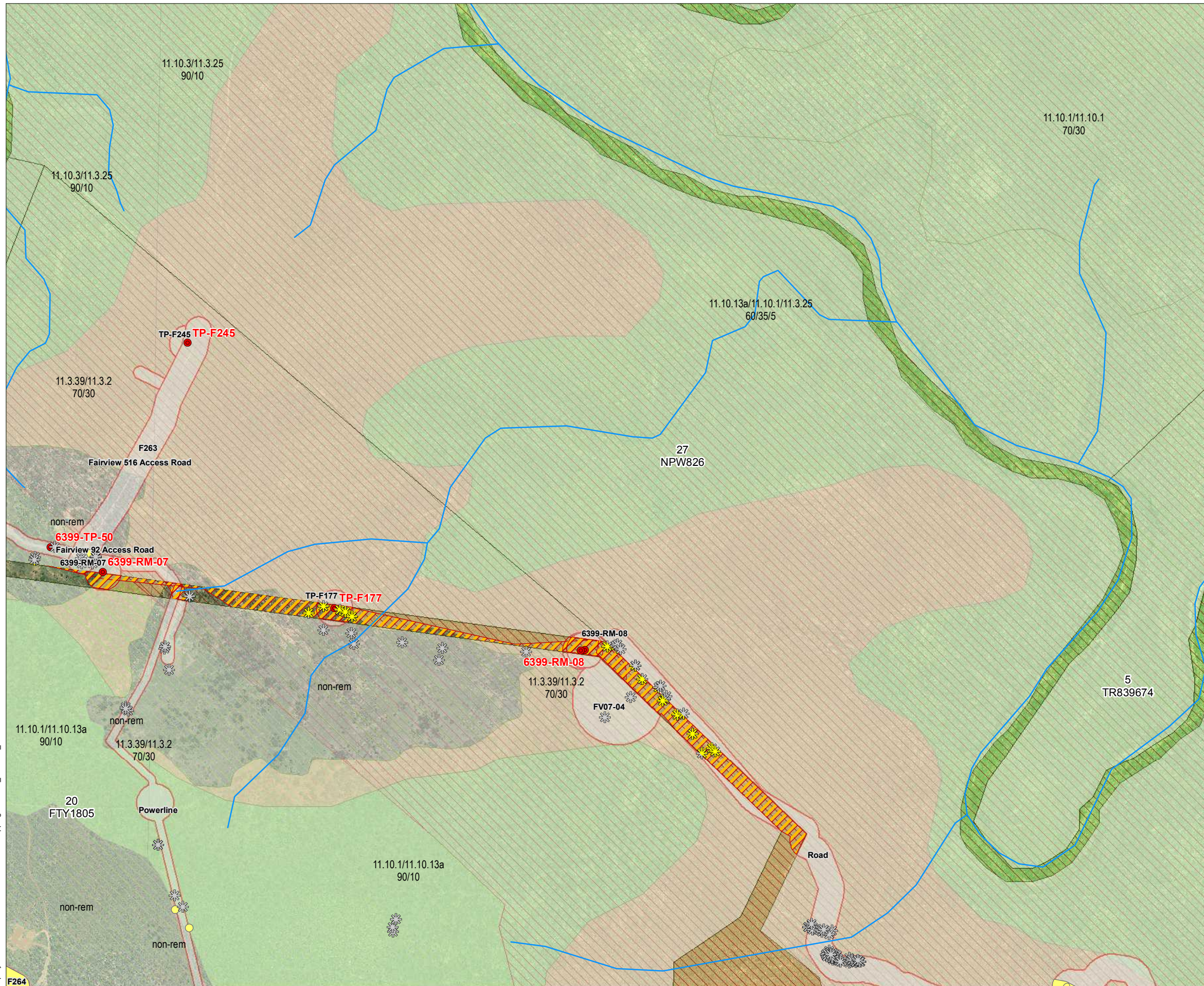
Date: 11/10/2011

Version: 1

Map by: Moore NK P:\CW\215648 Santos\Mapping\3\WT18_Fairview_Overview.mxd 09/06/2011 09:01

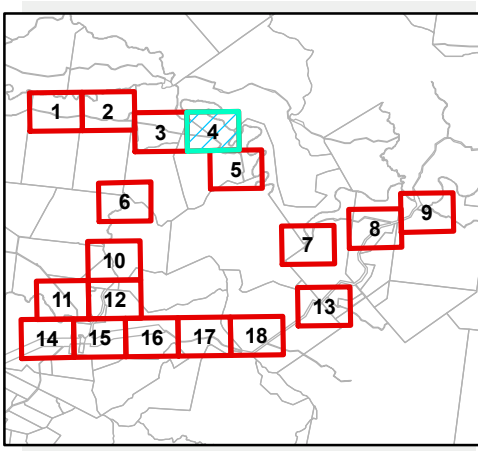


Job No: 215648
Coordinate system: GDA 1994 MGA Zone 55



Legend

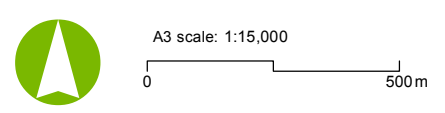
- Notable Species
- Notable Species Areas
- Geotech Borehole Locations
- Ground Truthed Areas
- Drainage (100K)
- ESA Category A
- ESA Category B
- ESA Category C
- Regional Ecosystem Mapping**
- Non-remnant / regrowth
- Endangered - Sub-dominant
- Endangered - Dominant
- Of Concern - Sub-dominant
- Of Concern - Dominant
- Not Of Concern
- Plantation forest
- Water



Notes: Regional Ecosystem (RE) colours depicted in this map are based on the Vegetation Management Status of the RE as described in the Regional Ecosystem Description Database. The Biodiversity Status of the vegetation is not shown on this map.

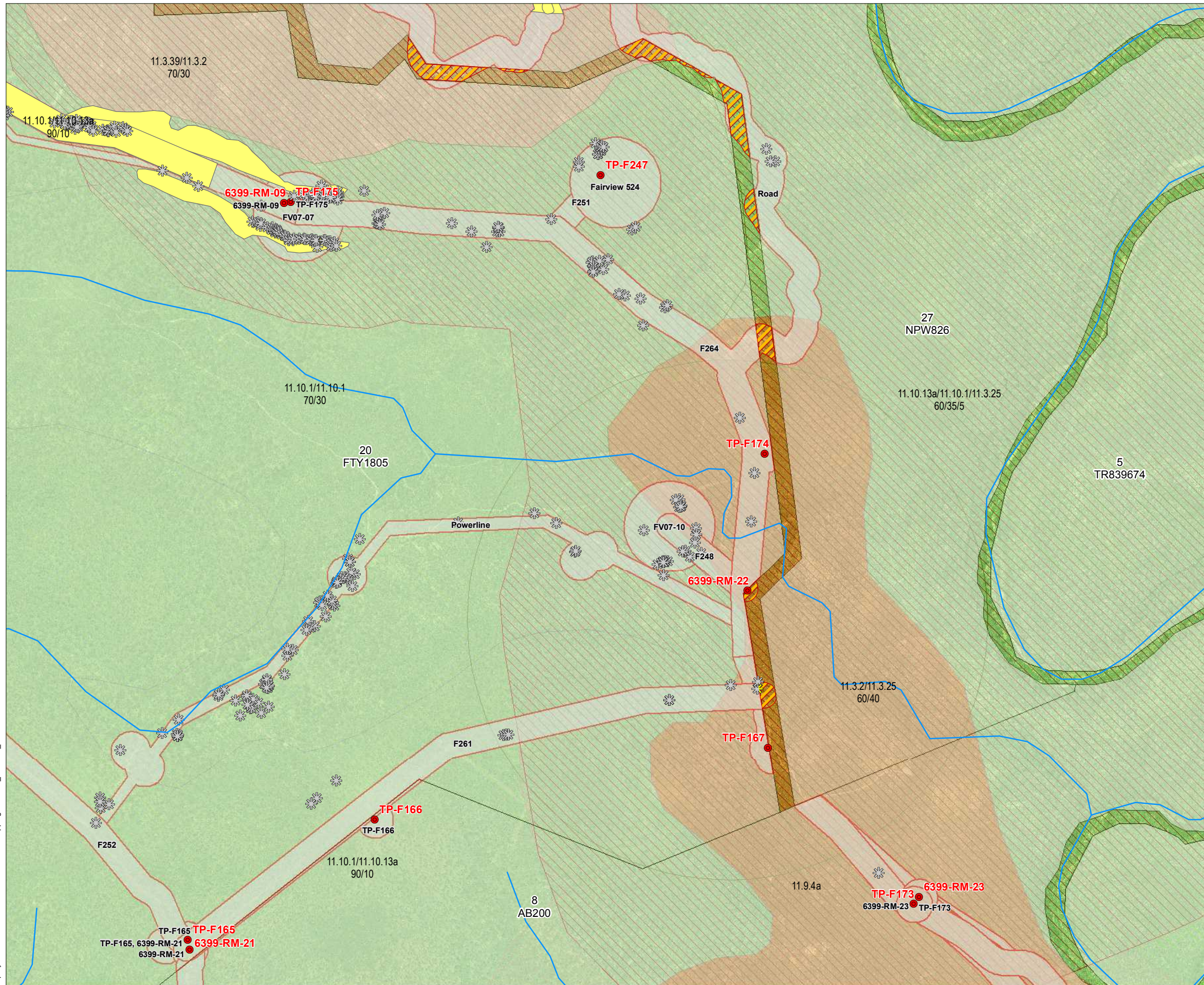
Date: 11/10/2011 Version: 1

Map by: Moore NK P:\CW\215648 Santos\Mapping\13\WT18_Fairview_Overview.mxd 09/06/2011 09:01



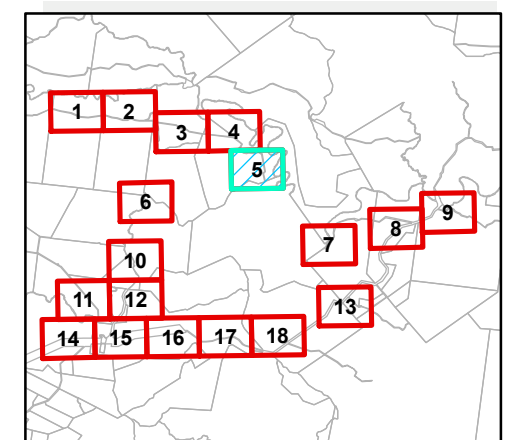
Job No: 215648
Coordinate system: GDA 1994 MGA Zone 55

Santos Fairview Casement Corridors



Legend

- Notable Species
 - Notable Species Areas
 - Geotech Borehole Locations
 - Ground Truthed Areas
 - Drainage (100K)
 - ESA Category A
 - ESA Category B
 - ESA Category C
- Regional Ecosystem Mapping**
- Non-remnant / regrowth
 - Endangered - Sub-dominant
 - Endangered - Dominant
 - Of Concern - Sub-dominant
 - Of Concern - Dominant
 - Not Of Concern
 - Plantation forest
 - Water

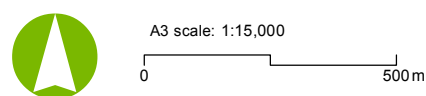


Notes: Regional Ecosystem (RE) colours depicted in this map are based on the Vegetation Management Status of the RE as described in the Regional Ecosystem Description Database. The Biodiversity Status of the vegetation is not shown on this map.

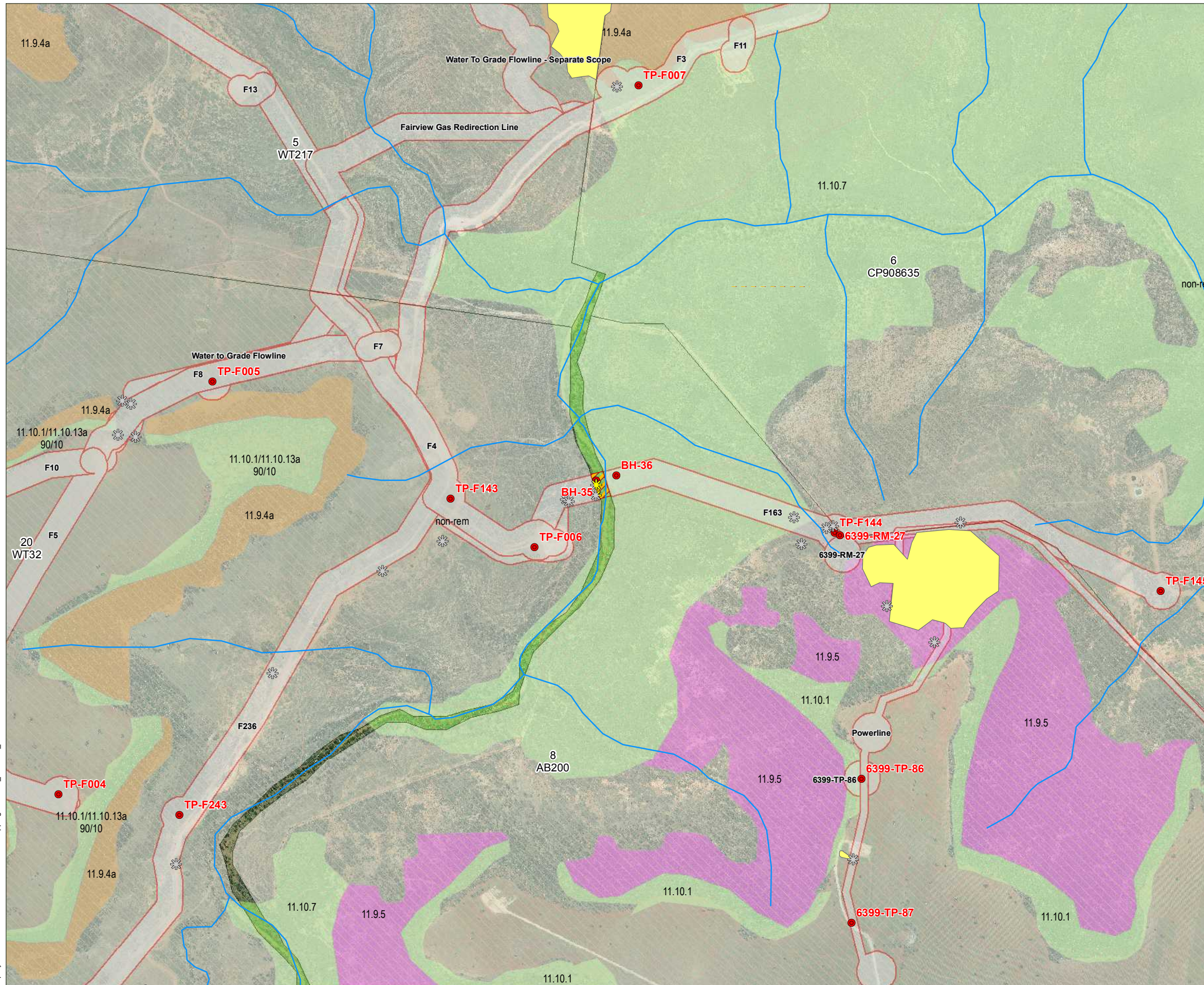
Date: 11/10/2011

Version: 1

Map by: Moore NK P:\CW\215648 Santos\Mapping\3\WT18_Fairview_Overview.mxd 09/06/2011 09:01

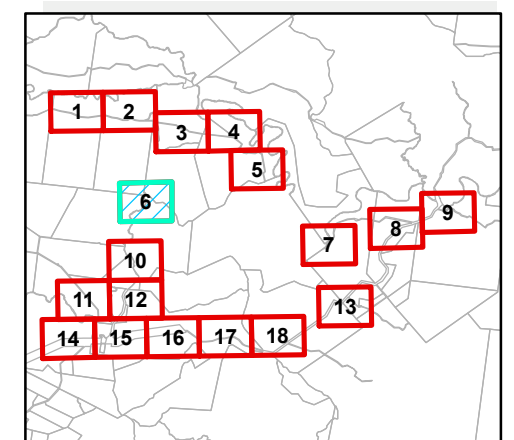


Job No: 215648
Coordinate system: GDA 1994 MGA Zone 55



Legend

- Notable Species
 - Notable Species Areas
 - Geotech Borehole Locations
 - Ground Truthed Areas
 - Drainage (100K)
 - ESA Category A
 - ESA Category B
 - ESA Category C
- Regional Ecosystem Mapping**
- Non-remnant / regrowth
 - Endangered - Sub-dominant
 - Endangered - Dominant
 - Of Concern - Sub-dominant
 - Of Concern - Dominant
 - Not Of Concern
 - Plantation forest
 - Water

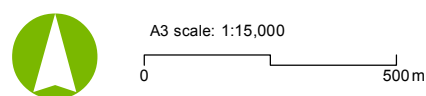


Notes: Regional Ecosystem (RE) colours depicted in this map are based on the Vegetation Management Status of the RE as described in the Regional Ecosystem Description Database. The Biodiversity Status of the vegetation is not shown on this map.

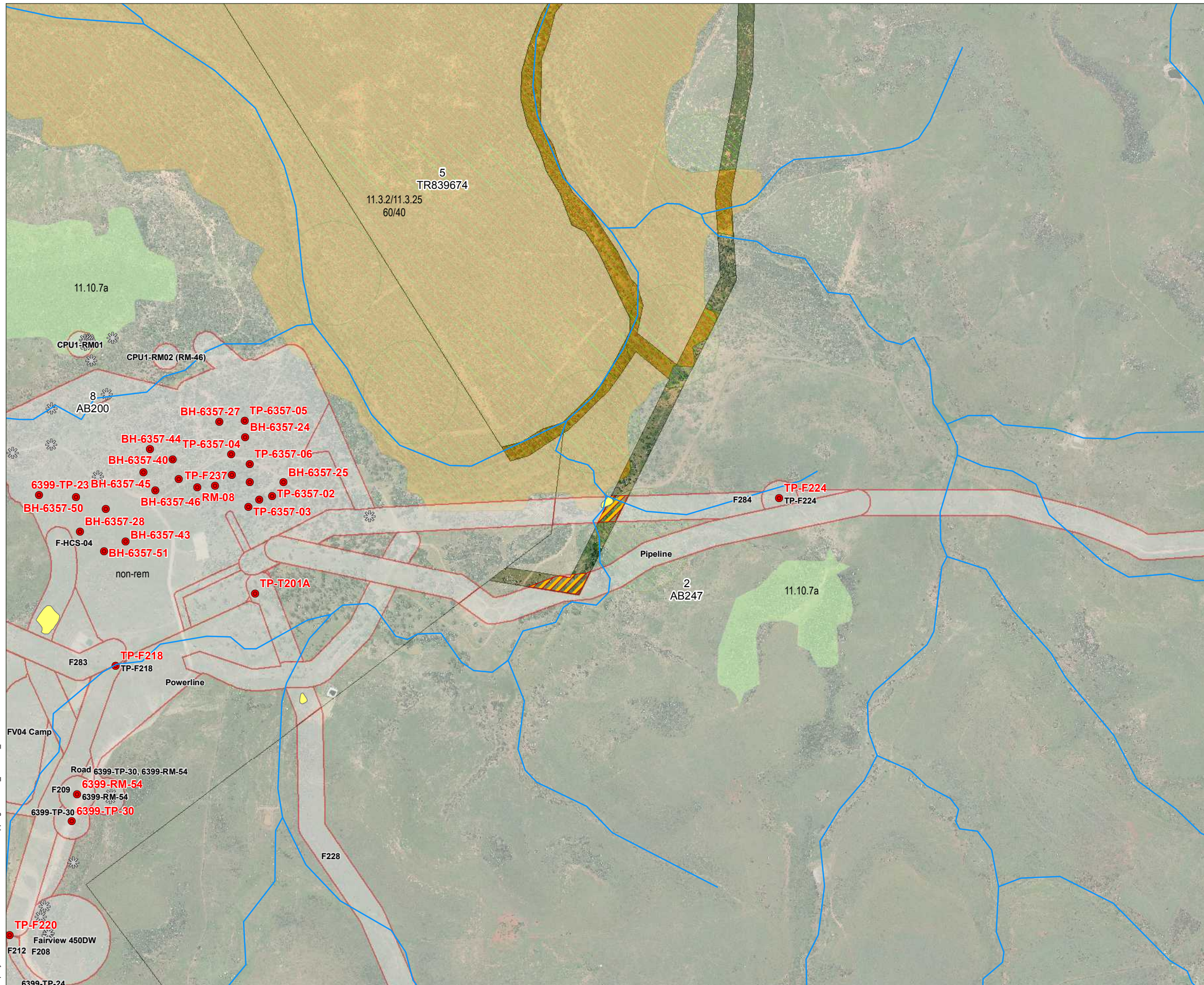
Date: 11/10/2011

Version: 1

Map by: Moore NK P:\CW\215648 Santos\Mapping\13\WT18_Fairview_Overview.mxd 09/06/2011 09:01

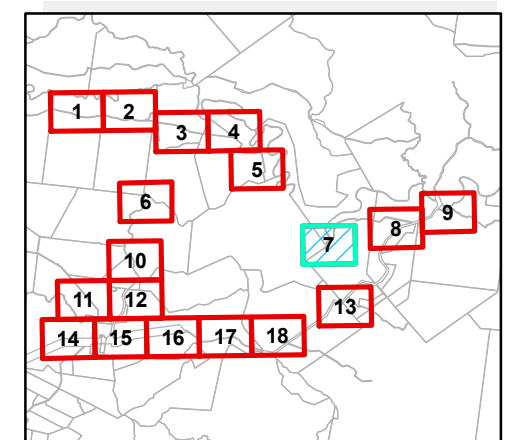


Job No: 215648
Coordinate system: GDA 1994 MGA Zone 55



Legend

- Notable Species
 - Notable Species Areas
 - Geotech Borehole Locations
 - Ground Truthed Areas
 - Drainage (100K)
 - ESA Category A
 - ESA Category B
 - ESA Category C
- Regional Ecosystem Mapping**
- Non-remnant / regrowth
 - Endangered - Sub-dominant
 - Endangered - Dominant
 - Of Concern - Sub-dominant
 - Of Concern - Dominant
 - Not Of Concern
 - Plantation forest
 - Water

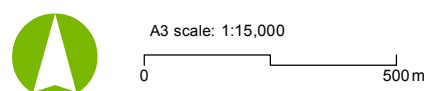


Notes: Regional Ecosystem (RE) colours depicted in this map are based on the Vegetation Management Status of the RE as described in the Regional Ecosystem Description Database. The Biodiversity Status of the vegetation is not shown on this map.

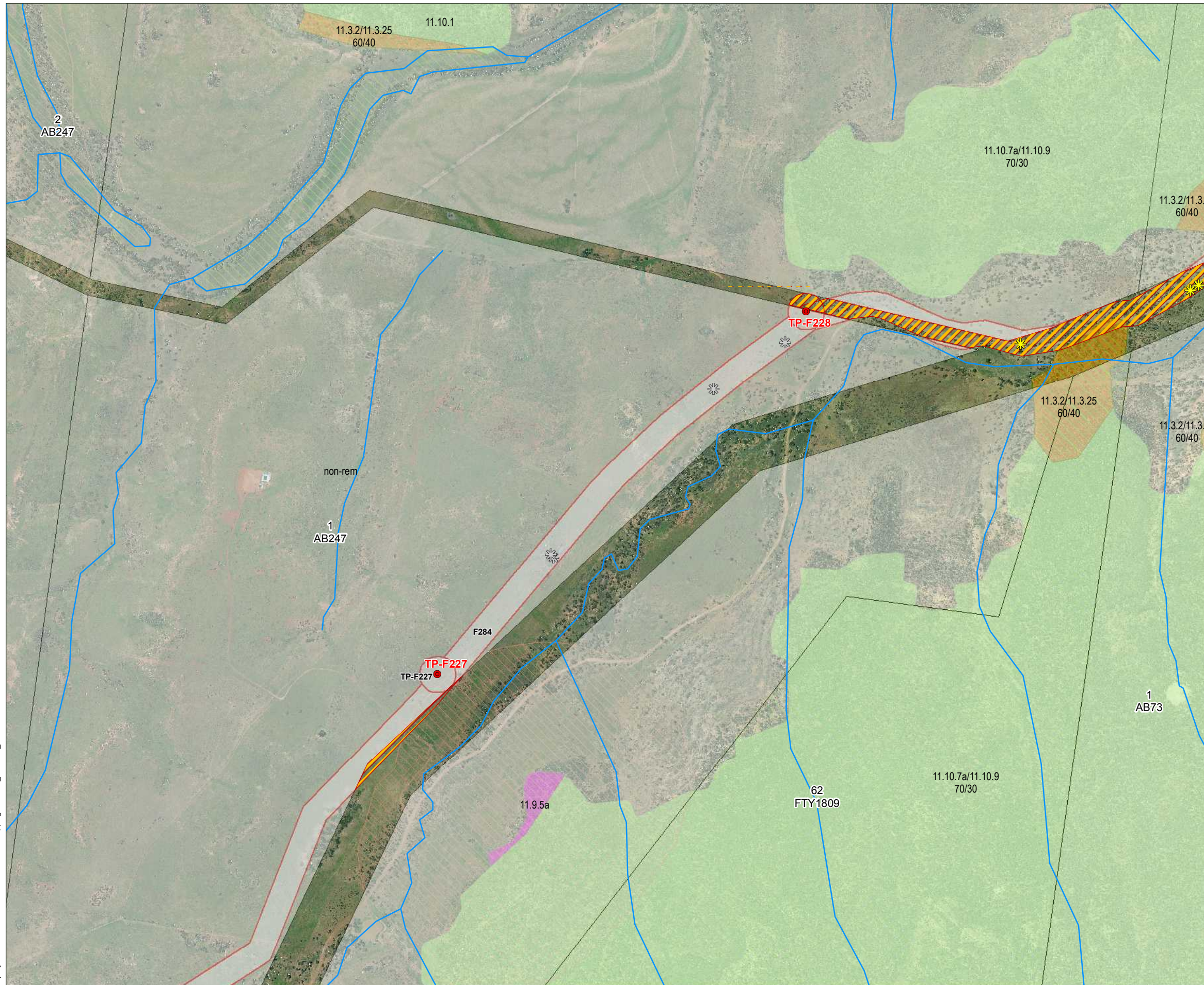
Date: 11/10/2011

Version: 1

Map by: Moore NK P:\CW\215648 Santos\Mapping\13\WT18_Fairview_Overview.mxd 09/06/2011 09:01

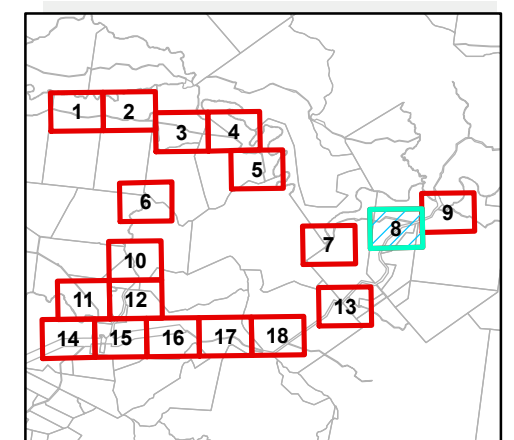


Job No: 215648
Coordinate system: GDA 1994 MGA Zone 55



Legend

- Notable Species
- Notable Species Areas
- Geotech Borehole Locations
- Ground Truthed Areas
- Drainage (100K)
- ESA Category A
- ESA Category B
- ESA Category C
- Regional Ecosystem Mapping**
- Non-remnant / regrowth
- Endangered - Sub-dominant
- Endangered - Dominant
- Of Concern - Sub-dominant
- Of Concern - Dominant
- Not Of Concern
- Plantation forest
- Water

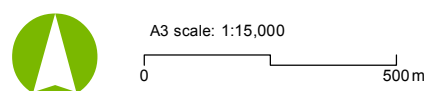


Notes: Regional Ecosystem (RE) colours depicted in this map are based on the Vegetation Management Status of the RE as described in the Regional Ecosystem Description Database. The Biodiversity Status of the vegetation is not shown on this map.

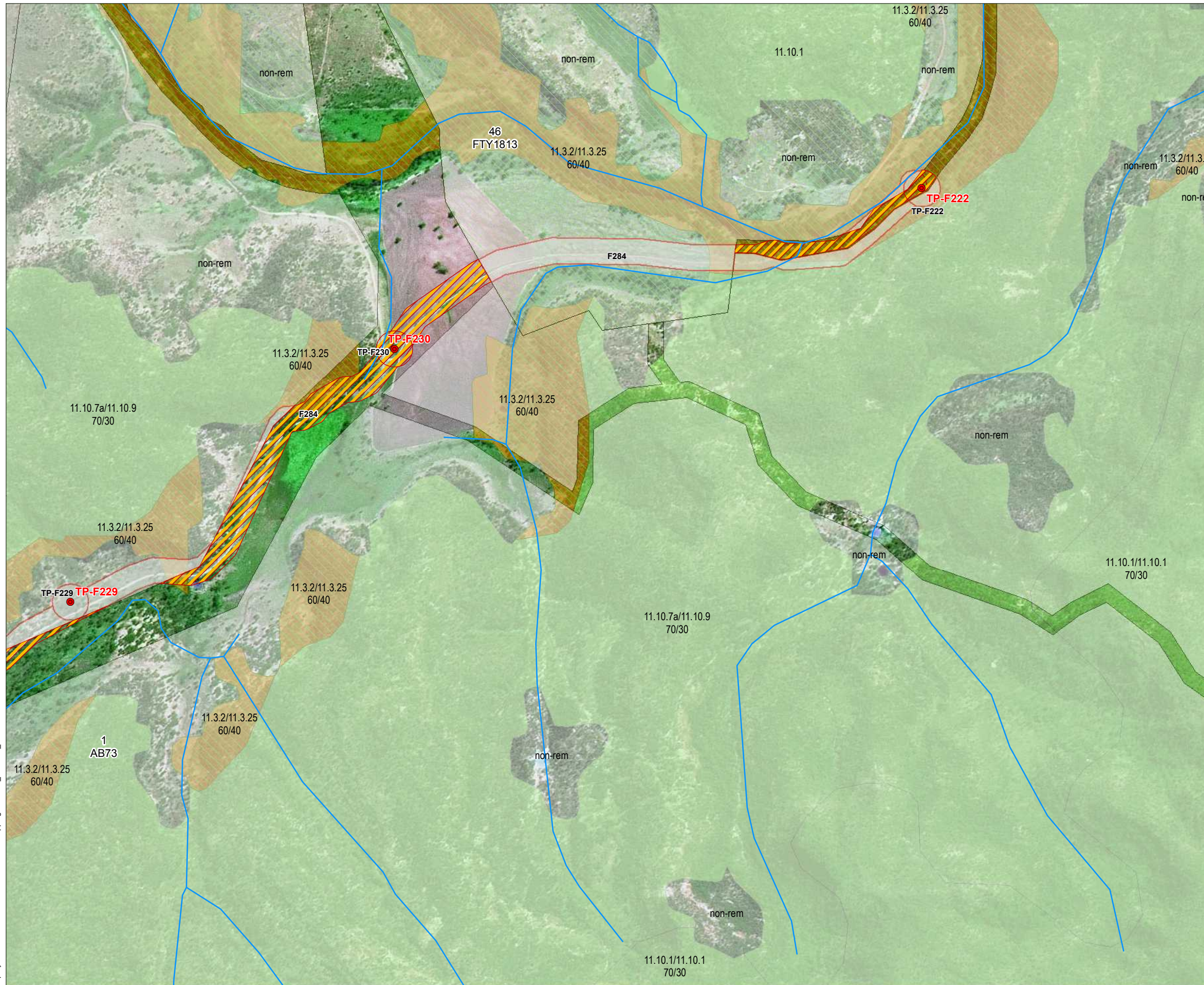
Date: 11/10/2011

Version: 1

Map by: Moore NK P:\CW\215648 Santos\Mapping\3\WT18_Fairview_Overview.mxd 09/06/2011 09:01

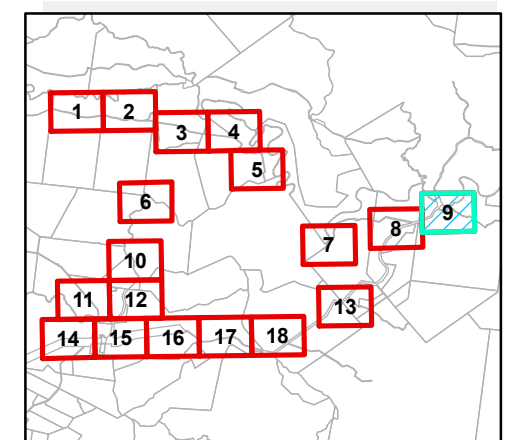


Job No: 215648
Coordinate system: GDA 1994 MGA Zone 55



Legend

- Notable Species
 - Notable Species Areas
 - Geotech Borehole Locations
 - Ground Truthed Areas
 - Drainage (100K)
 - ESA Category A
 - ESA Category B
 - ESA Category C
- Regional Ecosystem Mapping**
- Non-remnant / regrowth
 - Endangered - Sub-dominant
 - Endangered - Dominant
 - Of Concern - Sub-dominant
 - Of Concern - Dominant
 - Not Of Concern
 - Plantation forest
 - Water

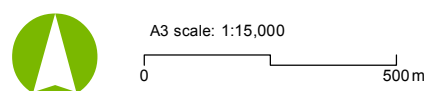


Notes: Regional Ecosystem (RE) colours depicted in this map are based on the Vegetation Management Status of the RE as described in the Regional Ecosystem Description Database. The Biodiversity Status of the vegetation is not shown on this map.

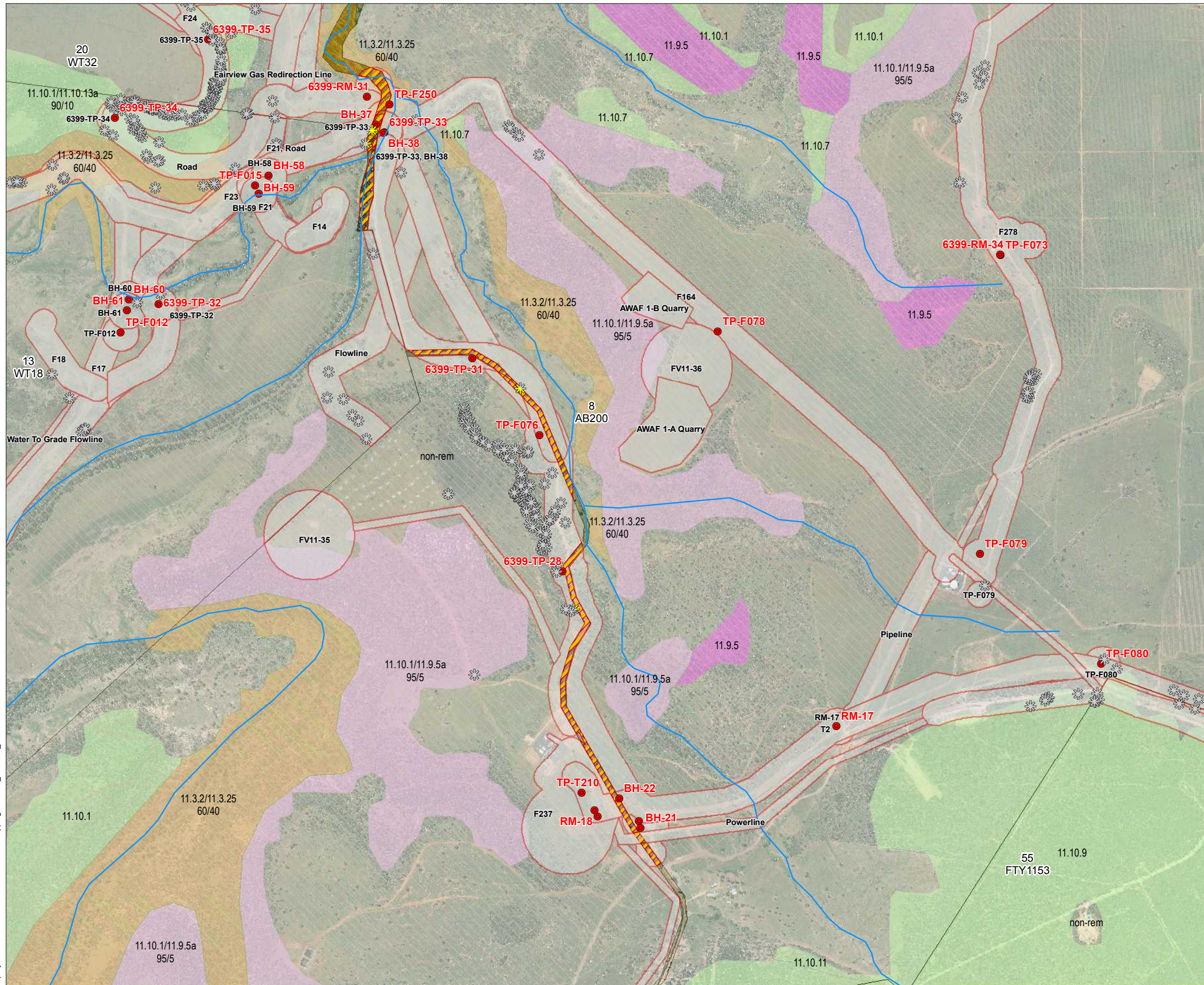
Date: 11/10/2011

Version: 1

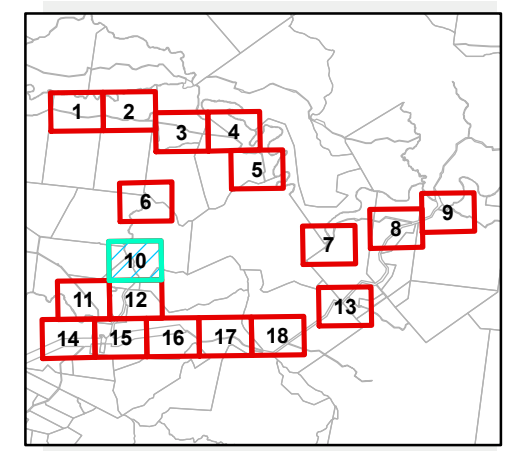
Map by: Moore NK P:\CW\215648 Santos\Mapping\13\WT18_Fairview_Overview.mxd 09/06/2011 09:01



Job No: 215648
Coordinate system: GDA 1994 MGA Zone 55



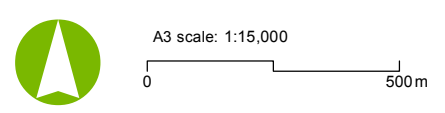
- Legend**
- Notable Species
 - Notable Species Areas
 - Geotech Borehole Locations
 - Ground Truthed Areas
 - Drainage (100K)
 - ESA Category A
 - ESA Category B
 - ESA Category C
- Regional Ecosystem Mapping**
- Non-remnant / regrowth
 - Endangered - Sub-dominant
 - Endangered - Dominant
 - Of Concern - Sub-dominant
 - Of Concern - Dominant
 - Not Of Concern
 - Plantation forest
 - Water



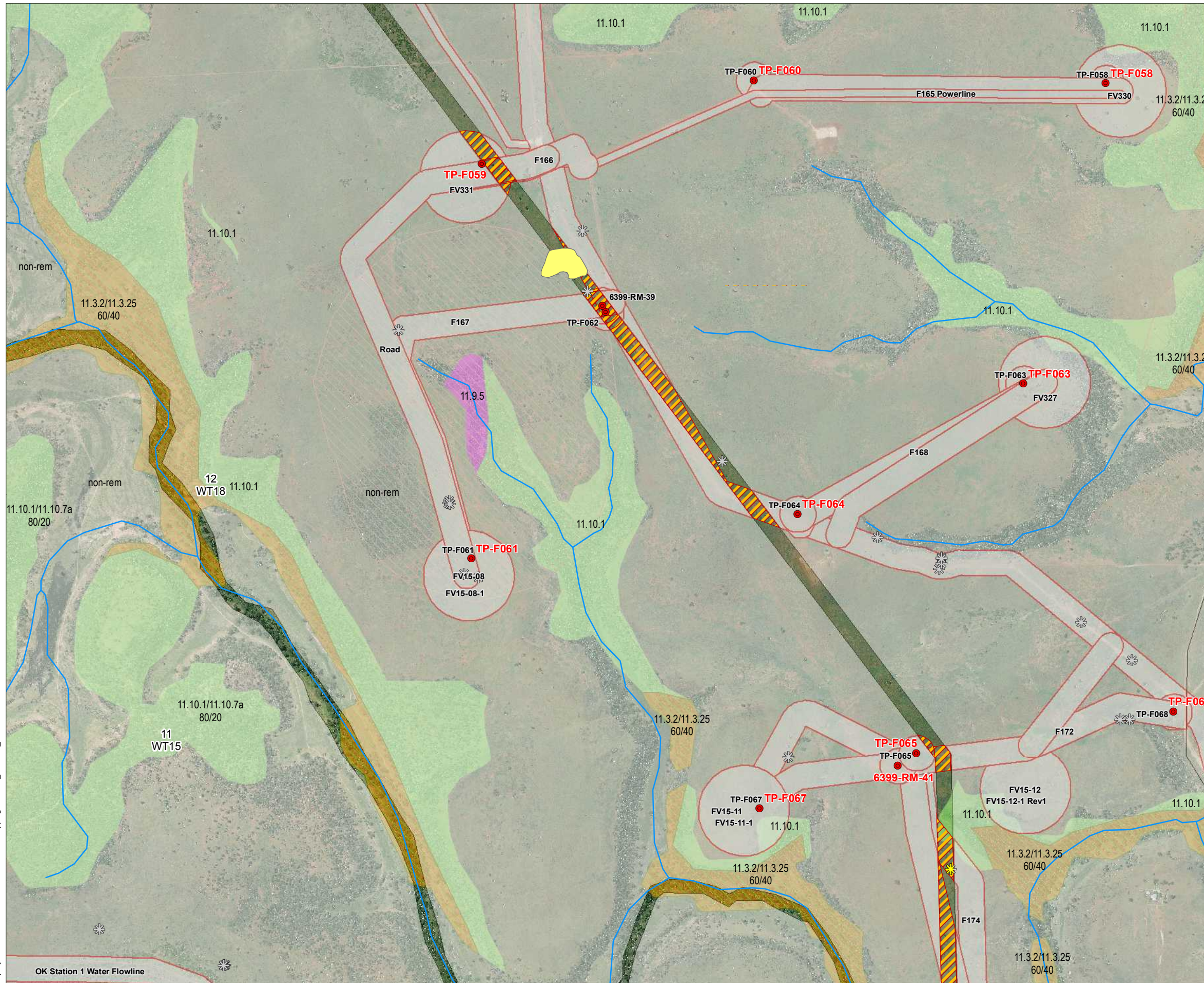
Notes: Regional Ecosystem (RE) colours depicted in this map are based on the Vegetation Management Status of the RE as described in the Regional Ecosystem Description Database. The Biodiversity Status of the vegetation is not shown on this map.

Date: 11/10/2011 Version: 1

Map by: Moore NK P:\CW\215648 Santos\Mapping\13\WT18_Fairview_Overview.mxd 09/06/2011 09:01

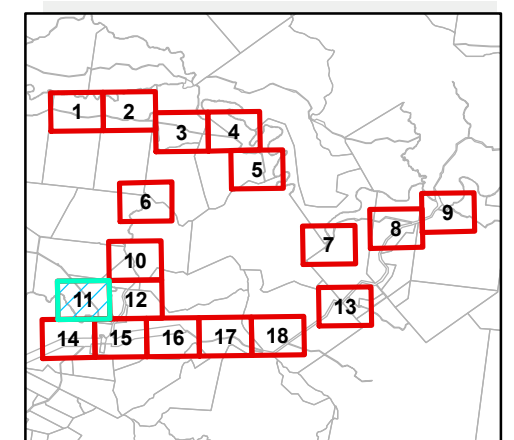


Job No: 215648
Coordinate system: GDA 1994 MGA Zone 55



Legend

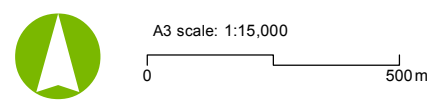
- Notable Species
- Notable Species Areas
- Geotech Borehole Locations
- Ground Truthed Areas
- Drainage (100K)
- ESA Category A
- ESA Category B
- ESA Category C
- Regional Ecosystem Mapping**
- Non-remnant / regrowth
- Endangered - Sub-dominant
- Endangered - Dominant
- Of Concern - Sub-dominant
- Of Concern - Dominant
- Not Of Concern
- Plantation forest
- Water



Notes: Regional Ecosystem (RE) colours depicted in this map are based on the Vegetation Management Status of the RE as described in the Regional Ecosystem Description Database. The Biodiversity Status of the vegetation is not shown on this map.

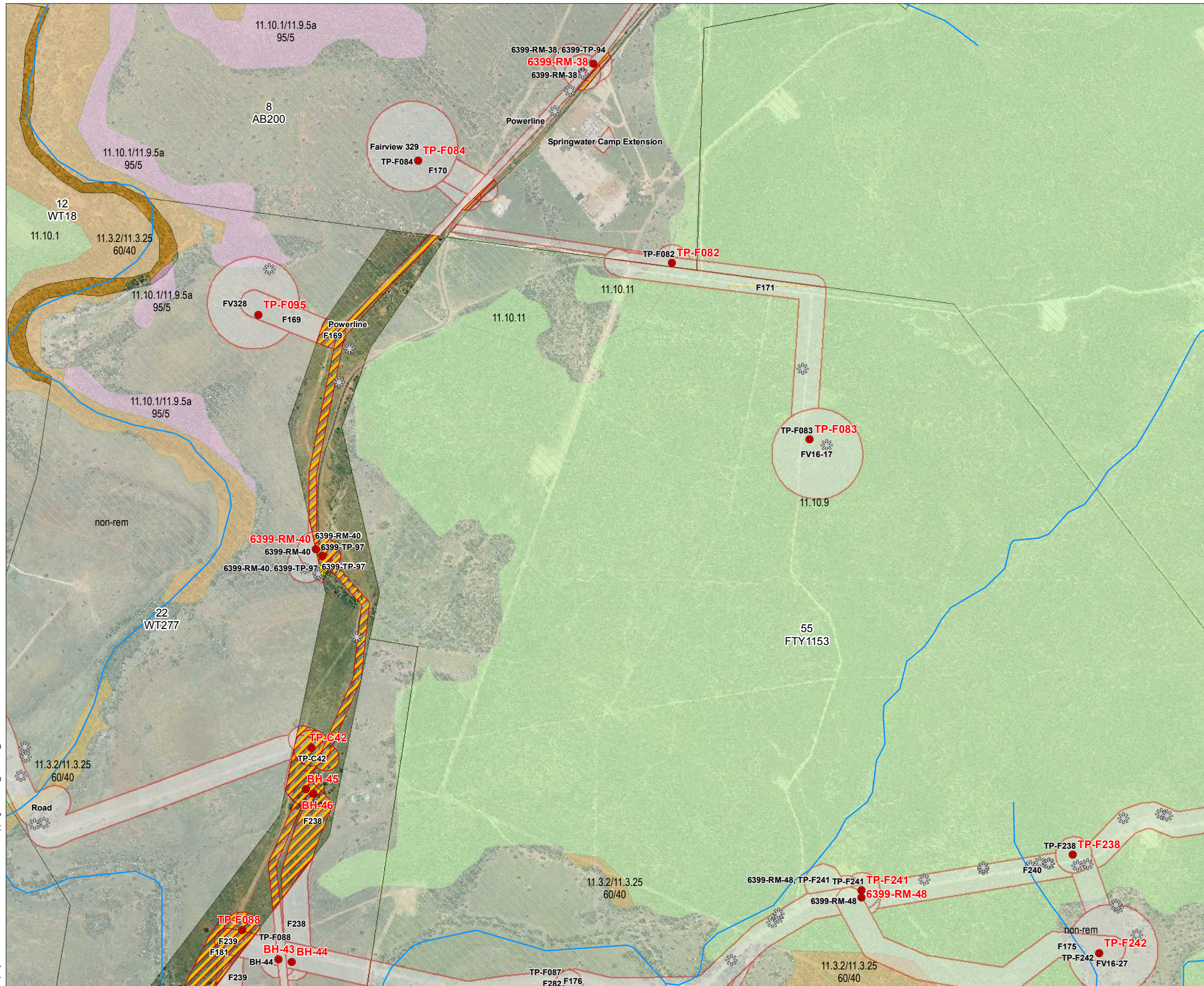
Date: 11/10/2011 Version: 1

Map by: Moore NK P:\CW\215648 Santos\Mapping\13\WT18_Fairview_Overview.mxd 09/06/2011 09:01



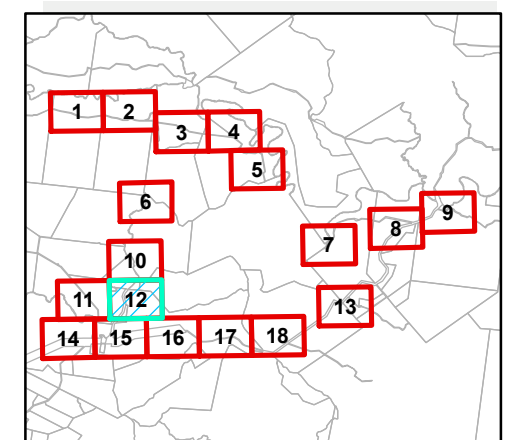
Job No: 215648
Coordinate system: GDA 1994 MGA Zone 55

Santos Fairview Casement Corridors



Legend

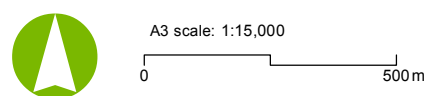
- Notable Species
 - Notable Species Areas
 - Geotech Borehole Locations
 - Ground Truthed Areas
 - Drainage (100K)
 - ESA Category A
 - ESA Category B
 - ESA Category C
- Regional Ecosystem Mapping**
- Non-remnant / regrowth
 - Endangered - Sub-dominant
 - Endangered - Dominant
 - Of Concern - Sub-dominant
 - Of Concern - Dominant
 - Not Of Concern
 - Plantation forest
 - Water



Notes: Regional Ecosystem (RE) colours depicted in this map are based on the Vegetation Management Status of the RE as described in the Regional Ecosystem Description Database. The Biodiversity Status of the vegetation is not shown on this map.

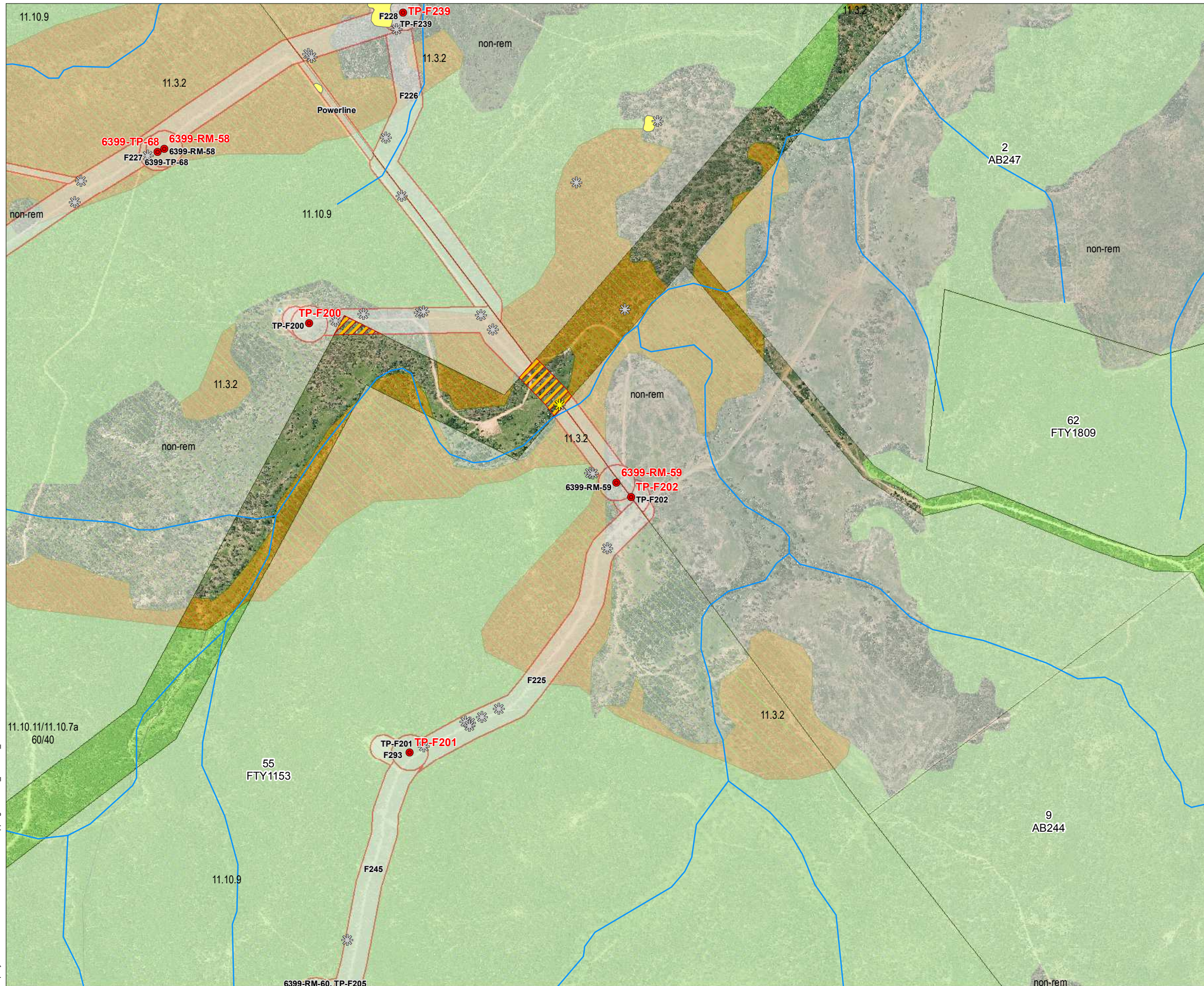
Date: 11/10/2011 Version: 1

Map by: Moore NK P:\CW\215648 Santos\Mapping\13\WT18_Fairview_Overview.mxd 09/06/2011 09:01



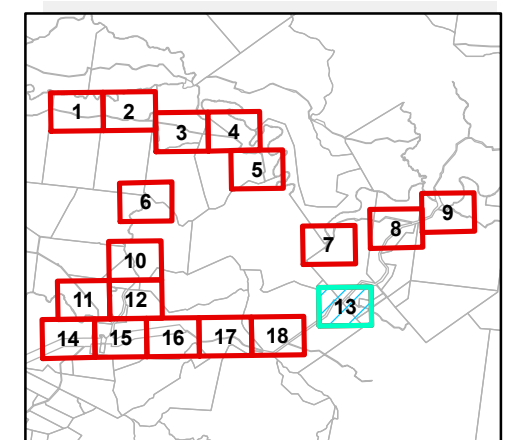
Job No: 215648
Coordinate system: GDA 1994 MGA Zone 55

Santos Fairview Casement Corridors



Legend

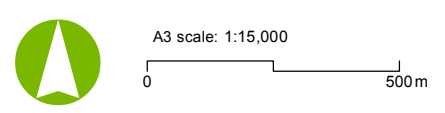
- Notable Species
- Notable Species Areas
- Geotech Borehole Locations
- Ground Truthed Areas
- Drainage (100K)
- ESA Category A
- ESA Category B
- ESA Category C
- Regional Ecosystem Mapping**
- Non-remnant / regrowth
- Endangered - Sub-dominant
- Endangered - Dominant
- Of Concern - Sub-dominant
- Of Concern - Dominant
- Not Of Concern
- Plantation forest
- Water



Notes: Regional Ecosystem (RE) colours depicted in this map are based on the Vegetation Management Status of the RE as described in the Regional Ecosystem Description Database. The Biodiversity Status of the vegetation is not shown on this map.

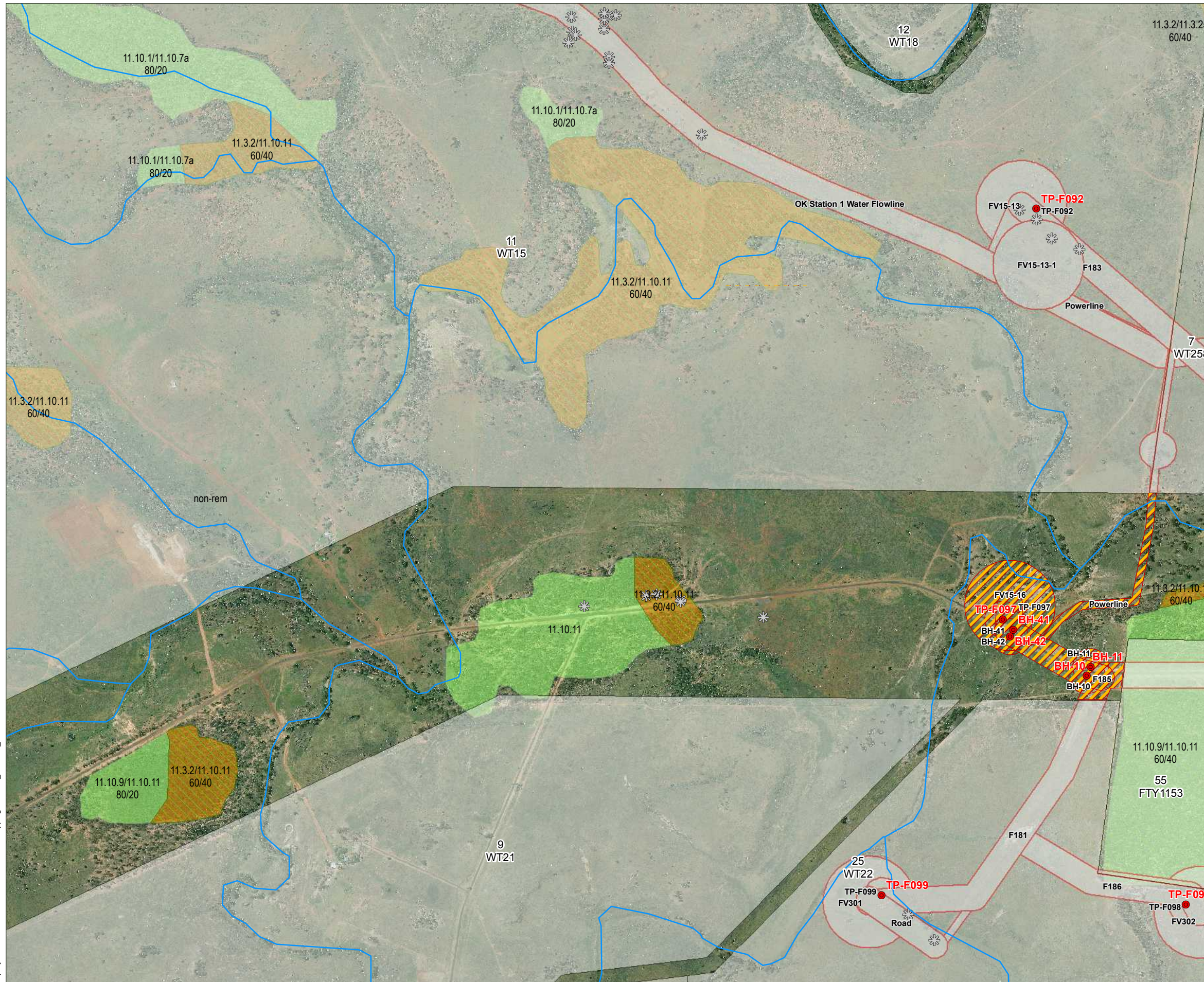
Date: 11/10/2011 Version: 1

Map by: Moore NK P:\CW\215648 Santos\Mapping\13\WT18_Fairview_Overview.mxd 09/06/2011 09:01



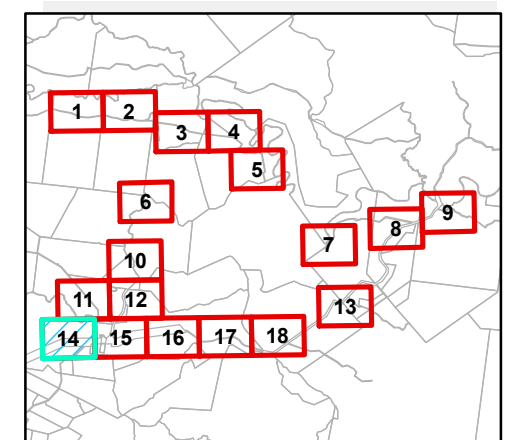
Job No: 215648
Coordinate system: GDA 1994 MGA Zone 55

Santos Fairview Casement Corridors



Legend

- Notable Species
 - Notable Species Areas
 - Geotech Borehole Locations
 - Ground Truthed Areas
 - Drainage (100K)
 - ESA Category A
 - ESA Category B
 - ESA Category C
- Regional Ecosystem Mapping**
- Non-remnant / regrowth
 - Endangered - Sub-dominant
 - Endangered - Dominant
 - Of Concern - Sub-dominant
 - Of Concern - Dominant
 - Not Of Concern
 - Plantation forest
 - Water

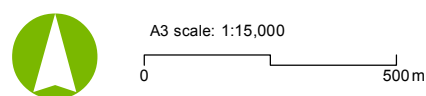


Notes: Regional Ecosystem (RE) colours depicted in this map are based on the Vegetation Management Status of the RE as described in the Regional Ecosystem Description Database. The Biodiversity Status of the vegetation is not shown on this map.

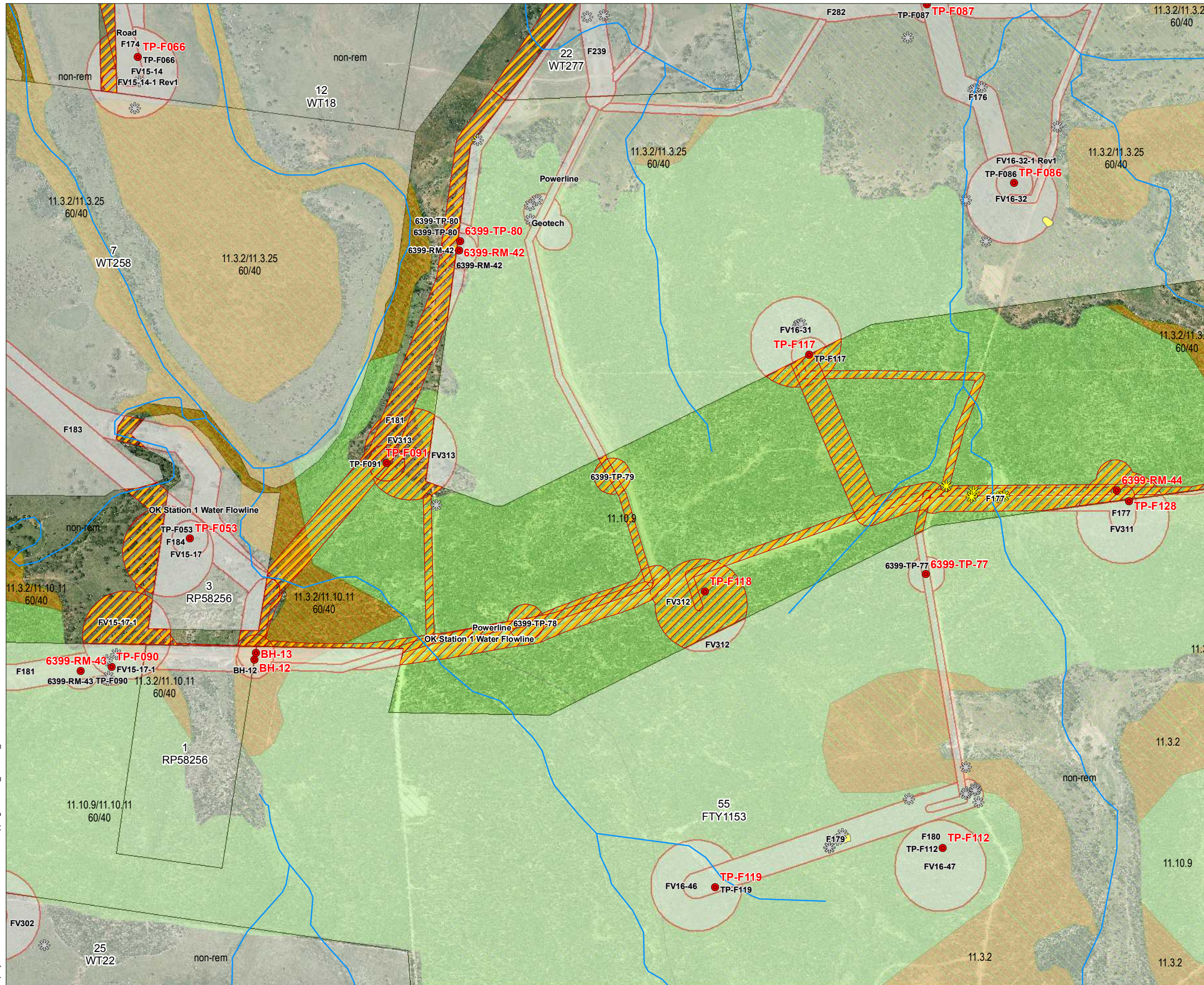
Date: 11/10/2011

Version: 1

Map by: Moore NK P:\CW\215648 Santos\Mapping\13\WT18_Fairview_Overview.mxd 09/06/2011 09:01

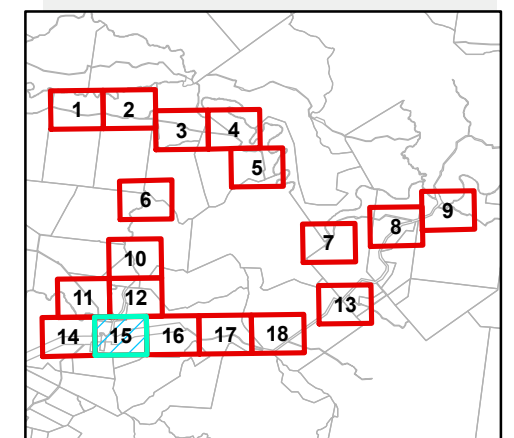


Job No: 215648
Coordinate system: GDA 1994 MGA Zone 55



Legend

- Notable Species
 - Notable Species Areas
 - Geotech Borehole Locations
 - Ground Truthed Areas
 - Drainage (100K)
 - ESA Category A
 - ESA Category B
 - ESA Category C
- Regional Ecosystem Mapping**
- Non-remnant / regrowth
 - Endangered - Sub-dominant
 - Endangered - Dominant
 - Of Concern - Sub-dominant
 - Of Concern - Dominant
 - Not Of Concern
 - Plantation forest
 - Water

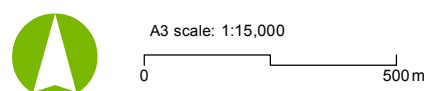


Notes: Regional Ecosystem (RE) colours depicted in this map are based on the Vegetation Management Status of the RE as described in the Regional Ecosystem Description Database. The Biodiversity Status of the vegetation is not shown on this map.

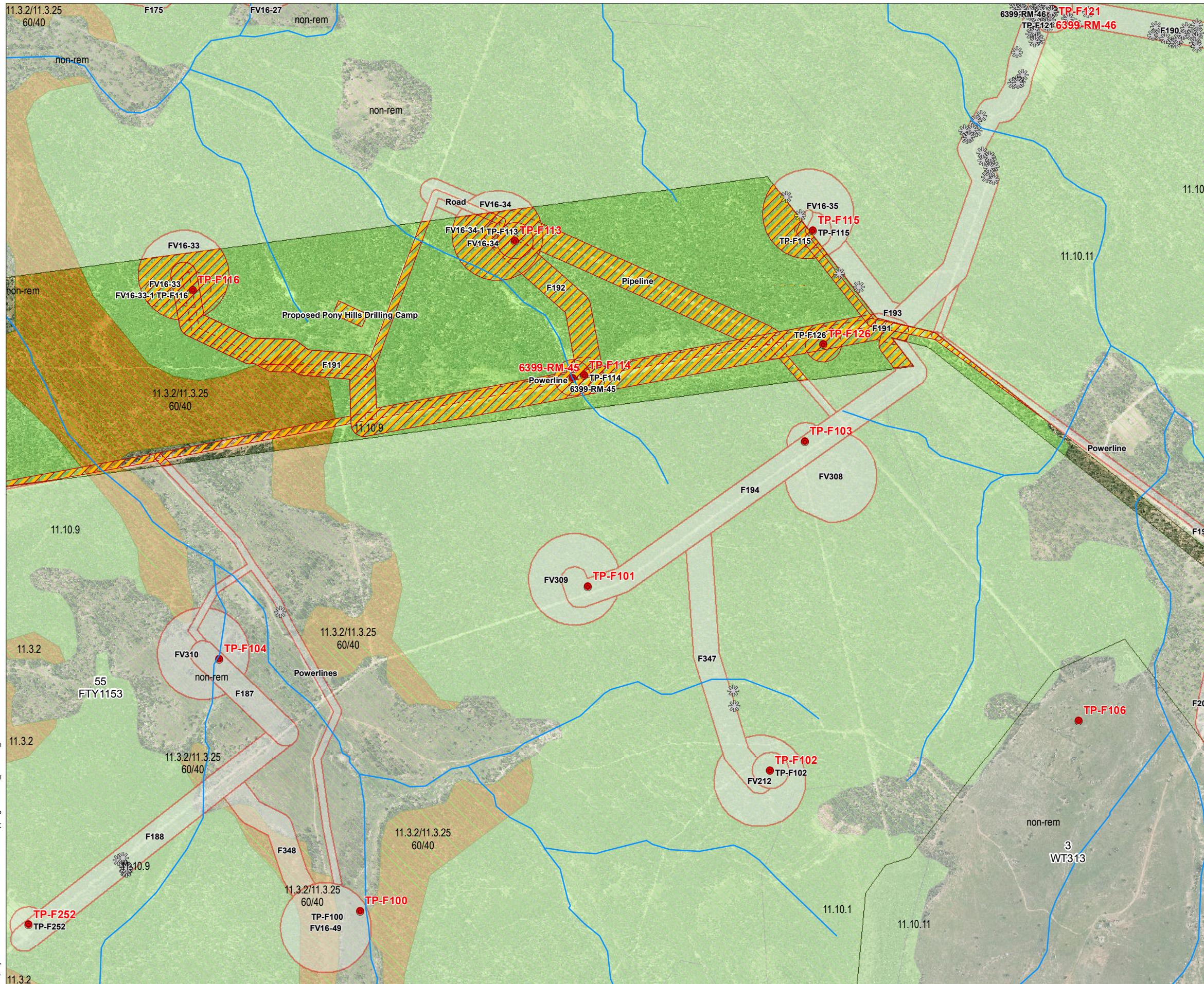
Date: 11/10/2011

Version: 1

Map by: Moore NK P:\CW\215648 Santos\Mapping\3\WT18_Fairview_Overview.mxd 09/06/2011 09:01

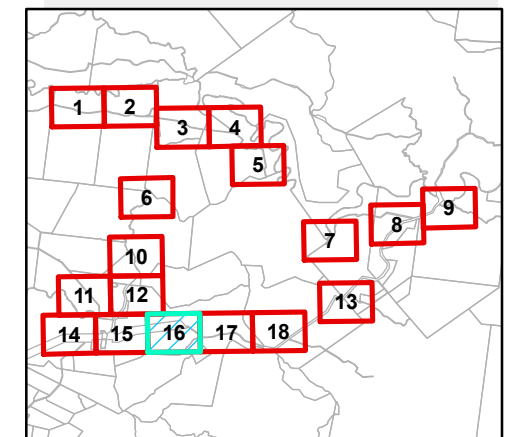


Job No: 215648
Coordinate system: GDA 1994 MGA Zone 55



Legend

- Notable Species Areas
- Ground Truthed Areas
- Geotech Borehole Locations
- Drainage (100K)
- ESA Category A
- ESA Category B
- ESA Category C
- Regional Ecosystem Mapping**
- Non-remnant / regrowth
- Endangered - Sub-dominant
- Endangered - Dominant
- Of Concern - Sub-dominant
- Of Concern - Dominant
- Not Of Concern
- Plantation forest
- Water

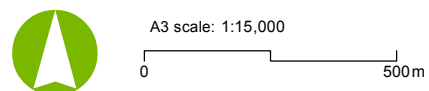


Notes: Regional Ecosystem (RE) colours depicted in this map are based on the Vegetation Management Status of the RE as described in the Regional Ecosystem Description Database. The Biodiversity Status of the vegetation is not shown on this map.

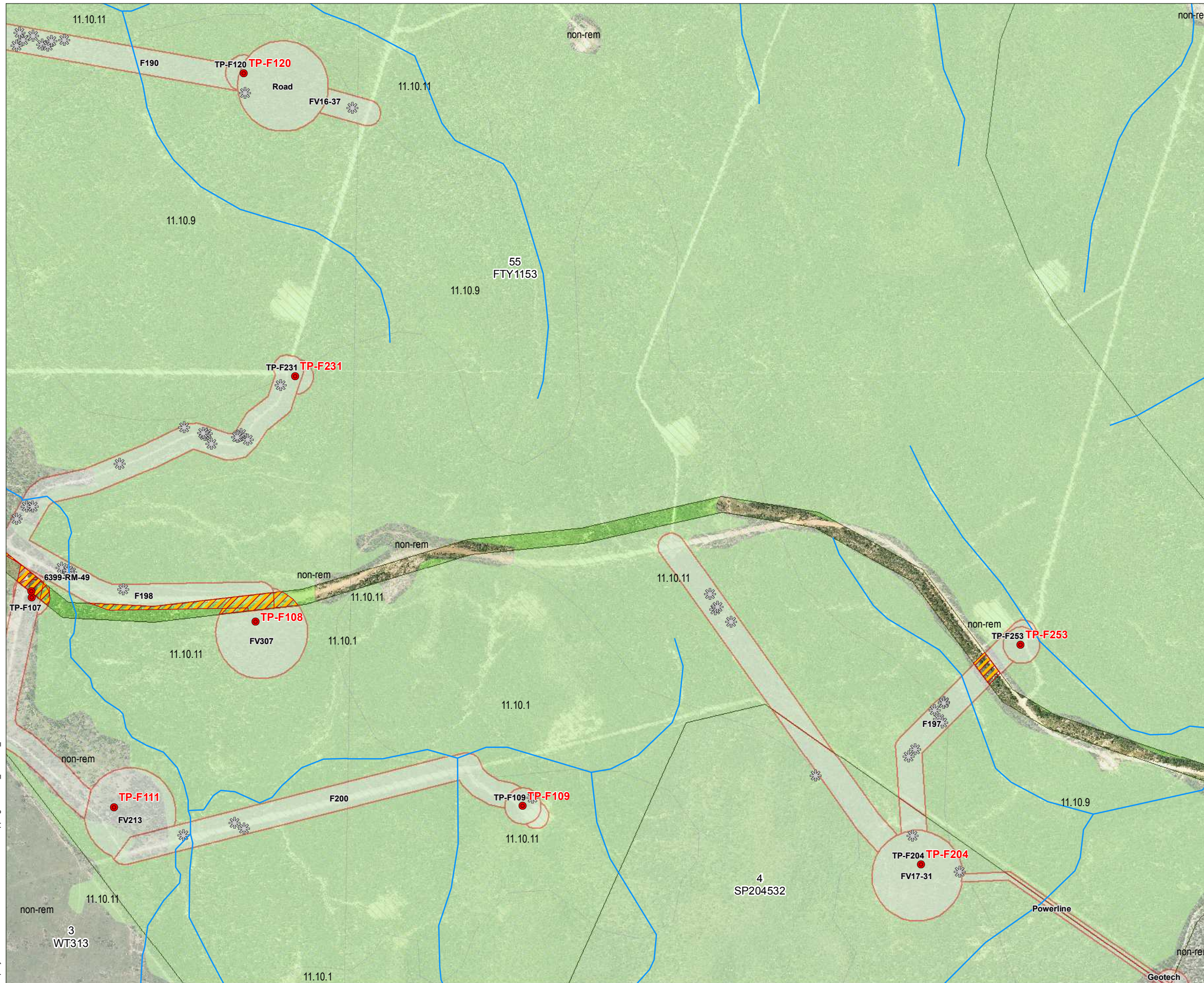
Date: 11/10/2011

Version: 1

Map by: Moore NK P:\CW\215648 Santos\Mapping\13\WT18_Fairview_Overview.mxd 09/06/2011 09:01

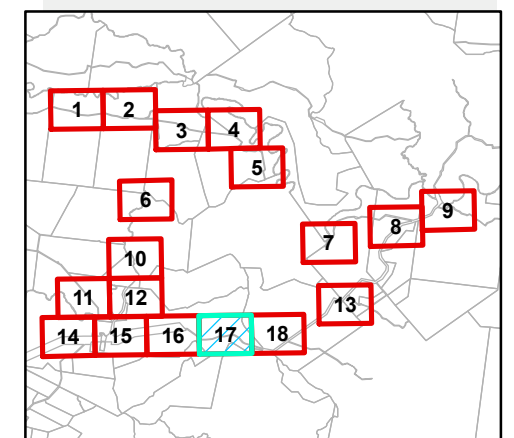


Job No: 215648
Coordinate system: GDA 1994 MGA Zone 55



Legend

- Notable Species
 - Notable Species Areas
 - Geotech Borehole Locations
 - Ground Truthed Areas
 - Drainage (100K)
 - ESA Category A
 - ESA Category B
 - ESA Category C
- Regional Ecosystem Mapping**
- Non-remnant / regrowth
 - Endangered - Sub-dominant
 - Endangered - Dominant
 - Of Concern - Sub-dominant
 - Of Concern - Dominant
 - Not Of Concern
 - Plantation forest
 - Water

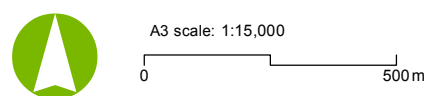


Notes: Regional Ecosystem (RE) colours depicted in this map are based on the Vegetation Management Status of the RE as described in the Regional Ecosystem Description Database. The Biodiversity Status of the vegetation is not shown on this map.

Date: 11/10/2011

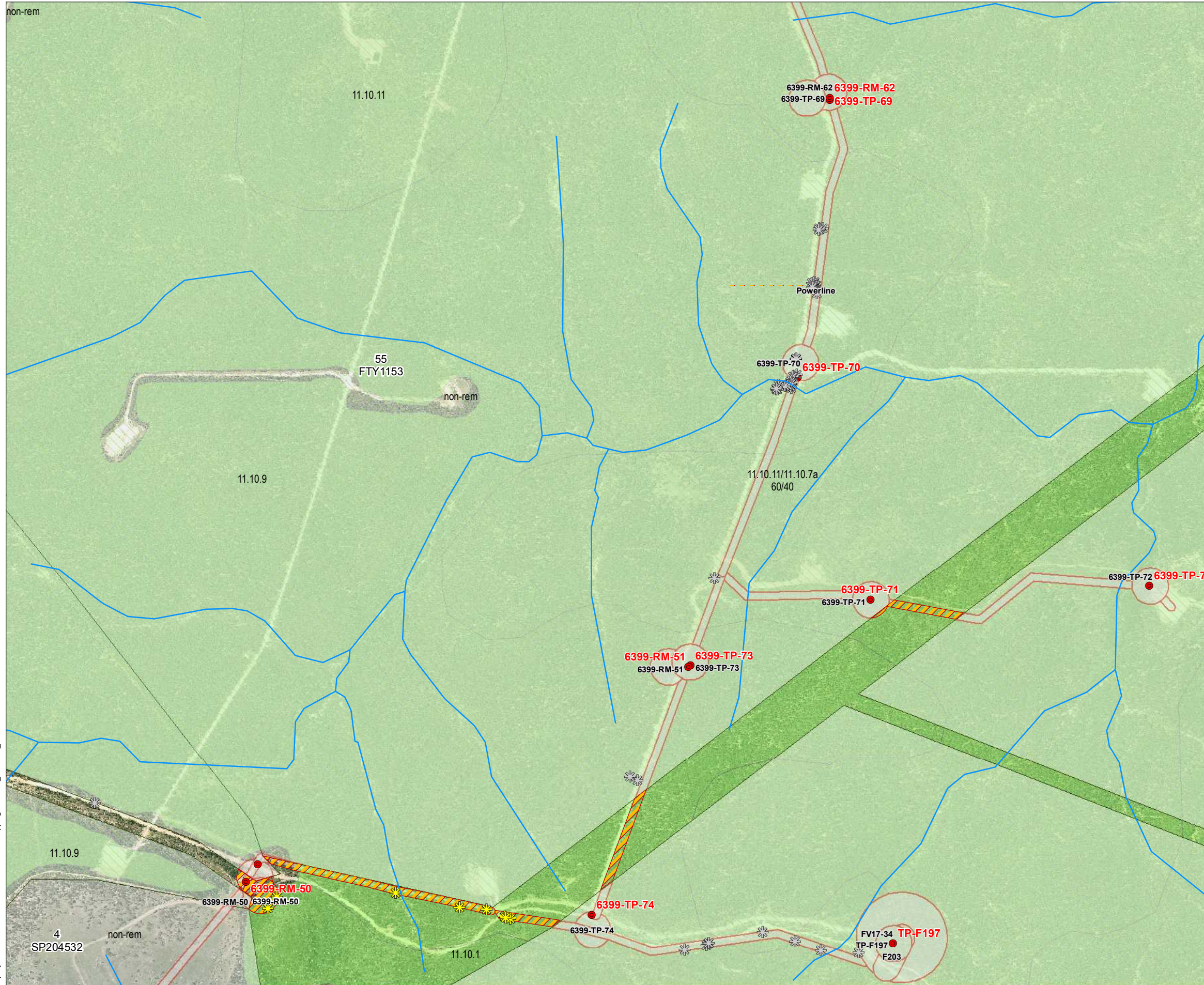
Version: 1

Map by: Moore NK P:\CW\215648 Santos\Mapping\13\WT18_Fairview_Overview.mxd 09/06/2011 09:01



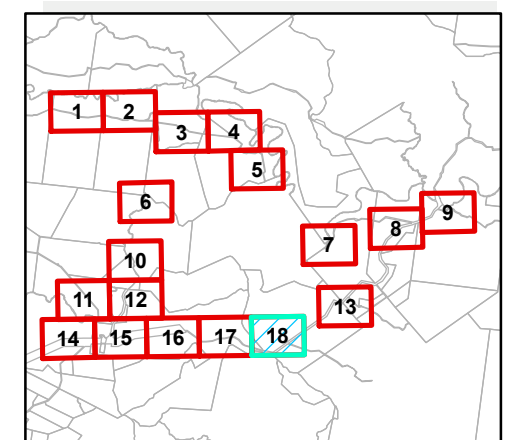
Job No: 215648
Coordinate system: GDA 1994 MGA Zone 55

Santos Fairview Casement Corridors



Legend

- Notable Species
 - Notable Species Areas
 - Geotech Borehole Locations
 - Ground Truthed Areas
 - Drainage (100K)
 - ESA Category A
 - ESA Category B
 - ESA Category C
- Regional Ecosystem Mapping**
- Non-remnant / regrowth
 - Endangered - Sub-dominant
 - Endangered - Dominant
 - Of Concern - Sub-dominant
 - Of Concern - Dominant
 - Not Of Concern
 - Plantation forest
 - Water

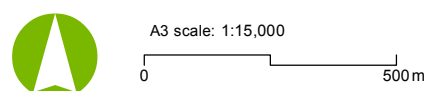


Notes: Regional Ecosystem (RE) colours depicted in this map are based on the Vegetation Management Status of the RE as described in the Regional Ecosystem Description Database. The Biodiversity Status of the vegetation is not shown on this map.

Date: 11/10/2011

Version: 1

Map by: Moore NK P:\CW\215648 Santos\Mapping\13\WT18_Fairview_Overview.mxd 09/06/2011 09:01



Job No: 215648
Coordinate system: GDA 1994 MGA Zone 55

Santos Fairview Casement Corridors



Aurecon Australia Pty Ltd

ABN 54 005 139 873

Level 14, 32 Turbot Street
Brisbane QLD 4000

Locked Bag 331
Brisbane QLD 4001
Australia

T +61 7 3173 8000

F +61 7 3173 8001

E brisbane@aurecongroup.com

W aurecongroup.com

Aurecon offices are located in:
Angola, Australia, Bahrain, Botswana,
China, Ethiopia, Hong Kong, Indonesia,
Lesotho, Libya, Malawi, Mozambique,
Namibia, New Zealand, Nigeria,
Philippines, Singapore, South Africa,
Swaziland, Tanzania, Thailand, Uganda,
United Arab Emirates, Vietnam.